User Guide to the 2017 Period/2016 Cohort Linked Birth/Infant Death Public Use File

2017 Period/2016 Cohort Linked Birth/Infant Death Data Set

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Introduction

The linked birth/infant death data set (linked file) is now being released in one format that can be used for both period data and birth cohort data. This documentation is for the 2017 period linked file and the 2016 cohort linked file.

Period file - The 2017 period linked birth/infant death data set includes two data files. The first file is the "numerator" file, which consists of all infant deaths occurring in 2017 linked to their corresponding birth certificates, whether the birth occurred in 2016 or 2017. The second file is the "denominator" file, which consists of all births occurring in 2017. It is used to provide denominators for rate computations. These same two data files are also available for Puerto Rico and Guam.

User Created Cohort file - The 2016 birth cohort linked birth/infant death data set includes the use of three data files. The numerator for the 2016 birth cohort linked file consists of deaths to infants born in 2016 linked to their corresponding birth certificates, whether the death occurred in 2016 or 2017 (each being a separate file the user can merge or append together). The denominator for this data set is all births occurring in 2016. Starting with the 2017 period/ 2016 cohort data files release, users have the ability to create their own cohort files using the year 1 denominator file and years 1 and 2 numerator files (e.g., 2016 denominator and 2016 and 2017 numerator files.

For most purposes, differences between the birth cohort and 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.

User Created Cohort File

To create a cohort file, users will combine the 2016 denominator file with the 2016 and 2017 numerator files using the Cohort Sequence Number (co_seqnum) and Year of Death (dod_yy) variables. Below are examples of code that can be used to combine files using SAS and Stata. The SAS uses a two-step merge approach whereas the Stata example appends the two numerator files and then merges the combined 2016-2017 numerator with the 2016 denominator file.

SAS code example for creating a cohort file

```
FILENAME B16 '  ';        /* put working directory path here */
FILENAME D16 '  ';        /* put working directory path here */
FILENAME D17 '  ';        /* put working directory path here */
```

```
DATA BORN16;              /* pull in 2016 denominator file */
INFILE B16;
INPUT
RESTATUS 104     SEQNUM_CO       365-371      DOD_YY  372-375;
IF RESTATUS < 4;

PROC SORT; BY SEQNUM_CO DOD_YY; RUN;

DATA DIED16;              /* includes infants born 2015 and 2016 */
INFILE D16;
INPUT
DOB_YY    9-12   RESTATUS 104     SEQNUM_CO       365-371
DOD_YY   372-375;
IF RESTATUS < 4 AND DOB_YY = 2016;      /* limit to infants born in 2016 */

PROC SORT; BY SEQNUM_CO DOD_YY; RUN;

DATA DIED17;                     /* includes infants born 2016 and 2017 */
INFILE D17;
INPUT
DOB_YY    9-12   RESTATUS 104     SEQNUM_CO       365-371
DOD_YY   372-375;

IF RESTATUS < 4 AND DOB_YY = 2016;      /* limit to infants born in 2016 */

PROC SORT; BY SEQNUM_CO DOD_YY; RUN;

/* merge 2016 births to those infants that were born and died in 2016 */

DATA B16D16;
MERGE BORN16 DIED16; BY SEQNUM_CO DOD_YY;

/* merge 2016 births/linked deaths to 2016 births that died in 2017 */
DATA B16D1617;
MERGE B16D16 DIED17; BY SEQNUM_CO DOD_YY;
RUN;
```

Stata code example for creating a cohort file

```
set more off
cd /* put working directory path here*/
log using "cohortfromperiod2016.log", replace
                     *NUMERATOR FILES*
*2016
local dat_name "VS16LINK.DETAILUS "
** The following line should contain the name of the output '.dta' file ;
```

```stata
local dta_name1 "alldat2016num"
** The following line should contain the name of the data dictionary file ;
local dct_name "numer_dct_2016.dct"
infile using "`dct_name'", using("`dat_name'") clear
compress
tempfile `dta_name1'
save "`dta_name1'", replace

*2017
local dat_name "VS17LINK.DETAILUS"
** The following line should contain the name of the output '.dta' file ;
local dta_name2 "alldat2017num"
** The following line should contain the name of the data dictionary file ;
local dct_name "numer_dct_2016.dct"
infile using "`dct_name'", using("`dat_name'") clear
compress
tempfile `dta_name2'
save "`dta_name2'", replace
*********APPEND TWO NUMERATOR FILES**********
append using "`dta_name1'"

egen linkid=concat(SEQNUM_CO DOD_YY)
tempfile `dta_name2'
save "`dta_name2'", replace
                    *DENOMINATOR FILE*
*2016
local dat_name "VS16LINK.DENOMUS"
** The following line should contain the name of the output '.dta' file ;
local dta_name1d "alldat2016den"
** The following line should contain the name of the data dictionary file ;
local dct_name "denom_dct_2016.dct"
infile using "`dct_name'", using("`dat_name'") clear
compress
tempfile `dta_name1d'
save "`dta_name1d'", replace

* merge denominator data with appended numerator file

egen linkid=concat(SEQNUM_CO DOD_YY)
/* Stata will not merge when there are missing values on the merge variable,
so create a new ID number that is all negative when the SEQNUM_CO variable
is missing */
gen newidmis=_n*(-1) if SEQNUM_CO==""
tostring newidmis, replace
/* check to make sure all the new ID numbers are negative (so will not link to
records from the numerator file */
```

```
codebook newidmis
/* replace linking ID with this newly generated value for records that have missing
SEQNUM_CO (that do not link to the numerator file(s) */
replace linkid=newidmis  if SEQNUM_CO==""
/* merge the denominator file with the appended numerator records for 2 years */
merge 1:1 linkid using "`dta_name2'", gen(_mgnumden)
/* check the year of birth variable by merge status */
tab DOB_YY if _mgnumden==1  /* denominator only: 2016 */
tab DOB_YY if _mgnumden==2  /* numerator only: 2015 and 2017 */
tab DOB_YY if _mgnumden==3  /* matched 2016 records */

/* check the year of death variable for merged records */
tab DOD_YY if _mgnumden==3  /* matched 2016 records: Year of death 2016-
2017 */

/* drop records that did not match, deaths where the year of
birth was either 2015 or 2017 */
drop if _mgnumden==2
save "mergedcohort_2016.dta", replace
log close
```

Incomplete National Reporting in the Period file - Using Reporting Flags

As a result of the delayed, phased transition to the 2003 U.S. Standard
Certificate of Live Birth, the 2017 period linked file includes data for reporting
areas that use the 2003 revision of the U.S. Standard Certificate of Live Birth
(revised) and data for reporting areas that use the 1989 Standard Certificate of
Live Birth (unrevised) (see the 2017 Natality User Guide). Although many data
items are comparable across certificate revisions and are available for the entire
United States, five items have more limited reporting areas. In addition, the 2017
numerator file contains information on infants born in both 2016 and 2017. As
reporting areas changed between 2016 and 2017, this complicates the file. Also,
birth data are collected by place of occurrence but are typically tabulated by
mother's place of residence. Reporting flags were developed to help the user
more readily identify reporting areas for items with less than national reporting for
the entirety of 2016 and 2017. Reporting flags are included in the file to assist in
accurately excluding records from areas that do not report items when tabulating
data by mother's place of residence.

Reporting areas for the 2017 linked file may be different from those for the 2017
birth file, as items had to be reported by a state in both 2016 and 2017 to be able
to provide complete data. Thus, data for non-comparable items from states that
revised in 2017 are excluded from all tabulations. Positions for reporting flags are
noted along with each data item in the file layout. Reporting flags should be used
to generate accurate numbers by residence for items which are not reported by
all states. Where applicable, reporting flags are shown in the column "Reporting

Flag Position" in the file layout. Reporting flag codes are 0 (item not reported) and 1 (item reported). When using these data, select reporting flag=1 to get valid and complete data for an item (see SAS code examples below).

Translating "blanks" - In the 2017 period/2016 cohort linked files, for data items which are not common or comparable across certificate revisions, events to residents of a revised state occurring in an unrevised state, and events to residents in an unrevised state occurring in a revised state, are often represented by "blanks." Blanks should be treated as "unknowns" for tabulations.

The correct use of reporting flags and translation of blanks will result in an accurate tally of births and infant deaths for items with incomplete national reporting.

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

An example of SAS code that may be used to incorporate the correct use of reporting flags and the translation of blanks is shown below. This example is for the principle source of payment item.

Sample SAS program

```
DATA work;
INFILE 'C:VS17LINK.USNUMPUB' LRECL=1743;
INPUT
RESTATUS   104
PAY          435        PAY_R      436        F_PAY       437
RECWT      1377-1384;

IF restatus NE 4;    /*  exclude foreign residents */
IF F_pay = 1;          /* select reporting area */
IF pay=. then pay=9;  /*convert blanks into unknown category*/
RUN;

PROC FREQ; TABLES PAY; WEIGHT RECWT;   /* when using the period file,
numerator data should be weighted */

RUN;
```

In this example, "restatus" is used to exclude births to foreign residents (this is standard practice for all NCHS tabulations).

Single, Multiple, and Bridged Race

In 1997, the Office of Management and Budget (OMB) issued revised standards requiring Federal collection programs to allow respondents to select *one or more*

race categories. Starting in 2016 data, all states and DC reported multiple race data, representing 100% of all U.S. births (see <u>User's Guide for the 2017 Natality File</u>).

Prior to 2017, in order to provide uniformity and comparability of the data before all or most of the data are available in the new multiple-race format, it was necessary to "bridge" the responses of those for whom more than one race was reported (multiple race) to one, single race.

Weighting

For period file use: A weight is added when using the period linked numerator file 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:

<u>number of linked infant deaths + number of unlinked infant deaths</u>
number of linked infant deaths

A separate weight is computed for each state of residence of birth and each age at death category (<7 days, 7-27 days, 28 days-1 year). Thus, weights are 1.0 for states which link all of their infant deaths. The denominator file is not weighted. Weights are not computed for the Puerto Rico and Guam file.

For cohort file use: When creating your own cohort file, we do not suggest applying the weight included in the file. Applying the weight in a cohort file would upweight the number of births and infant deaths, meaning the birth count would not match the actual number of births in the US for the given year.

Marital

National estimates of births to unmarried women are based on two methods of determining marital status. In 2017, marital status was based on a direct question in 48 states, the District of Columbia, and New York City. New York (excluding New York City) used inferential procedures to compile birth statistics by marital status; a birth is categorized as nonmarital if either of these factors, listed in priority-of-use order, is present: a paternity acknowledgement was received or the father's name is missing. Beginning in 2017, NCHS cannot release record-level data on the marital status of the mother for births occurring in California to residents or non-residents due to state statutory restrictions.

Birthweight

An imputation for not-stated birthweight is added to the data set to reduce potential bias in the computation of birthweight-specific infant mortality rates. 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. The total number of records with birthweight imputed is 899 in the numerator file and 764 in the denominator file. The addition of this imputation has reduced the percent of not-stated responses for birthweight from 4.09 to 0.83% in the numerator file, and from 0.07 to 0.06% in the denominator file, thus reducing the potential for underestimation when computing birthweight-specific infant mortality rates.

To only include records with birthweight that was provided on the birth certificate, users can use one of the two following examples in SAS code:

```
IF bwtimp^=1;
OR
IF bwtimp NE 1;
```

Period of gestation

Information on period of gestation is available for the entire United States. Beginning with the 2014 data year, NCHS transitioned to a new standard for estimating the gestational age of the newborn. The new measure – the obstetric estimate of gestation at delivery (OE) replaces the measure based on the data of the last normal menses (LMP). Accordingly, gestational age data in standard tables are based on the OE. However, LMP-based data are also available in data files.

Comparisons of infant mortality data from the linked file with infant mortality data from the vital statistics mortality file

Although the time periods are the same, numbers of infant deaths and infant mortality rates by characteristics are not always identical between the period linked file and the vital statistics mortality file. Differences in numbers of infant deaths between the two data sources are primarily due to geographic coverage differences. For the vital statistics mortality file, all deaths occurring in the 50 states and the District of Columbia are included regardless of the place of birth of the infant. In contrast, to be included in the linked file, both the birth and death must occur in the 50 states and the District of Columbia. Also, although every effort has been made to design weights that will accurately reflect the distribution of deaths by characteristics, weighting may contribute to small differences in numbers and rates by specific variables between these two data sets. In most cases, differences between numbers of infant deaths and infant mortality rates between the linked file and those computed from the vital statistics mortality file are negligible.

Computation of rates

Infant mortality rates are the most commonly used index for measuring the risk of dying during the first year of life. For the linked birth/infant death dataset 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. Both the mortality file and the linked birth/infant death file use this computation method but due to unique numbers of infant deaths, as explained in the section above on the comparison of these two files, the rates will often differ for specific variables (particularly for race and ethnicity). Infant mortality rates in the linked file use the number of live births in the denominator to approximate the population at risk of dying before the first birthday. In contrast to the infant mortality rates based on live births, infant death rates, used only in age-specific death rates with the mortality file, use the estimated population of persons under one year of age as the denominator.

Rates per 1,000 live births display two digits after the decimal place to provide a more precise and sensitive measurement. For rates per 100,000 live births (by cause of death) the infant mortality rate is shown for one decimal place. Adding an additional decimal for rates per 100,000 does not increase precision as it does for rates per 1,000.

As stated previously, infant death records for the 50 States and the District of Columbia in the US linked file are weighted so that the infant mortality rates are not underestimated for those areas that did not successfully link all records.

Random variation in infant mortality rates

The number of infant deaths and live births reported for an area represent complete counts of such events. As such, they are not subject to sampling error, although they are subject to nonsampling error in the registration process. However, when the figures are used for analytic purposes, such as the comparison of rates over time, for different areas, or among different subgroups, 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 (61). As a result, numbers of births, deaths, and infant mortality rates are subject to random variation. 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 normal distribution. When the number of events is large, the relative standard error is usually small. When the number of events is small (i.e., 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 (3,4). Estimates of relative standard errors (RSE's) and 95-percent confidence intervals are shown below.

The formula for the RSE of infant deaths and live births is:

$$\text{RSE(D)} = 100 * \sqrt{\frac{1}{D}}$$ where D is the number of deaths and

$$RSE(B)=100*\sqrt{\frac{1}{B}}$$ where B is the number of births.

For example, if for group A the number of infant deaths was 497 while the number of live births was 81,555 yielding an infant mortality rate of 6.09 infant deaths per 1,000 live births.

The RSE of the deaths = $100*\sqrt{\frac{1}{497}}$ = 4.49,   while the RSE of the births =

$100*\sqrt{\frac{1}{81,555}}$ = 0.35.

The formula for the RSE of the IMR is:

$$RSE(IMR)=100*\sqrt{\frac{1}{D}+\frac{1}{B}}$$

The RSE of the IMR for the example above

$$= 100*\sqrt{\frac{1}{497}+\frac{1}{81,555}} = 4.50.$$

Normal distribution—When the number of events is greater than 100, the normal distribution is used to estimate the 95-percent confidence intervals as follows:

Lower: R_1 - 1.96 * R_1 * $\dfrac{RSE(R_1)}{100}$

Upper: R_1 + 1.96 * R_1 * $\dfrac{RSE(R_1)}{100}$

Thus, for Group A:

Lower: $6.09 - (1.96 * 6.09 * \dfrac{4.50}{100}) = 5.55$

Upper: $6.09 + (1.96 * 6.09 * \dfrac{4.50}{100}) = 6.63$

Thus the chances are 95 out of 100 that the true IMR for Group A lies somewhere in the 5.55–6.63 interval.

Poisson distribution—When the number of events in the numerator is less than 100 the confidence interval for the rate can be estimated based on the Poisson distribution using the values in Table II.
Lower: $IMR*L(.95, D_{adj})$
Upper: $IMR*U(.95, D_{adj})$
where D_{adj} is the adjusted number of infant deaths (rounded to the nearest integer) used to take into account the RSE of the number of infant deaths and live births, and is computed as follows:

$$D_{adj} = \frac{\dfrac{D*B}{D+B}}{}$$

L(.95, D_{adj}) and U(.95, D_{adj}) refer to the values in Table II corresponding to the value of D_{adj}.

For example, let us say that for Group B the number of infant deaths was 53, the number of live births was 9,241, and the infant mortality rate was 5.74.

$$D_{adj} = \frac{\dfrac{53*9,241}{53+9,241}}{} = 53$$

Therefore the 95-percent confidence interval (using the formula in Table II for 1–99 infant deaths) =

       Lower: 5.74*0.74907 = 4.30
       Upper: 5.74*1.30802 = 7.51

Comparison of two infant mortality rates—If either of the two rates to be compared is based on less than 100 deaths, compute the confidence intervals for both rates and check to see if they overlap. If so, the difference is not statistically significant at the 95-percent level. If they do not overlap, the difference is statistically significant. If both of the two rates (R_1 and R_2) to be compared are based on 100 or more deaths, the following z-test may be used to define a significance test statistic:

$$z = \frac{R_1 - R_2}{\sqrt{R_1^2 \left(\dfrac{RSE(R_1)}{100}\right)^2 + R_2^2 \left(\dfrac{RSE(R_2)}{100}\right)^2}}$$

If |z| ≥ 1.96, then the difference is statistically significant at the 0.05 level and if |z| < 1.96, the difference is not significant.

Methodology

The methodology used to create the national file of linked birth and infant death records uses two 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.

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 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 use 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.

Percent of Records Linked

The 2017 period linked file for the 50 States and D.C. includes 22,280 linked infant death records and 92 unlinked infant death records (99.6% linked and 0.4% unlinked). The period 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 22,372.

Thirty-six jurisdictions (34 states, New York City, and D.C.) linked 100% of their infant deaths; 16 states have below a 100% linkage rate. Five states have a linkage of under 99%; Alaska (98.0%), California (98.3%), Texas (98.7%), Connecticut (98.8%), and Arizona (98.9%). When a high percentage of deaths remain unlinked, unweighted infant mortality rates computed for these states are underestimated. It is for this reason that weights are added to the file to correct for biases in the data due to poor data linkage for particular states.

The 2016 cohort linked file for the 50 States and D.C. includes 22,927 linked infant death records and 106 unlinked infant death records (99.5% linked, 0.5% unlinked). The cohort linked file should not be weighted using the weight variable (recwt) in the file, as this upweights the number of births in a particular state, potentially leading to greater bias than leaving the infant death unweighted.

Confidentiality

To minimize the risk of disclosure of individual or institutional information, NCHS public-use data files do not contain the actual day of the birth or the dates of birth of the mother or father. Also, for public-use files from 2005 forward, no U.S. geographic detail is identified.

Documents

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. These documents, while not absolutely essential to the proper interpretation of the data for a number of general applications, should nevertheless be studied carefully prior to any detailed analysis of demographic or medical data variables. In particular, there are a number of details about multiple cause-of-death coding which, if not understood and analyzed properly, may result in faulty analysis of the data. Volumes 1, 2 and 3 of the ICD-10 may be purchased from the World Health Organization (WHO) Publication Center USA, see http://www.cdc.gov/nchs/icd/icd10.htm . Many of the instruction manuals listed below are available electronically on the NCHS website.

A.   National Center for Health Statistics. Vital statistics, Instructions for Classifying the Underlying Cause-of-Death, ICD-10, 2017. NCHS Instruction Manual, Part 2a. Hyattsville, Maryland: Public Health Service.

B.   National Center for Health Statistics. Vital statistics, Instructions for Classifying Multiple Cause-of-Death, ICD-10, 2017. NCHS Instruction Manual, Part 2b. Hyattsville, Maryland: Public Health Service.

C.   National Center for Health Statistics. Vital statistics, ICD-10 ACME Decision Tables for Classifying Underlying Causes-of-Death, 2016. NCHS Instruction Manual, Part 2c. Hyattsville, Maryland: Public Health Service.

D.   National Center for Health Statistics. Specifications for U.S. Standard Certificate of Birth – 2003 Revision. NCHS Instruction manual, Part 3A. Hyattsville, Maryland: Public Health Service.

E.   National Center for Health Statistics. Specifications for U.S. Standard Certificate of Death – 2003 Revision. NCHS Instruction manual, Part 4. Hyattsville, Maryland: Public Health Service.

F.   National Center for Health Statistics. Vital statistics, Computer Edits for Natality Data, Effective 1993. NCHS Instruction Manual Part 12. Hyattsville, Maryland: Public Health Service.

G.   National Center for Health Statistics. Vital statistics, ICD-10 Computer Edits for Mortality Data, Effective 2014. NCHS Instruction Manual Part 11. Hyattsville, Maryland: Public Health Service.

Instructions manuals are available at:
http://www.cdc.gov/nchs/nvss/instruction_manuals.htm

Also see: http://www.cdc.gov/nchs/nvss/vital_certificate_revisions.htm for the most recent information about revised certificates.

Cause of Death Classification

The mortality statistics presented in this report were compiled in accordance with the World Health Organization (WHO) regulations, which specify that member nations classify and code causes of death in accordance with the current revision of the International Statistical Classification of Diseases. The ICD provides the basic guidance used in virtually all countries to code and classify causes of death. The ICD not only details disease classification but also provides definitions, tabulation lists, the format of the death certificate, and the rules for coding cause of death. Cause-of-death data presented in this report were coded by procedures outlined in annual issues of the NCHS Instruction Manual.

About every 10-20 years, the International Classification of Diseases is revised to take into account advances in medical knowledge. Effective with deaths occurring in 1999, the United States began using the Tenth Revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-10) (5); during the period 1979-98, causes were coded and classified according to the Ninth Revision (ICD-9).

Changes in classification of causes of death due to these revisions may result in discontinuities in cause-of-death trends. Measures of this discontinuity are essential to the interpretation of mortality trends, and are discussed in detail in other NCHS publications (see Mortality Data internet page).

Underlying Cause of Death Data

Mortality statistics by cause of death are compiled from entries on the medical certification portion of the death certificate. Causes of death include "all those diseases, morbid conditions or injuries which either resulted in or contributed to death and the circumstances of the accident or violence which produced these injuries". The medical certification of death is divided into two sections. In Part I, the physician is asked to provide the causal chain of morbid conditions that led to death, beginning with the condition most proximate to death on line (a) and working backwards to the initiating condition. Part I of the medical certification is designed to facilitate the selection of the underlying cause of death when two or more causes are recorded on the certificate. The underlying cause of death is defined by the WHO in the ICD-10 as "(a) the disease or injury which initiated the chain of morbid events leading directly to death, or (b) the circumstances of the accident or violence that produced the fatal injury" and is generally considered the most useful cause from a public health standpoint. Part II of the cause-of-death section of the death certificate solicits other conditions that the certifier believed contributed to death, but were not in the causal chain. While some

details of the death certificate vary by state, all states use the same general format for medical certification outlined in the U.S. Standard Certificate. The U.S. Standard Certificate, in turn, closely follows the format recommended by the WHO.

For a given death, the underlying cause is selected from the condition or conditions recorded by the certifier in the cause-of-death section of the death certificate. NCHS is bound by international agreement to make the selection of the underlying cause through the use of the ICD-10 classification structure, and the selection and modification rules contained in this revision of the ICD. Additional information on the underlying cause of death can be found at http://www.cdc.gov/nchs/data/dvs/mort99doc.pdf .

Multiple Cause of Death Data

The limitations of the underlying cause concept and the need for more comprehensive data suggested the need for coding and tabulating all conditions listed on the death certificate. Coding all listed conditions on the death certificate was designed with two objectives in mind. First, to facilitate studies of the relationships among conditions reported on the death certificate, which require presenting each condition and its location on the death certificate in the exact manner given by the certifier. Secondly, the coding needed to be carried out in a manner by which the underlying cause-of-death could be assigned using the WHO coding rules. Thus, the approach in developing multiple cause data was to provide two fields: 1) entity axis and 2) record axis. For entity axis, NCHS suspends the provisions of the ICD that create linkages between conditions for the purpose of coding each individual condition, or entity, with minimum regard to other conditions present on the death certificate.

Record axis is designed for 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 death certificate and modified or linked to such conditions as provided by ICD-10. By definition, the entity data cannot meet this requirement since the linkage provisions modify the character and placement of the information originally recorded by the certifier. Essentially, the axis of the 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. Additional information on multiple cause data processing can be found at http://www.cdc.gov/nchs/data/dvs/mort99doc.pdf .

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 data file. The following paragraphs describe the format and application of entity axis data.

1. 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 death 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 death 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-10 cause code.

4. The last byte is blank.

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.

2. 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 NCHS Instruction Manual Part 11.

3. Entity Axis Applications. The entity axis multiple cause data file is appropriate for analyses that 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 death certificate. Within this framework, the entity data are appropriate to examine relationships among conditions and the validity of traditional assumptions in underlying cause selection. Additionally, the entity data provide in certain categories a more detailed code assignment that could be

excluded in creating record axis data. Where such detail is needed for a study, the user should use entity data. Finally, the researcher may not wish to be bound by the assumptions used in the axis translation process.

The main limitation of entity axis data is that it 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 K80.2 is titled "Calculus of gallbladder without cholecystitis." Within the framework of entity codes this is interpreted to mean that the codable entity itself contained no mention of cholecystitis rather than that cholecystitis was not mentioned anywhere on the record. Tabulation of records with a "K80.2" as a count of persons having Calculus of gallbladder without cholecystitis would therefore be erroneous. This illustrates the fact that under entity coding the ICD-10 titles cannot be taken literally. The user should study the rules for entity coding as they relate to his/her research prior to use of entity data. The user is further cautioned that the inclusion notes in ICD-10 that relate to modifying and combining categories are seldom applicable to entity coding (except where provided in NCHS Instruction Manual Part 2b).

In tabulating the entity axis data, one may count codes with an individual code representing the number of times the condition(s) appears in the file. In this kind of tabulation of morbid conditions, 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 Instruction Manual Series (ICD-10 TRANSAX Disease Reference Tables for classifying Multiple Causes-of-Death) describes the TRANSAX process for creating record axis data from entity axis data.

1. 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-10 cause code.

2. The last byte is blank.

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.

2. 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.

3. Record Axis Applications. The record axis multiple cause data are the basis for NCHS core multiple cause tabulations. Location of codes is not relevant to this data, 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-10 category. This is in contrast to the entity code which is assigned each time such a disease is reported on different lines of the certification. Secondly, the linkage implies that within the constraints of ICD-10 the most meaningful code has been assigned. The translation process creates for the user a data file that 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. 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-10 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-10 are used. (NCHS Instruction Manual Part 2f).

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 that combine individual cause categories must take into account the possible interaction of up to 20 codes on a single certificate.

Additional Information

In using the NCHS multiple cause data files, the user is urged to review the information in this document and its references. The instructional material does change from year to year and ICD revision to ICD revision. The user is cautioned that coding of specific ICD-10 categories should be checked in the appropriate instruction manual. What may appear on the surface to be the correct code by ICD-10 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 NCHS Instruction Manual Part 2f 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 assumption of axis translation. In certain situations, a combination of entity and record axis data may be the more appropriate alternative.

2017 Period Linked Birth/Infant Death Data Set

2017 Period Numerator Files:

    <u>United States</u>
    A. Record count (occurrence, unweighted):   22,280
    B. Record length: 1,743

    <u>Territories</u>
    A. Record count (occurrence):   193
    B. Record length: 1,743

2017 Period Denominator Files:

    <u>United States</u>
    A. Record count (occurrence):   3,864,781
    B. Record length: 1,346

    <u>Territories</u>
    A. Record count (occurrence):   27,673
    B. Record length: 1,346

2016 Cohort Numerator Files:

    <u>United States</u>
    A. Record count (occurrence, unweighted):   22,893
    B. Record length: 1,743

2016 Cohort Denominator Files:

    <u>United States</u>
    A. Record count (occurrence):   3,945,875
    B. Record length: 1,346

2017 Period/ 2016 Cohort Linked Public Use File Layout

Position	Len	File*	Field	Description	Flag Position	Values	Definition
1-7	1		FILLER01	**Filler**		Blank	
8	1		LATEREC	**Late Record Flag**		0, blank	Not late record
						1	Late record
9-12	4	P,G	DOB_YY	**Birth Year**		2013	2014
13-14	2	P,G	DOB_MM	**Birth Month**		01	January
						02	February
						03	March
						04	April
						05	May
						06	June
						07	July
						08	August
						09	September
						10	October
						11	November
						12	December
15-18	4		FILLER02	**Filler**		Blank	
19-22	4	P,G	DOB_TT	**Time of Birth**	126	0000-2359	Time of Birth
						9999	Not Stated
23	1	P,G	DOB_WK	**Birth Day of Week**		1	Sunday
						2	Monday
						3	Tuesday
						4	Wednesday
						5	Thursday
						6	Friday
						7	Saturday
24-31	8		FILLER03	**Filler**		Blank	
32	1	P,G	BFACIL	**Birth Place (Revised)** Revised data only. See field 1330 for national data.	33	1	Hospital
						2	Freestanding Birth Center
						3	Home (intended)
						4	Home (not intended)

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
						5	Home (unknown if intended)
						6	Clinic / Doctor's Office
						7	Other
						9	Unknown
33	1	P,G	F_BFACIL	**Reporting Flag for Birth Place**		See footnote	
34-49	16		FILLER04	**Filler**		Blank	
50	1	P,G	BFACIL3	**Facility Recode**		1	In Hospital
						2	Not in Hospital
						3	Unknown or Not Stated
51-72	22		FILLER05	**Filler**		Blank	
73	1	P,G	MAGEIMP	**Mother's Age Imputed** Due to missing data, age imputed.		Blank	Age not imputed
						1	Age imputed
74	1	P,G	MAGEREP	**Reported Age of Mother Used Flag** Due to missing date of birth, reported age used.		Blank	Reported age not used
						1	Reported age used
75-76	2	P,G	MAGER	**Mother's Age Recode 41**		12 10 – 12 years, 13 13 years, 14 14 years, 15 15 years, 16 16 years, 17 17 years, 18 18 years, 19 19 years, 20 20 years, 21 21 years, 22 22 years, 23 23 years, 24 24 years, 25 25 years, 26 26 years, 27 27 years, 28 28 years, 29 29 years, 30 30 years, 31 31 years, 32 32 years, 33 33 years, 34 34 years, 35 35 years, 36 36 years, 37 37 years, 38 38 years, 39 39 years, 40 40 years, 41 41 years, 42 42 years, 43 43 years, 44 44 years, 45 45 years, 46 46 years, 47 47 years, 48 48 years, 49 49 years, 50 50 years and over	
77-78	2	P,G	MAGER14	**Mother's Age Recode 14**		01	Under 15 Years
						03	15 years
						04	16 years
						05	17 years
						06	18 years
						07	19 years
						08	20-24 years
						09	25-29 years
						10	30-34 years
						11	35-39 years
						12	40-44 years
						13	45-49 years
						14	50-54 years
79	1	P,G	MAGER9	**Mother's Age Recode 9**		1	Under 15 years
						2	15-19 years

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
						3	20-24 years
						4	25-29 years
						5	30-34 years
						6	35-39 years
						7	40-44 years
						8	45-49 years
						9	50-54 years
80-83	2		FILLER06	**Filler**		Blank	
84	1	P,G	MBSTATE_REC	**Mother's Nativity**		1	Born in the U.S. (50 US States)
						2	Born outside the U.S. (includes possessions)
						3	Unknown or Not Stated
85-103	19		FILLER07	**Filler**		Blank	
104	1	P,G	RESTATUS	**Residence Status**			
				<u>United States</u>		1	RESIDENT: State and county of occurrence and residence are the same.
						2	INTRASTATE NONRESIDENT: State of occurrence and residence are the same but county is different.
						3	INTERSTATE NONRESIDENT: State of occurrence and residence are different but both are one of the 50 US states or District of Columbia.
						4	FOREIGN RESIDENT: The state of residence is not one of the 50 US states or District of Columbia.
				<u>U.S. Territories</u>		1	RESIDENT: State and county of occurrence and residence residence are the same. (Unique to Guam, all US residents are considered residents of Guam and thus are assigned 1.)
						2	INTRATERRITORY NONRESIDENT: Territory of occurrence and residence are the same but county is different.
						2	INTERTERRITORY RESIDENT: Territory of occurrence and residence are different but both are US Territories.
						3	FOREIGN RESIDENT: The residence is not a US Territory.
105-106	2	P,G	MRACE31	**Mother's Race Recode 31**			
				<u>United States and all Outlying Areas of the United States except Puerto Rico</u>		01	White (only) [only one race reported]
						02	Black (only)
						03	AIAN (American Indian or Alaskan Native) (only)
						04	Asian (only)
						05	NHOPI (Native Hawaiian or Other Pacific Islander) (only)
						06	Black and White
						07	Black and AIAN
						08	Black and Asian

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
						09	Black and NHOPI
						10	AIAN and White
						11	AIAN and Asian
						12	AIAN and NHOPI
						13	Asian and White
						14	Asian and NHOPI
						15	NHOPI and White
						16	Black, AIAN, and White
						17	Black, AIAN, and Asian
						18	Black, AIAN, and NHOPI
						19	Black, Asian, and White
						20	Black, Asian, and NHOPI
						21	Black, NHOPI, and White
						22	AIAN, Asian, and White
						23	AIAN, NHOPI, and White
						24	AIAN, Asian, and NHOPI
						25	Asian, NHOPI, and White
						26	Black, AIAN, Asian, and White
						27	Black, AIAN, Asian, and NHOPI
						28	Black, AIAN, NHOPI, and White
						29	Black, Asian, NHOPI, and White
						30	AIAN, Asian, NHOPI, and White
						31	Black, AIAN, Asian, NHOPI, and White
107	1	P,G	MRACE6	**Mother's Race Recode 6**			
				United States and all Outlying Areas of the United States except Puerto Rico		1	White (only)
						2	Black (only)
						3	AIAN (only)
						4	Asian (only)
						5	NHOPI (only)
						6	More than one race
108-109	2	P,G	MRACE15	**Mother's Race Recode 15**			
				United States and all Outlying Areas of the United States except Puerto Rico		01	White (only)
						02	Black (only)
						03	AIAN (only)
						04	Asian Indian (only)
						05	Chinese (only)
						06	Filipino (only)
						07	Japanese (only)
						08	Korean (only)
						09	Vietnamese (only)
						10	Other Asian (only)
						11	Hawaiian (only)
						12	Guamanian (only)
						13	Samoan (only)

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
						14	Other Pacific Islander (only)
						15	More than one race
110	1	P,G	MBRACE	**Bridged Race Mother** Includes individuals reporting only one race and individuals reporting more than one race bridged to a single race.			
				United States and all Outlying Areas of the United States except Puerto Rico		1	White
						2	Black
						3	American Indian or Alaskan Native
						4	Asian or Pacific Islander
				Puerto Rico		1	White
						2	Black
						0	Other (not classified as White or Black)
111	1	P,G	MRACEIMP	**Mother's Race Imputed**		Blank	Mother's race not imputed
						1	Unknown race imputed
						2	All other races, formerly coded 09, imputed.
112-114	3		FILLER08	**Filler**		Blank	
115	1	P,G	MHISP_R	**Mother's Hispanic Origin Recode**	116	0	Non-Hispanic
						1	Mexican
						2	Puerto Rican
						3	Cuban
						4	Central and South American
						5	Other and Unknown Hispanic origin
						9	Hispanic origin not stated
116	1	P,G	F_MHISP	**Reporting Flag for Mother's Origin**			See footnote
117	1	P,G	MRACEHISP	**Mother's Race/Hispanic Origin** Based on single/multiple-race (fields 105-106, 107, and 108-109); for coding to create bridged-race categories (field 110) see "Coding for bridge-race and Hispanic origin categories" in the Detailed Technical Notes.		1	Non-Hispanic White (only)
						2	Non-Hispanic Black (only)
						3	Non-Hispanic AIAN (only)
						4	Non-Hispanic Asian (only)
						5	Non-Hispanic NHOPI (only)
						6	Non-Hispanic more than one race
						7	Hispanic
						8	Origin unknown or not stated
118	1		FILLER09	**Filler**		Blank	
119	1	P,G	MAR_P	**Paternity Acknowledged**	123	Y	Yes

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
						N	No
						U	Unknown
						X	Not Applicable
120	1	P,G	DMAR	**Marital Status**			
				United States and all Outlying Areas Of the United States except Puerto Rico		1	Married
						2	Unmarried
						9	Unknown, NS
				Puerto Rico		1	Yes
						2	Unmarried parents living together
						3	Unmarried parents not living together
						9	Unknown or not stated
121	1	P,G	MAR_IMP	**Mother's Marital Status Imputed**		Blank	Marital Status not imputed
						1	Marital Status imputed
122	1		FILLER10	**Filler**		Blank	
123	1	P,G	F_MAR_P	**Reporting Flag for Paternity Acknowledged**			See footnote
124	1	P,G	MEDUC	**Mother's Education**		1	8th grade or less
						2	9th through 12th grade with no diploma
						3	High school graduate or GED completed
						4	Some college credit, but not a degree.
						5	Associate degree (AA,AS)
						6	Bachelor's degree (BA, AB, BS)
						7	Master's degree (MA, MS, MEng, MEd, MSW, MBA)
						8	Doctorate (PhD, EdD) or Professional Degree (MD, DDS, DVM, LLB, JD)
						9	Unknown
125	1		FILLER11	**Filler**		Blank	
126	1	P,G	F_MEDUC	**Reporting Flag for Education of Mother**			See footnote
127-141	15		FILLER11	**Filler**		Blank	
142	1	P,G	FAGERPT_FLG	**Father's Reported Age Used**		Blank	Father's reported age not used
						1	Father's reported age used
143-146	4		FILLER12	**Filler**		Blank	
147-148	2	P,G	FAGECOMB	**Father's Combined Age (Revised)**		09-98	Father's combined age in years
						99	Unknown or not stated

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
149-150	2	P,G	FAGE11	**Father's Age Recode 11**		01	Under 15 years
						02	15-19 years
						03	20-24 years
						04	25-29 years
						05	30-34 years
						06	35-39 years
						07	40-44 years
						08	45-49 years
						09	50-54 years
						10	55-98 years
						11	Not stated
151-152	2	P,G	FRACE31	**Father's Race Recode 31**		01	White (only) [only one race reported]
						02	Black (only)
						03	AIAN (American Indian or Alaskan Native) (only)
						04	Asian (only)
						05	NHOPI (Native Hawaiian or Other Pacific Islander) (only)
						06	Black and White
						07	Black and AIAN
						08	Black and Asian
						09	Black and NHOPI
						10	AIAN and White
						11	AIAN and Asian
						12	AIAN and NHOPI
						13	Asian and White
						14	Asian and NHOPI
						15	NHOPI and White
						16	Black, AIAN, and White
						17	Black, AIAN, and Asian
						18	Black, AIAN, and NHOPI
						19	Black, Asian, and White
						20	Black, Asian, and NHOPI
						21	Black, NHOPI, and White
						22	AIAN, Asian, and White
						23	AIAN, NHOPI, and White
						24	AIAN, Asian, and NHOPI
						25	Asian, NHOPI, and White
						26	Black, AIAN, Asian, and White
						27	Black, AIAN, Asian, and NHOPI
						28	Black, AIAN, NHOPI, and White
						29	Black, Asian, NHOPI, and White
						30	AIAN, Asian, NHOPI, and White

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
						31	Black, AIAN, Asian, NHOPI, and White
						99	Unknown or Not Stated
153	1	P,G	FRACE6	**Father's Race Recode 6**		1	White (only)
						2	Black (only)
						3	AIAN (only)
						4	Asian (only)
						5	NHOPI (only)
						6	More than one race
						9	Unknown or Not Stated
154-155	2	P,G	FRACE15	**Father's Race Recode 15**		01	White (only)
						02	Black (only)
						03	AIAN (only)
						04	Asian Indian (only)
						05	Chinese (only)
						06	Filipino (only)
						07	Japanese (only)
						08	Korean (only)
						09	Vietnamese (only)
						10	Other Asian (only)
						11	Hawaiian (only)
						12	Guamanian (only)
						13	Samoan (only)
						14	Other Pacific Islander (only)
						15	More than one race
						99	Unknown or Not Stated
156	1	P,G	FBRACE	**Bridged Race Father** Includes individuals reporting only one race and individuals reporting more than one race bridged to a single race.			
				United States and all Outlying Areas of the United States except Puerto Rico		1	White
						2	Black
						3	American Indian or Alaskan Native
						4	Asian or Pacific Islander
				Puerto Rico		1	White
						2	Black
						0	Other (not classified as White or Black)
157-159	3		FILLER13	**Filler**		Blank	

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
160	1	P,G	FHISP_R	**Father's Hispanic Origin Recode**	161	0	Non-Hispanic
						1	Mexican
						2	Puerto Rican
						3	Cuban
						4	Central and South American
						5	Other and Unknown Hispanic origin
						9	Hispanic origin not stated
161	1	P,G	F_FHISP	**Reporting Flag for Father's Origin**			See footnote
162	1	P,G	FRACEHISP	**Father's Race/Hispanic Origin** Based on single/multiple-race (fields 151-152, 153, and 154-155); for coding to create bridged-race categories (field 156) see "Coding for bridge-race and Hispanic origin categories" in. the Detailed Technical Notes		1	Non-Hispanic White (only)
						2	Non-Hispanic Black (only)
						3	Non-Hispanic AIAN (only)
						4	Non-Hispanic Asian (only)
						5	Non-Hispanic NHOPI (only)
						6	Non-Hispanic more than one race
						7	Hispanic
						8	Origin unknown or not stated
						9	Race unknown or not stated (Non-Hispanic)
163	1	P,G	FEDUC	**Father's Education**	165	1	8th grade or less
						2	9th through 12th grade with no diploma
						3	High school graduate or GED completed
						4	Some college credit, but not a degree.
						5	Associate degree (AA,AS)
						6	Bachelor's degree (BA, AB, BS)
						7	Master's degree (MA, MS, MEng, MEd, MSW, MBA)
						8	Doctorate (PhD, EdD) or Professional Degree (MD, DDS, DVM, LLB, JD)
						9	Unknown
164	1		FILLER14	**Filler**		Blank	
165	1	P,G	F_FEDUC	**Reporting Flag for Education of Father**			See footnote
166-170	5		FILLER15	**Filler**		Blank	
171-172	2	P,G	PRIORLIVE	**Prior Births Now Living**		00-30	Number of children still living from previous live births
						99	Unknown or not stated
173-174	2	P,G	PRIORDEAD	**Prior Births Now Dead**		00-30	Number of children dead from previous live births
						99	Unknown or not stated
175-176	2	P,G	PRIORTERM	**Prior Terminations/Fetal Death**		0-30	Number of terminations/fetal deaths
						99	Unknown or not stated

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
177-178	2		FILLER16	**Filler**		Blank	
179	1	P,G	LBO_REC	**Live Birth Order Recode**		1-7 8 9	Live birth order 8 or more live births Unknown or not stated
180-181	2		FILLER17	**Filler**		Blank	
182	1	P,G	TPO_REC	**Total Pregnancy Order Recode**		1-7 8 9	Total pregnancy order 8 or more total pregnanices Unknown or not stated
183-197	15		FILLER18	**Filler**		Blank	
198-200	3	P,G	ILLB_R	**Interval of Last Live Birth Recode**	126	000-003 004-300 888 999	Plural delivery Months since last live birth Not applicable / 1st live birth Unknown or not stated
201-202	2	P,G	ILLB_R11	**Interval Since Last Live Birth Recode 11**	126	00 01 02 03 04 05 06 07 08 88 99	Zero to 3 months (plural delivery) 4 to 11 months 12 to 17 months 18 to 23 months 24 to 35 months 36 to 47 months 48 to 59 months 60 to 71 months 72 months and over Not applicable (1st live birth) Unknown or not stated
203-205	3		FILLER19	**Filler**		Blank	
206-208	3	P,G	ILOO_R	**Interval Since Last Other Outcome Recode**	126	000-003 004-300 888 999	Plural delivery Months since last other pregnancy outcome Not applicable / 1st natality event Unknown or not stated

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
209-210	2	P,G	ILOO_R11	**Interval Since Last Other Outcome Recode 11**	126	00	Zero to 3 months (plural delivery)
						01	4 to 11 months
						02	12 to 17 months
						03	18 to 23 months
						04	24 to 35 months
						05	36 to 47 months
						06	48 to 59 months
						07	60 to 71 months
						08	72 months and over
						88	Not applicable (1st natality event)
						99	Unknown or not stated
211-213	3		FILLER20	**Filler**		Blank	
214-216	3	P,G	ILP_R	**Interval Since Last Pregnancy Recode**	126	000-003	Plural delivery
						004-300	Months since last live birth
						888	Not applicable / no previous pregnancy
						999	Unknown or not stated
217-218	2	P,G	ILP_R11	**Interval Since Last Pregnancy Recode 11**	126	00	Zero to 3 months (plural delivery)
						01	4 to 11 months
						02	12 to 17 months
						03	18 to 23 months
						04	24 to 35 months
						05	36 to 47 months
						06	48 to 59 months
						07	60 to 71 months
						08	72 months and over
						88	Not applicable (no previous pregnancy)
						99	Unknown or not stated
219-223	5		FILLER21	**Filler**		Blank	
224-225	2	P,G	PRECARE	**Month Prenatal Care**	226	00	No prenatal care
						01-10	Month prenatal care began
						99	Unknown or not stated
226	1	P,G	F_MPCB	**Reporting Flag for Month Prenatal Care Began**		See footnote	
227	1	P,G	PRECARE5	**Month Prenatal Care Began Recode**	226	1	1st to 3rd month
						2	4th to 6th month
						3	7th to final month
						4	No prenatal care

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
						5	Unknown or not stated
228-237	10		FILLER22	**Filler**		Blank	
238-239	2	P,G	PREVIS	**Number of Prenatal Visits (Revised)** See field 242-243 for national data		00-98 99	Number of prenatal visits Unknown or not stated
240-241	2		FILLER23	**Filler**		Blank	
242-243	2	P,G	PREVIS_REC	**Number of Prenatal Visits Recode**	244	01 02 03 04 05 06 07 08 09 10 11 12	No visits 1 to 2 visits 3 to 4 visits 5 to 6 visits 7 to 8 visits 9 to 10 visits 11 to 12 visits 13 to 14 visits 15 to 16 visits 17 to 18 visits 19 or more visits Unknown or not stated
244	1	P,G	F_TPCV	**Reporting Flag for Total Prenatal Care Visits**			See footnote
245-250	6		FILLER24	**Filler**		Blank	
251	1	P,G	WIC	**WIC**	252	Y N U	Yes No Unknown or not stated
252	1	P,G	F_WIC	**Reporting Flag for WIC**		0 1	Non-Reporting Reporting
253-254	2	P,G	CIG_0	**Cigarettes Before Pregnancy**	265	00-97 98 99	Number of cigarettes daily 98 or more cigarettes daily Unknown or not stated
255-256	2	P,G	CIG_1	**Cigarettes 1st Trimester**	266	00-97 98 99	Number of cigarettes daily 98 or more cigarettes daily Unknown or not stated
257-258	2	P,G	CIG_2	**Cigarettes 2nd Trimester**	267	00-97 98 99	Number of cigarettes daily 98 or more cigarettes daily Unknown or not stated
259-260	2	P,G	CIG_3	**Cigarettes 3rd Trimester**	268	00-97 98	Number of cigarettes daily 98 or more cigarettes daily

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Position	Len	File*	Field	Description	Flag Position	Values	Definition
						99	Unknown or not stated
261	1	P,G	CIG0_R	**Cigarettes Before Pregnancy Recode**	265	0	Nonsmoker
						1	1-5
						2	6-10
						3	11-20
						4	21-40
						5	41 or more
						6	Unknown or not stated
262	1	P,G	CIG1_R	**Cigarettes 1st Trimester Recode**	266	0	Nonsmoker
						1	1-5
						2	6-10
						3	11-20
						4	21-40
						5	41 or more
						6	Unknown or not stated
263	1	P,G	CIG2_R	**Cigarettes 2nd Trimester Recode**	267	0	Nonsmoker
						1	1-5
						2	6-10
						3	11-20
						4	21-40
						5	41 or more
						6	Unknown or not stated
264	1	P,G	CIG3_R	**Cigarettes 3rd Trimester Recode**	268	0	Nonsmoker
						1	1-5
						2	6-10
						3	11-20
						4	21-40
						5	41 or more
						6	Not stated / Not on certificate
265	1	P,G	F_CIGS_0	**Reporting Flag for Cigarettes before Pregnancy**			See footnote
266	1	P,G	F_CIGS_1	**Reporting Flag for Cigarettes 1st Trimester**			See footnote
267	1	P,G	F_CIGS_2	**Reporting Flag for Cigarettes 2nd Trimester**			See footnote
268	1	P,G	F_CIGS_3	**Reporting Flag for Cigarettes 3rd Trimester**			See footnote
269	1	P,G	CIG_REC	**Cigarette Recode (Revised)** 270		Y	Yes
						N	No
						U	Unknown or not stated

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
270	1	P,G	F_TOBACO	**Reporting Flag for Tobacco use**			See footnote
271-279	9		FILLER25	**Filler**		Blank	
280-281	2	P,G	MHTR	**Mother's Height in Inches (Recode)**	282	30-78 99	Height in inches Unknown or not stated
282	1	P,G	F_M_HT	**Reporting Flag for Mother's Height**			See footnote
283-286	4	P,G	BMI	**BMI**	282	13.0-69.9 99.9	Body Mass Index Unknown or not stated
287	1	P,G	BMI_R	**Body Mass Index Recode**	282	1 2 3 4 5 6 9	Underweight <18.5 Normal 18.5-24.9 Overweight 25.0-29.9 Obesity I 35.0-39.9 Obesity II 35.0-39.9 Extreme Obesity III ≥ 40.0 Unknown or not stated
288-291	4		FILLER26	**Filler**		Blank	
292-294	3	P,G	PWgt_R	**Pre-pregnancy Weight Recode**	295	075-375 999	Weight in pounds Unknown or not stated
295	1	P,G	F_PWGT	**Reporting Flag for Pre-pregnancy Weight**			See footnote
296-298	3		FILLER27	**Filler**		Blank	
299-301	3	P,G	DWGT_R	**Delivery Weight Recode**	303	100-400 999	Weight in pounds Unknown or not stated
302	1		FILLER28	**Filler**		Blank	
303	1	P,G	F_DWGT	**Reporting Flag for Delivery Weight**			See footnote
304-305	2	P,G	WTGAIN	**Weight Gain**	307	00-97 98 99	Weight gain in pounds 98 pounds and over Unknown or not stated
306	1	P,G	WTGAIN_REC	**Weight Gain Recode**	307	1 2 3 4 5	Less than 11 pounds 11 to 20 pounds 21 to 30 pounds 31 to 40 pounds 41 to 98 pounds

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
						9	Unknown or not stated
307	1	P,G	F_WTGAIN	**Reporting Flag for Weight Gain**			See footnote
308-312	5		FILLER29	**Filler**		Blank	

The following checkbox fields 313-432 include data for revised states only. For national data for items that are comparable across revisions see fields 1330-1345.

Position	Len	File*	Field	Description	Flag Position	Values	Definition
313-338	30		**<u>Risk Factors</u>**				
313	1	P,G	RF_PDIAB	**Pre-pregnancy Diabetes**	319	Y	Yes
314	1	P,G	RF_GDIAB	**Gestational Diabetes**	320	N	No
315	1	P,G	RF_PHYPE	**Pre-pregnancy Hypertension**	321	U	Unknown or not stated
316	1	P,G	RF_GHYPE	**Gestational Hypertension**	322		
317	1	P,G	RF_EHYPE	**Hypertension Eclampsia**	323		
318	1	P,G	RF_PPB	**Previous Preterm Birth**	324		
319	1	P,G	F_RF_PDIAB	**Reporting Flag for Pre-pregnancy Diabetes**			See footnote
320	1	P,G	F_RF_GDIAB	**Reporting Flag for Gestational Diabetes**			
321	1	P,G	F_RF_PHYPE	**Reporting Flag for Pre-pregnancy Hypertension**			
322	1	P,G	F_RF_GHYPE	**Reporting Flag for Gestational Hypertension**			
323	1	P,G	F_RF_EHYPE	**Reporting Flag for Hypertension Eclampsia**			
324	1	P,G	F_RF_PPB	**Reporting Flag for Previous Preterm Birth**			
325	1	P,G	RF_INFT	**Infertility Treatment** Use reporting flag in field 319	328	Y N U	Yes No Unknown or not stated
326	1	P,G	RF_DRG	**Fertility Enhancing Drugs**	329	Y N X U	Yes No Not applicable Unknown or not stated
327	1	P,G	RF_ART	**Asst. Reproductive Technology**	330	Y N X U	Yes No Not applicable Unknown or not stated
328	1		FILLER30	**Filler**		Blank	
329	1	P,G	F_RF_DRG	**Reporting Flag for Fertility Enhance Drugs**			See footnote
330	1	P,G	F_RF_ART	**Reporting Flag for Reproductive Technology**			See footnote
331	1	P,G	RF_CESAR	**Previous Cesareans**	335	Y N	Yes No

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
						U	Unknown or not stated
332-333	2	P,G	RF_CESARN	**Number of Previous Cesareans**		00	None
					336	01-30	Number of previous cesareans
						99	Unknown or not stated
334	1		FILLER30	**Filler**		Blank	
335	1	P,G	F_RF_CESAR	**Reporting Flag for Previous Cesarean**			See footnote
336	1	P,G	F_RF_NCESAR	**Reporting Flag for Number of Previous Cesareans**			See footnote
337	1	P,G	NO_RISKS	**No Risk Factors Checked**	126	1	True
						0	False
						9	Not Reported
338-342	4		FILLER31	**Filler**		Blank	
343-358	15		**Infections Present**				
343	1	P,G	IP_GON	**Gonorrhea**	348	Y	Yes
344	1	P,G	IP_SYPH	**Syphilis**	349	N	No
345	1	P,G	IP_CHLAM	**Chlamydia**	350	U	Unknown or not stated
346	1	P,G	IP_HEPB	**Hepatitis B**	351		
347	1	P,G	IP_HEPC	**Hepatitis C**	352		
348	1	P,G	F_IP_GON	**Reporting Flag for Gonorrhea**			See footnote
349	1	P,G	F_IP_SYPH	**Reporting Flag for Syphilis**			
350	1	P,G	F_IP_CHLAM	**Reporting Flag for Chlamydia**			
351	1	P,G	F_IP_HEPB	**Reporting Flag for Hepatitis B**			
352	1	P,G	F_IP_HEPC	**Reporting Flag for Hepatitis C**			
353	1	P,G	NO_INFEC	**No Infections Checked**	126	1	True
						0	False
						9	Not Reported
354-359	6		FILLER32	**Filler**		Blank	
360-364	12		**Obstetric Procedures**				
360	1	P,G	OB_SUCC	**Successful External Cephalic Version**		Y	Yes
					363	N	No
						U	Unknown or not stated
361	1	P,G	OB_FAIL	**Failed External Cephalic Version**		Y	Yes
					364	N	No

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
						U	Unknown or not stated
	362	1		FILLER33	**Filler**		Blank
	363	1	P,G	F_OB_SUCC	**Reporting Flag for Successful External Cephalic Version**		See footnote
	364	1	P,G	F_OB_FAIL	**Reporting Flag for Failed External Cephalic Version**		See footnote
365-371		7	P,G	CO_SEQNUM	**Cohort Sequence Number**		xxx,xxx- xxx,xxx
372-375		4	P,G	CO_DODYY	**Cohort Year of Death**		20XX
376-382		7	P,G	FILLER34	**Filler**		Blank
383-400	18			**Characteristics of Labor and Delivery**			
	383	1	P,G	LD_INDL	**Induction of Labor**	389	Y	Yes
	384	1	P,G	LD_AUGM	**Augmentation of Labor**	390	N	No
	385	1	P,G	LD_STER	**Steroids**	391	U	Unknown or not stated
	386	1	P,G	LD_ANTB	**Antibiotics**	392		
	387	1	P,G	LD_CHOR	**Chorioamnionitis**	393		
	388	1	P,G	LD_ANES	**Anesthesia**	394		
	389	1	P,G	F_LD_INDL	**Reporting Flag for Induction of Labor**			See footnote
	390	1	P,G	F_LD_AUGM	**Reporting Flag for Augmentation of Labor**			
	391	1	P,G	F_LD_STER	**Reporting Flag for Steroids**			
	392	1	P,G	F_LD_ANTB	**Reporting Flag for Antibiotics**			
	393	1	P,G	F_LD_CHOR	**Reporting Flag for Chorioamnionitis**			
	394	1	P,G	F_LD_ANES	**Reporting Flag for Anesthesia**			
	395	1	P,G	NO_LBRDLV	**No Characteristics of Labor Checked**		1	True
					126	0	False
						9	Not Reported
	396-400	5		FILLER35	**Filler**		Blank	
401-409		9		**Method of Delivery**			
	401	1	P,G	ME_PRES	**Fetal Presentation**	404	1	Cephalic
						2	Breech
						3	Other
						9	Unknown or not stated

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
402	1	P,G	ME_ROUT	**Final Route & Method of Delivery**	405	1	Spontaneous
						2	Forceps
						3	Vacuum
						4	Cesarean
						9	Unknown or not stated
403	1	P,G	ME_TRIAL	**Trial of Labor Attempted**	406	Y	Yes
						N	No
						X	Not applicable
						U	Unknown or not stated
404	1	P,G	F_ME_PRES	**Reporting Flag for Fetal Presentation**			See footnote
405	1	P,G	F_ME_ROUT	**Reporting Flag for Final Route and Method of Delivery**			See footnote
406	1	P,G	F_ME_TRIAL	**Reporting Flag for Trial of Labor Attempted**			See footnote
407	1	P,G	RDMETH_REC	**Delivery Method Recode**	409	1	Vaginal (excludes vaginal after previous C-section)
						2	Vaginal after previous c-section
						3	Primary C-section
						4	Repeat C-section
						5	Vaginal (unknown if previous c-section)
						6	C-section (unknown if previous c-section)
						9	Not stated
408	1	P,G	DMETH_REC	**Delivery Method Recode Combined**		1	Vaginal
						2	C-Section
						9	Unknown
409	1	P,G	F_DMETH_REC	**Reporting Flag for Method of Delivery Recode**			See footnote
410-414	5		FILLER36	**Filler**		Blank	
415-427	18		**Maternal Morbidity**				
415	1	P,G	MM_MTR	**Maternal Transfusion**	421	Y	Yes
416	1	P,G	MM_PLAC	**Perineal Laceration**	422	N	No
417	1	P,G	MM_RUPT	**Ruptured Uterus**	423	U	Unknown or not stated
418	1	P,G	MM_UHYST	**Unplanned Hysterectomy**	424		
419	1	P,G	MM_AICU	**Admit to Intensive Care**	425		
420	1		FILLER37	**Filler**		Blank	
421	1	P,G	F_MM_MTR	**Reporting Flag for Maternal Transfusion**			See footnote

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
422	1	P,G	F_MM_ PLAC	**Reporting Flag for Perineal Laceration**			
423	1	P,G	F_MM_RUPT	**Reporting Flag for Ruptured Uterus**			
424	1	P,G	F_MM_UHYST	**Reporting Flag for Unplanned Hysterectomy**			
425	1	P,G	F_MM_AICU	**Reporting Flag for Admission to Intensive Care**			
426	1		FILLER38	**Filler**			Blank
427	1	P,G	NO_MMORB	**No Maternal Morbidity Checked**		1	True
					126	0	False
						9	Not Reported
428-432	5		FILLER39	**Filler**		Blank	
433	1	P,G	ATTEND	**Attendant**		1	Doctor of Medicine (MD)
						2	Doctor of Osteopathy (DO)
						3	Certified Nurse Midwife (CNM)
						4	Other Midwife
						5	Other
						9	Unknown or not stated
434	1	P,G	MTRAN	**Mother Transferred**	126	Y	Yes
						N	No
						U	Unknown
435	1	P,G	PAY	**Payment Source**	437	1	Medicaid
						2	Private Insurance
						3	Self-Pay
						4	Indian Health Service
						5	CHAMPUS/TRICARE
						6	Other Government (Federal, State, Local)
						8	Other
						9	Unknown
436	1	P,G	PAY_REC	**Payment Recode**	438	1	Medicaid
						2	Private Insurance
						3	Self Pay
						4	Other
						9	Unknown
437	1	P,G	F_PAY	**Reporting Flag for Source of Payment**			See footnote
438	1	P,G	F_PAY_REC	**Reporting Flag for Payment Recode**			See footnote
439-443	5		FILLER40	**Filler**		Blank	
444-445	2	P,G	APGAR5	**Five Minute APGAR Score**	447	00-10	A score of 0-10
						99	Unknown or not stated

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Position	Len	File*	Field	Description	Flag Position	Values	Definition
446	1	P,G	APGAR5R	**Five Minute APGAR Recode**	447	1 2 3 4 5	A score of 0-3 A score of 4-6 A score of 7-8 A score of 9-10 Unknown or not stated
447	1	P,G	F_APGAR5	**Reporting Flag for Five minute APGAR**			See footnote
448-449	2	P,G	APGAR10	**Ten Minute APGAR Score** Use reporting flag in field 126 for 2014		00-10 88 99	A score of 0-10 Not applicable Unknown or not stated
450	1	P,G	APGAR10R	**Ten Minute APGAR Recode** Use reporting flag in field 126 for 2014		1 2 3 4 5	A score of 0-3 A score of 4-6 A score of 7-8 A score of 9-10 Not stated/not applicable
451-453	1		FILLER41	**Filler**		Blank	
454	1	P,G	DPLURAL	**Plurality Recode**		1 2 3 4 5	Single Twin Triplet Quadruplet Quintuplet or higher
455	1		FILLER42	**Filler**		Blank	
456	1	P,G	IMP_PLUR	**Plurality Imputed**		Blank 1	Plurality is imputed Plurality is not imputed
457-458	2		FILLER43	**Filler**		Blank	
459	1	P,G	SETORDER_R	**Set Order Recode**	126	1 1st, 2 2nd, 3 3rd, 4 4th, 5 5th to 16th 9	Unknown or not stated
460-474	15		FILLER44	**Filler**		Blank	
475	1	P,G	SEX	**Sex of Infant**		M F	Male Female
476	1	P,G	IMP_SEX	**Imputed Sex**		Blank 1	Infant Sex not Imputed Infant Sex is Imputed
477-478	2	P,G	DLMP_MM	**Last Normal Menses Month**		01	January

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
						02	February
						03	March
						04	April
						05	May
						06	June
						07	July
						08	August
						09	September
						10	October
						11	November
						12	December
						99	Unknown or not stated
479-480	2		FILLER45	**Filler**		Blank	
481-484	4	P,G	DLMP_YY	**Last Normal Menses Year**		nnnn	Year of last normal menses
						9999	Unknown or not stated
485-487	3		FILLER46	**Filler**		Blank	
487	1		COMPGST_IMP	**Computed Gestation Imputation Flag**		Blank	Computed Gestation is not imputed
						1	Computed Gestation is imputed
488	1	P,G	COMBGST_IMP	**Combined Gestation Imputed**		Blank	Combined Gestation is not imputed
						1	Combined Gestation is imputed
489	1	P,G	OBGEST_FLG	**Obstetric Estimate of Gestation Used Flag**		Blank	Clinical Estimate is not used
						1	Clinical Estimate is used
490-491	2	P,G	COMBGEST	**Combined Gestation – Detail in Weeks**		17-47	17th through 47th week of Gestation
						99	Unknown
492-493	2	P,G	GESTREC10	**Combined Gestation Recode 10**		01	Under 20 weeks
						02	20-27 weeks
						03	28-31 weeks
						04	32-33 weeks
						05	34-36 weeks
						06	37-38 weeks
						07	39 weeks
						08	40 weeks
						09	41 weeks
						10	42 weeks and over
						99	Unknown
494	1	P,G	GESTREC3	**Combined Gestation Recode 3**		1	Under 37 weeks
						2	37 weeks and over

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
						3	Not stated
495-497	3		FILLER47	**Filler**		Blank	
498	1	P,G	LMPUSED	**Computed (LMP) Gestation Used Flag**		Blank 1	LMP not used for gestation LMP used for gestation
499-500	2	P,G	OEGest_Comb	**Obstetric Estimate Edited** (NCHS Standard item)		17-47 99	Weeks of gestation Not stated
501-502	2	P,G	OEGest_R10	**Obstetric Estimate Recode10** (NCHS Standard item)		01 02 03 04 05 06 07 08 09 10 99	Under 20 weeks 20-27 weeks 28-31 weeks 32-33 weeks 34-36 weeks 37-38 weeks 39 weeks 40 weeks 41 weeks 42 weeks and over Unknown
503	1	P,G	OEGest_R3	**Obstetric Estimate Recode 3** (NCHS Standard Item)		1 2 3	Under 37 weeks 37 weeks and over Not stated
504-508	5		FILLER48	**FILLER**		Blank	
509-510	2	P,G	BWTR14	**Birth Weight Recode 14**		01 02 03 04 05 06 07 08 09 10 11 12 13 14	227 - 499 grams 500 – 749 grams 750 – 999 grams 1000 - 1249 grams 1250 – 1499 grams 1500 – 1999 grams 2000 – 2499 grams 2500 – 2999 grams 3000 – 3499 grams 3500 – 3999 grams 4000 – 4499 grams 4500 – 4999 grams 5000 – 8165 grams Not Stated

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
511	1	P,G	BWTR4	**Birth Weight Recode 4**		1	227 - 1499 grams
						2	1500 – 2499 grams
						3	2500 - 8165 grams
						4	Unknown or not stated
512-515	4	P,G	BRTHWGT	**Imputed Birth Weight**		0227-8165	Number of grams
						9999	Not stated birth weight
516	1	P,G	BWTIMP	**Birth Weight Imputed Flag**		Blank	Birth Weight is not imputed
						1	Birth Weight is imputed

The following checkbox fields 517-566 include data for revised states only. For national data for items that are comparable across revisions see fields 1340-1345.

Position	Len	File*	Field	Description	Flag Position	Values	Definition
517-536	**20**		**Abnormal Conditions of the Newborn**				
517	1	P,G	AB_AVEN1	**Assisted Ventilation**	524	Y	Yes
518	1	P,G	AB_AVEN6	**Assisted Ventilation > 6 hrs**	525	N	No
519	1	P,G	AB_NICU	**Admission to NICU**	526	U	Unknown or not stated
520	1	P,G	AB_SURF	**Surfactant**	527		
521	1	P,G	AB_ANTI	**Antibiotics**	528		
522	1	P,G	AB_SEIZ	**Seizures**	529		
523	1		FILLER50	**Filler**		Blank	
524	1	P,G	F_AB_AVEN1	**Reporting Flag for Assisted Ventilation**			See footnote
525	1	P,G	F_AB_AVEN6	**Reporting Flag for Assisted Ventilation >6 hrs**			
526	1	P,G	F_AB_NICU	**Reporting Flag for Admission to NICU**			
527	1	P,G	F_AB_SURF	**Reporting Flag for Surfactant**			
528	1	P,G	F_AB_ANTI	**Reporting Flag for Antibiotics**			
529	1	P,G	F_AB_SEIZ	**Reporting Flag for Seizures**			
530	1		FILLER51	**Filler**		Blank	
531	1	P,G	NO_ABNORM	**No Abnormal Conditions Checked**		1	True
					126	0	False
						9	Not Reported
532-536	5		FILLER52	**Filler**		Blank	
537-566	**30**		**Congenital Anomalies of the Newborn**				
537	1	P,G	CA_ANEN	**Anencephaly**	543	Y	Yes
538	1	P,G	CA_MNSB	**Meningomyelocele / Spina Bifida**	544	N	No
539	1	P,G	CA_CCHD	**Cyanotic Congenital Heart Disease**	545	U	Unknown or not stated

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
540	1	P,G	CA_CDH	**Congenital Diaphragmatic Hernia**	546		
541	1	P,G	CA_OMPH	**Omphalocele**	547		
542	1	P,G	CA_GAST	**Gastroschisis**	548		
543	1	P,G	F_CA_ANEN	**Reporting Flag for Anencephaly**			See footnote
544	1	P,G	F_CA_MNSB	**Flag for Meningomyelocele/Spina Bifida**			
545	1	P,G	F_CA_CCHD	**Reporting Flag for Cyanotic Congenital Heart Disease**			
546	1	P,G	F_CA_CDH	**Reporting Flag for Congenital Diaphragmatic Hernia**			
547	1	P,G	F_CA_OMPH	**Reporting Flag for Omphalocele**			
548	1	P,G	F_CA_GAST	**Reporting Flag for Gastroschisis**			
549	1	P,G	CA_LIMB	**Limb Reduction Defect**	555	Y	Yes
550	1	P,G	CA_CLEFT	**Cleft Lip w/ or w/o Cleft Palate**	556	N	No
551	1	P,G	CA_CLPAL	**Cleft Palate alone**	557	U	Unknown or not stated
552	1	P,G	CA_DOWN	**Down Syndrome**	558	C	Confirmed
						P	Pending
						N	No
						U	Unknown
553	1	P,G	CA_DISOR	**Suspected Chromosomal Disorder**		C	Confirmed
					559	P	Pending
						N	No
						U	Unknown
554	1	P,G	CA_HYPO	**Hypospadias**	560	Y	Yes, anomaly reported
						N	No, anomaly not reported
						U	Unknown
555	1	P,G	F_CA_LIMB	**Reporting Flag for Limb Reduction Defect**			See footnote
556	1	P,G	F_CA_CLEFT	**Flag for Cleft Lip with or without Cleft Palate**			
557	1	P,G	F_CA_CLPAL	**Reporting Flag for Cleft Plate Alone**			
558	1	P,G	F_CA_DOWN	**Reporting Flag for Down Syndrome**			
559	1	P,G	F_CA_DISOR	**Reporting Flag for Suspected Chromosomal Disorder**			
560	1	P,G	F_CA_HYPO	**Reporting Flag for Hypospadias**			
561	1	P,G	NO_CONGEN	**No Congenital Anomalies Checked**		1	True
					126	0	False
						9	Not Reported
562-566	5		FILLER53	**Filler**		Blank	
567	1	P,G	ITRAN	**Infant Transferred**	126	Y	Yes
						N	No
						U	Unknown or not stated

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
568	1	P,G	ILIVE	**Infant Living at Time of Report**	126	Y	Yes
						N	No
						U	Unknown or not stated
569	1	P,G	BFED	**Infant Being Breastfed**	570	Y	Yes
						N	No
						U	Unknown or not stated
570	1	P,G	F_BFED	**Reporting Flag for Breastfed at Discharge**			See footnote
571-1329	759	P,G	FILLER54	**Filler**		Blank	

The following items (fields 1330-1338 and 1340-1345) are comparable across revisions and include data for revised and unrevised reporting areas.

Position	Len	File*	Field	Description	Flag Position	Values	Definition
1330	1	P,G	uBFacil	**Place of birth**		1	Hospital
						2	Freestanding Birthing Center
						3	Clinic / Doctor's Office
						4	Residence
						5	Other
						9	Unknown
1331-1345		**Unrevised Check Boxes**		All checkbox items below follow this coding structure:		1	Yes
						2	No
						9	Unknown
1331	1	P,G	uRF_Diab	**Diabetes**			
1332	1	P,G	uRF_Chype	**Chronic Hypertension**			
1333	1	P,G	uRF_Phype	**Prepregnacy Associated Hypertension**			
1334	1	P,G	uRf_Ehype	**Eclampsia**	338		
1335	1	P,G	uME_Forc	**Forceps**			
1336	1	P,G	uME_Vacu	**Vacuum**			
1337	1	P,G	uOB_Indu	**Induction of Labor**			
1338	1	P,G	uLD_Bree	**Breech**			
1339	1		FILLER54	**Filler**		Blank	
1340	1	P,G	uCA_Anen	**Anencephaly**			
1341	1	P,G	uCA_Spina	**Spina Bifida / Meningocele**			
1342	1	P,G	uCA_Omph	**Omphalocele / Gastroschisis**			
1343	1	P,G	uCA_Clip	**Cleft Lip / Palate**			
1344	1	P,G	uCA_Hern	**Diaphragmatic Hernia**			
1345	1	P,G	uCA_Down	**Down Syndrome**			
1346	1	P,G	FLGND	**Match Status**		1	Record in both files
						Blank	Record not in both files

Here ends the Denominator file. Documentation of the Mortality Section of the Numerator (Linked) file begins on the next page.

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
1347-1355	9	P,G	FILLER55	**Filler**		Blank	
1356-1358	3	P,G	AGED	Age at Death in Days		000-365	Number of days
1359	1	P,G	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)
1360-1361	2	P,G	AGER22	Infant age recode 22		Blank	Age 1 year and over or not stated
						01	Under 1 hour (includes not stated hours and minutes)
						02	1 – 23 hours
						03	1 day (includes not stated days)
						04	2 days
						05	3 days
						06	4 days
						07	5 days
						08	6 days
						09	7 days (includes not stated weeks)
						10	14 – 20 days
						11	21 – 27 days
						12	1 month (includes not stated months)
						13	2 months
						14	3 months
						15	4 months
						16	5 months
						17	6 months
						18	7 months
						19	8 months
						20	9 months
						21	10 months
						22	11 months
1362	1	P,G	MANNER	Manner of Death		1	Accident
						2	Suicide
						3	Homicide
						4	Pending investigation
						5	Could not determine
						6	Self-inflicted
						7	Natural
						Blank	Not specified

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
1363	1	P,G	DISPO	Method of Disposition		B C O U	Burial Cremation Other Unknown
1364	1	P,G	AUTOPSY	Autopsy		Y N U	Yes No Unknown
1365	1	P,G	FILLER56	**Filler**		Blank	
1366	1	P,G	PLACE	Place of injury for causes W00-Y34, except Y06.- and Y07.-		0 1 2 3 4 5 6 7 8 9 Blank	Home Residential institution School, other institution and public administrative area Sports and athletics area Street and highway Trade and service area Industrial and construction area Farm Other Specified Places Unspecified place Cause other than W00-Y34, except Y06.- and Y07.-
1367	1	P,G	FILLER57	**Filler**		Blank	

UNDERLYING CAUSE OF DEATH

Position	Len	File*	Field	Description	Flag Position	Values	Definition
1368-1371	4	P,G	UC0D	ICD Code (10th Revision) See the <u>International Classification of Diseases</u>, 1992 Revision, Volume 1.			
1372	1	P,G	FILLER57	**Filler**		Blank	
1373-1375	3	P,G	UCODR130	130 Infant Cause Recode			
1376	1	P,G	FILLER58	**Filler**		Blank	
1377-1384	8	P,G	RECWT	Record Weight for period file		1.0-1.XXXXXX	
1385-1386	2	P,G	FILLER59	**Filler**		Blank	

MULTIPLE CONDITIONS

Position	Len	File*	Field	Description	Flag Position	Values	Definition
1387-1388	2	P,G	EANUM	Number of Entity-Axis Conditions		00-20	Code range

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
1389-1528	140	P,G	ENTITY	Entity-Axis Conditions			

Space has been provided for a maximum of 20 conditions. Each condition takes 7 positions in the record. The 7th position will be blank. 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

Position	Len	File*	Description
1389-1395	7	P,G	1st Condition
1396-1402	7	P,G	2nd Condition
1403-1409	7	P,G	3rd Condition
1410-1416	7	P,G	4th Condition
1417-1423	7	P,G	5th Condition
1424-1430	7	P,G	6th Condition
1431-1437	7	P,G	7th Condition
1438-1444	7	P,G	8th Condition
1445-1451	7	P,G	9th Condition
1452-1458	7	P,G	10th Condition
1459-1465	7	P,G	11th Condition
1466-1472	7	P,G	12th Condition
1473-1479	7	P,G	13th Condition
1480-1486	7	P,G	14th Condition
1487-1493	7	P,G	15th Condition
1494-1500	7	P,G	16th Condition
1501-1507	7	P,G	17th Condition
1508-1514	7	P,G	18th Condition
1515-1521	7	P,G	19th Condition
1522-1528	7	P,G	20th Condition

Position	Len	File*	Field	Description	Values	Definition
1529-1530	2	P,G	FILLER60	**Filler**	Blank	
1531-1532	2	P,G	RANUM	Number of Record-Axis Conditions	00-20	Code range

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
1533-1632	100	P,G	RECORD	Record-Axis Conditions			

Space has been provided for a maximum of 20 conditions. Each condition takes 5 positions in the record. The 5th position will be blank. Records that do not have 20 conditions are blank in the unused area.

<div style="text-align:center">Positions 1 – 4: Condition Code</div>

Position	Len	File*	Field	Description	Flag Position	Values	Definition
1533-1537	5	P,G		1st Condition			
1538-1542	5	P,G		2nd Condition			
1543-1547	5	P,G		3rd Condition			
1548-1552	5	P,G		4th Condition			
1553-1557	5	P,G		5th Condition			
1558-1562	5	P,G		6th Condition			
1563-1567	5	P,G		7th Condition			
1568-1572	5	P,G		8th Condition			
1573-1577	5	P,G		9th Condition			
1578-1582	5	P,G		10th Condition			
1583-1587	5	P,G		11th Condition			
1588-1592	5	P,G		12th Condition			
1593-1597	5	P,G		13th Condition			
1598-1602	5	P,G		14th Condition			
1603-1607	5	P,G		15th Condition			
1608-1612	5	P,G		16th Condition			
1613-1617	5	P,G		17th Condition			
1618-1622	5	P,G		18th Condition			
1623-1627	5	P,G		19th Condition			
1628-1632	5	P,G		20th Condition			
1633-1669	37	P,G	FILLER61	**Filler**		Blank	
1670	1	P,G	HOSPD	<u>Place of Death and Decendent's Status</u>		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	Decedent's home
						5	Hospice facility
						6	Nursing home/long term care
						7	Other
						9	Place of death unknown
1671	1	P,G	DWEEKDAY	<u>Day of Week of Death</u>		1	Sunday
						2	Monday
						3	Tuesday
						4	Wednesday
						5	Thursday
						6	Friday
						7	Saturday

1/ Flag Definitions: 0 Not reported either year, or not reported in either the previous or the current year, 1 Reported both years

Position	Len	File*	Field	Description	Flag Position	Values	Definition
						9	Unknown
1672-1675	4	P,G	DOD_YY	Data Year		2017	2017
1676-1741	66	P,G	FILLER62	**Filler**			
1742-1743	2	P,G	DOD_MM	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

    ST: 1 = Subtotal   Limited: Sex: 1 = Males; 2 = Females
                                   Age: 1 = 5 and over; 2 = 10-54; 3 = 28 days and over
                                        4 = Under 1 year; 5 = 1-4 years; 6 = 1 year and over
                                        7 = 10 years and over

                         ***** Cause Subtotals are not identified in this file *****

    130   S Limited
    Recode   T Sex Age Cause Title and ICD-10 Codes Included

     001   1   Certain infectious and parasitic diseases (A00-B99)
     002   Certain intestinal infectious diseases (A00-A08)
     003   Diarrhea and gastroenteritis of infectious origin (A09)
     004   Tuberculosis (A16-A19)
     005   Tetanus (A33,A35)
     006   Diphtheria (A36)
     007   Whooping cough (A37)
     008   Meningococcal infection (A39)
     009   3   Septicemia (A40-A41)
     010   Congenital syphilis (A50)
     011   Gonococcal infection (A54)
     012   1   Viral diseases (A80-B34)
     013   Acute poliomyelitis (A80)
     014   Varicella (chickenpox) (B01)
     015   Measles (B05)
     016   Human immunodeficiency virus (HIV) disease (B20-B24)
     017   Mumps (B26)
     018   Other and unspecified viral diseases (A81-B00,B02-B04,B06-B19,B25,B27-B34)
     019   Candidiasis (B37)
     020   Malaria (B50-B54)
     021   Pneumocystosis (B59)
     022   All other and unspecified infectious and parasitic diseases
                           (A20-A32,A38,A42-A49,A51-A53,A55-A79,B35-B36,B38-B49,B55-B58,B60-B99)
     023   1   Neoplasms (C00-D48)
     024   1   Malignant neoplasms (C00-C97)
     025   Hodgkin's disease and non-Hodgkin's lymphomas (C81-C85)
     026   Leukemia (C91-C95)
     027   Other and unspecified malignant neoplasms (C00-C80,C88,C90,C96-C97)
     028   In situ neoplasms, benign neoplasms and neoplasms of uncertain or unknown
                           behavior (D00-D48)
     029   1   Diseases of the blood and blood-forming organs and certain disorders involving
                         the immune mechanism (D50-D89)
     030   Anemias (D50-D64)
     031   Hemorrhagic conditions and other diseases of blood and blood-forming organs
                           (D65-D76)
     032   Certain disorders involving the immune mechanism (D80-D89)
     033   1   Endocrine, nutritional and metabolic diseases (E00-E88)
     034   Short stature, not elsewhere classified (E34.3)
     035   Nutritional deficiencies (E40-E64)
     036   Cystic fibrosis (E84)
     037   3   Volume depletion, disorders of fluid, electrolyte and acid-base balance
                           (E86-E87)
     038   All other endocrine, nutritional and metabolic diseases
                           (E00-E32,E34.0-E34.2,E34.4-E34.9,E65-E83,E85,E88)
     039   1   Diseases of the nervous system (G00-G98)
     040   Meningitis (G00,G03)
     041   Infantile spinal muscular atrophy, type I (Werdnig-Hoffman) (G12.0)
     042   Infantile cerebral palsy (G80)
     043   Anoxic brain damage, not elsewhere classified (G93.1)
     044   Other diseases of nervous system
                           (G04,G06-G11,G12.1-G12.9,G20-G72,G81-G92,G93.0,G93.2-G93.9,G95-G98)
     045   Diseases of the ear and mastoid process (H60-H93)
     046   1   Diseases of the circulatory system (I00-I99)
     047   Pulmonary heart disease and diseases of pulmonary circulation (I26-I28)
     048   Pericarditis, endocarditis and myocarditis (I30,I33,I40)
     049   Cardiomyopathy (I42)
     050   Cardiac arrest (I46)
     051   Cerebrovascular diseases (I60-I69)
     052   All other diseases of circulatory system (I00-I25,I31,I34-I38,I44-I45,I47-I51,
                           I70-I99)
     053   1   Diseases of the respiratory system (J00-J98)
     054   Acute upper respiratory infections (J00-J06)
     055   1   Influenza and pneumonia (J10-J18)

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130     S Limited
Recode  T Sex Age Cause Title and ICD-10 Codes Included


 056                          Influenza (J10-J11)
 057                          Pneumonia (J12-J18)
 058                        Acute bronchitis and acute bronchiolitis (J20-J21)
 059                        Bronchitis, chronic and unspecified (J40-J42)
 060                        Asthma (J45-J46)
 061                        Pneumonitis due to solids and liquids (J69)
 062                        Other and unspecified diseases of respiratory system
                              (J22,J30-J39,J43-J44,J47-J68,J70-J98)
 063     1         Diseases of the digestive system (K00-K92)
 064                        Gastritis, duodenitis, and noninfective enteritis and colitis (K29,K50-K55)
 065                        Hernia of abdominal cavity and intestinal obstruction without hernia
                              (K40-K46,K56)
 066                        All other and unspecified diseases of digestive system (K00-K28,K30-K38,K57-K92)
 067     1         Diseases of the genitourinary system (N00-N95)
 068                        Renal failure and other disorders of kidney (N17-N19,N25,N27)
 069                        Other and unspecified diseases of genitourinary system
                              (N00-N15,N20-N23,N26,N28-N95)
 070     1         Certain conditions originating in the perinatal period (P00-P96)
 071     1         Newborn affected by maternal factors and by complications of pregnancy, labor and
                     delivery (P00-P04)
 072                        Newborn affected by maternal hypertensive disorders (P00.0)
 073                        Newborn affected by other maternal conditions which may be unrelated to present
                              pregnancy (P00.1-P00.9)
 074     1         Newborn affected by maternal complications of pregnancy (P01)
 075                         Newborn affected by incompetent cervix (P01.0)
 076                         Newborn affected by premature rupture of membranes (P01.1)
 077                         Newborn affected by multiple pregnancy (P01.5)
 078                         Newborn affected by other maternal complications of pregnancy
                              (P01.2-P01.4,P01.6-P01.9)
 079     1         Newborn affected by complications of placenta, cord and membranes (P02)
 080                         Newborn affected by complications involving placenta (P02.0-P02.3)
 081                         Newborn affected by complications involving cord (P02.4-P02.6)
 082                         Newborn affected by chorioamnionitis (P02.7)
 083                         Newborn affected by other and unspecified abnormalities of membranes
                              (P02.8-P02.9)
 084                        Newborn affected by other complications of labor and delivery (P03)
 085                        Newborn affected by noxious influences transmitted via placenta or breast milk
                              (P04)
 086     1         Disorders related to length of gestation and fetal malnutrition (P05-P08)
 087                        Slow fetal growth and fetal malnutrition (P05)
 088     1         Disorders related to short gestation and low birthweight, not elsewhere
                     classified (P07)
 089                         Extremely low birthweight or extreme immaturity (P07.0,P07.2)
 090                         Other low birthweight or preterm (P07.1,P07.3)
 091                        Disorders related to long gestation and high birthweight (P08)
 092                        Birth trauma (P10-P15)
 093     1         Intrauterine hypoxia and birth asphyxia (P20-P21)
 094                         Intrauterine hypoxia (P20)
 095                         Birth asphyxia (P21)
 096                        Respiratory distress of newborn (P22)
 097     1         Other respiratory conditions originating in the perinatal period (P23-P28)
 098                         Congenital pneumonia (P23)
 099                         Neonatal aspiration syndromes (P24)
 100                         Interstitial emphysema and related conditions originating in the perinatal period
                              (P25)
 101                         Pulmonary hemorrhage originating in the perinatal period (P26)
 102                         Chronic respiratory disease originating in the perinatal period (P27)
 103                         Atelectasis (P28.0-P28.1)
 104                         All other respiratory conditions originating in the perinatal period
                              (P28.2-P28.9)
 105     1         Infections specific to the perinatal period (P35-P39)
 106                         Bacterial sepsis of newborn (P36)
 107                         Omphalitis of newborn with or without mild hemorrhage (P38)
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ST: 1 = Subtotal     Limited: Sex: 1 = Males; 2 = Females
                              Age: 1 = 5 and over; 2 = 10-54; 3 = 28 days and over
                                   4 = Under 1 year; 5 = 1-4 years; 6 = 1 year and over
                                   7 = 10 years and over

              ***** Cause Subtotals are not identified in this file *****


130      S Limited
Recode   T Sex Age Cause Title and ICD-10 Codes Included


 108                      All other infections specific to the perinatal period (P35,P37,P39)
 109     1               Hemorrhagic and hematological disorders of newborn (P50-P61)
 110                        Neonatal hemorrhage (P50-P52,P54)
 111                        Hemorrhagic disease of newborn (P53)
 112                        Hemolytic disease of newborn due to isoimmunization and other perinatal jaundice
                             (P55-P59)
 113                        Hematological disorders (P60-P61)
 114                     Syndrome of infant of a diabetic mother and neonatal diabetes mellitus
                             (P70.0-P70.2)
 115                     Necrotizing enterocolitis of newborn (P77)
 116                     Hydrops fetalis not due to hemolytic disease (P83.2)
 117                     Other perinatal conditions (P29,P70.3-P70.9,P71-P76,P78-P81,P83.0-P83.1,
                             P83.3-P83.9,P90-P96)
 118     1              Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99)
 119                       Anencephaly and similar malformations (Q00)
 120                       Congenital hydrocephalus (Q03)
 121                       Spina bifida (Q05)
 122                       Other congenital malformations of nervous system (Q01-Q02,Q04,Q06-Q07)
 123                       Congenital malformations of heart (Q20-Q24)
 124                       Other congenital malformations of circulatory system (Q25-Q28)
 125                       Congenital malformations of respiratory system (Q30-Q34)
 126                       Congenital malformations of digestive system (Q35-Q45)
 127                       Congenital malformations of genitourinary system (Q50-Q64)
 128                       Congenital malformations and deformations of musculoskeletal system, limbs and
                             integument (Q65-Q85)
 129                       Down's syndrome (Q90)
 130                       Edward's syndrome (Q91.0-Q91.3)
 131                       Patau's syndrome (Q91.4-Q91.7)
 132                       Other congenital malformations and deformations (Q10-Q18,Q86-Q89)
 133                       Other chromosomal abnormalities, not elsewhere classified (Q92-Q99)
 134     1              Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere
                             classified (R00-R99)
 135                       Sudden infant death syndrome (R95)
 136                       Other symptoms, signs and abnormal clinical and laboratory findings, not elsewhere
                             classified (R00-R53,R55-R94,R96-R99)
 137                    All other diseases (Residual) (F01-F99,H00-H57,L00-M99)
 138     1             External causes of mortality (*U01,V01-Y84)
 139     1              Accidents (unintentional injuries) (V01-X59)
 140     1               Transport accidents (V01-V99)
 141                        Motor vehicle accidents(V02-V04,V09.0,V09.2,V12-V14,V19.0-V19.2,
                               V19.4-V19.6,V20-V79,V80.3-V80.5,V81.0-V81.1,V82.0-V82.1,V83-V86,
                               V87.0-V87.8,V88.0-V88.8,V89.0,V89.2)
 142                        Other and unspecified transport accidents
                               (V01,V05-V06,V09.1,V09.3-V09.9,V10-V11,V15-V18,V19.3,
                               V19.8-V19.9,V80.0-V80.2,V80.6-V80.9,V81.2-V81.9,V82.2-V82.9,
                               V87.9,V88.9,V89.1,V89.3,V89.9,V90-V99)
 143                        Falls (W00-W19)
 144                        Accidental discharge of firearms (W32-W34)
 145                        Accidental drowning and submersion (W65-W74)
 146                        Accidental suffocation and strangulation in bed (W75)
 147                        Other accidental suffocation and strangulation (W76-W77,W81-W84)
 148                        Accidental inhalation and ingestion of food or other objects causing obstruction
                               of respiratory tract (W78-W80)
 149                        Accidents caused by exposure to smoke, fire and flames (X00-X09)
 150                        Accidental poisoning and exposure to noxious substances (X40-X49)
 151                        Other and unspecified accidents (W20-W31,W35-W64,W85-W99,X10-X39,X50-X59)
 152     1               Assault (homicide) (*U01,X85-Y09)
 153                       Assault (homicide) by hanging, strangulation and suffocation (X91)
 154                       Assault (homicide) by discharge of firearms (*U01.4,X93-X95)
 155                       Neglect, abandonment and other maltreatment syndromes (Y06-Y07)
 156                       Assault (homicide) by other and unspecified means
                             (*U01.0-*U01.3,*U01.5-*U01.9,X85-X90,X92,X96-X99,Y00-Y05,Y08-Y09)
 157                    Complications of medical and surgical care (Y40-Y84)
```

ST: 1 = Subtotal   Limited: Sex: 1 = Males; 2 = Females
                               Age: 1 = 5 and over; 2 = 10-54; 3 = 28 days and over
                                    4 = Under 1 year; 5 = 1-4 years; 6 = 1 year and over
                                    7 = 10 years and over

                    ***** Cause Subtotals are not identified in this file *****

130   S Limited
Recode T Sex Age Cause Title and ICD-10 Codes Included

 158   Other external causes (X60-X84,Y10-Y36)

Documentation Table 1. Live births and infant death by state of occurrence of birth and by state of residence at birth United States, Puerto Rico, Virgin Islands, and Guam, 2017 Period Data.
(Residence of birth is of the Mother)

| State | Live Births | | Infant Deaths | | | | Infant Mortality Rate |
| | | | Unweighted | | Weighted 1/ | | |
	Occurrence	Residence	Occurrence	Residence	Occurrence	Residence	
United States /2	3,864,781	3,855,500	22,280	22,249	22,372	22,341	5.79
Alabama	57,469	58,941	423	435	423	435	7.38
Alaska	10,353	10,445	51	59	52	60	5.74
Arizona	82,829	81,872	456	461	462	467	5.70
Arkansas	36,179	37,520	292	304	292	304	8.10
California	472,820	471,658	1,966	1,951	1,997	1,981	4.20
Colorado	64,964	64,382	304	289	304	289	4.49
Connecticut	36,712	35,221	160	159	160	159	4.51
Delaware	11,265	10,855	67	68	67	68	6.26
Dist of Columbia	14,603	9,560	132	78	132	78	8.16
Florida	223,608	223,630	1,363	1,361	1,366	1,364	6.10
Georgia	130,183	129,243	954	926	956	928	7.18
Hawaii	17,519	17,517	92	95	92	95	5.42
Idaho	21,825	22,181	93	101	93	101	4.55
Illinois	145,700	149,390	855	914	856	915	6.12
Indiana	83,122	82,170	566	590	569	593	7.22
Iowa	38,284	38,430	174	204	174	204	5.31
Kansas	38,013	36,519	200	220	200	220	6.02
Kentucky	52,410	54,752	334	360	335	361	6.59
Louisiana	61,204	61,018	434	431	434	431	7.06
Maine	12,072	12,298	71	72	71	72	5.85
Maryland	68,156	71,641	427	461	427	461	6.43
Massachusetts	71,428	70,702	275	259	275	259	3.66
Michigan	110,450	111,426	746	754	747	755	6.78
Minnesota	67,546	68,595	343	329	343	329	4.80
Mississippi	36,564	37,357	282	326	282	326	8.73
Missouri	73,869	73,034	536	454	539	457	6.26
Montana	11,752	11,799	63	65	63	65	5.51
Nebraska	26,237	25,821	157	142	158	143	5.54
Nevada	35,466	35,756	208	209	208	209	5.85
New Hampshire	12,064	12,116	45	51	45	51	4.21
New Jersey	98,955	101,250	421	450	422	451	4.45
New Mexico	22,343	23,767	128	139	128	139	5.85
New York	113,347	118,006	550	569	552	571	4.84
New York City	117,015	111,731	501	482	501	482	4.31
North Carolina	122,103	120,125	855	844	856	845	7.03
North Dakota	12,391	10,737	57	47	57	47	4.38
Ohio	137,460	136,832	1,030	983	1,030	983	7.18
Oklahoma	48,833	50,214	370	391	370	391	7.79
Oregon	44,161	43,631	244	233	244	233	5.34
Pennsylvania	136,916	137,745	856	837	856	837	6.08
Rhode Island	11,198	10,638	72	66	72	66	6.20
South Carolina	53,579	57,029	338	372	338	372	6.52
South Dakota	12,809	12,134	103	94	103	94	7.75
Tennessee	86,721	81,016	693	591	693	591	7.29

Documentation Table 1. Live births and infant death by state of occurrence of birth and by state of residence at birth United States, Puerto Rico, Virgin Islands, and Guam, 2017 Period Data -Con.
(Residence of birth is of the Mother)

State	Live Births		Infant Deaths				
			Unweighted		Weighted 1/		
							Infant Mortality
	Occurrence	Residence	Occurrence	Residence	Occurrence	Residence	Rate
Texas	390,056	382,050	2,236	2,208	2,264	2,236	5.85
Utah	49,651	48,585	289	284	291	286	5.89
Vermont	5,518	5,655	24	27	24	27	4.77
Virginia	99,476	100,391	561	589	564	592	5.90
Washington	87,331	87,562	342	339	343	340	3.88
West Virginia	19,252	18,675	119	129	120	130	6.96
Wisconsin	64,728	64,975	401	415	401	415	6.39
Wyoming	6,272	6,903	21	32	21	32	4.64
Puerto Rico	24,381	24,310	168	164	168	164	6.75
Guam	3,292	3,287	25	24	25	24	7.30

1/ Figures are based 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.

Documentation Table 2. Live births,infant deaths and infant mortality rates by race of mother, sex and birthweight of child: United States, 2017 Period Data.

[Rates are per 1,000 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										
Both sexes										
Live births......................................	3,855,500	6,189	9,471	10,625	12,709	15,995	62,617	202,142	3,533,652	2,100
Infant deaths................................	22,341	5,314	3,410	1,318	801	645	1,556	1,931	7,188	178
Infant Mortality Rate....................	5.79	858.62	360.05	124.05	63.03	40.33	24.85	9.55	2.03	84.76
Male										
Live births......................................	1,972,885	3,226	4,789	5,458	6,392	8,050	30,413	92,322	1,821,119	1,116
Infant deaths................................	12,467	2,853	1,969	811	469	357	817	1,002	4,073	117
Infant Mortality Rate....................	6.32	884.38	411.15	148.59	73.37	44.35	26.86	10.85	2.24	104.84
Female										
Live births......................................	1,882,615	2,963	4,682	5,167	6,317	7,945	32,204	109,820	1,712,533	984
Infant deaths................................	9,874	2,461	1,441	507	332	288	739	929	3,115	61
Infant Mortality Rate....................	5.24	830.58	307.77	98.12	52.56	36.25	22.95	8.46	1.82	61.99
Non-Hispanic White										
Both sexes										
Live births......................................	1,992,461	1,985	3,235	4,038	5,239	6,765	27,973	90,416	1,851,905	905
Infant deaths................................	9,306	1,717	1,228	544	358	304	694	894	3,499	67
Infant Mortality Rate....................	4.67	864.99	379.60	134.72	68.33	44.94	24.81	9.89	1.89	74.03
Male										
Live births......................................	1,022,316	1,027	1,643	2,066	2,625	3,366	13,523	41,186	956,397	483
Infant deaths................................	5,281	918	716	343	212	170	384	457	2,031	49
Infant Mortality Rate....................	5.17	893.87	435.79	166.02	80.76	50.51	28.40	11.10	2.12	101.45
Female										
Live births......................................	970,145	958	1,592	1,972	2,614	3,399	14,450	49,230	895,508	422
Infant deaths................................	4,025	799	512	201	146	135	310	437	1,468	18
Infant Mortality Rate....................	4.15	834.03	321.61	101.93	55.85	39.72	21.45	8.88	1.64	*
Non-Hispanic Black										
Both sexes										
Live births......................................	560,715	2,285	3,280	3,355	3,650	4,280	15,232	46,044	482,265	324
Infant deaths................................	6,152	1,925	1,029	356	185	152	355	450	1,641	59
Infant Mortality Rate....................	10.97	842.45	313.72	106.11	50.68	35.51	23.31	9.77	3.40	182.10
Male										
Live births......................................	285,040	1,206	1,650	1,703	1,777	2,112	7,051	20,437	248,927	177
Infant deaths................................	3,423	1,051	608	222	108	78	179	242	898	38
Infant Mortality Rate....................	12.01	871.48	368.48	130.36	60.78	36.93	25.39	11.84	3.61	214.69

Documentation Table 2. Live births,infant deaths and infant mortality rates by race of mother, sex and birthweight of child: United States, 2017 Period Data -Con.
[Rates are per 1,000 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
Female										
Live births....................................	275,675	1,079	1,630	1,652	1,873	2,168	8,181	25,607	233,338	147
Infant deaths...............................	2,728	874	421	134	76	74	176	207	743	21
Infant Mortality Rate....................	9.90	810.01	258.28	81.11	40.58	34.13	21.51	8.08	3.18	142.86
Non-Hispanic American Indian or Alaskan Native /1										
Both sexes										
Live births....................................	29,957	50	74	77	100	129	516	1,533	27,463	15
Infant deaths...............................	276	42	26	18	8	13	25	17	124	2
Infant Mortality Rate....................	9.21	840.00	351.35	*	*	*	48.45	*	4.52	*
Male										
Live births....................................	15,310	32	39	38	53	78	269	716	14,077	8
Infant deaths...............................	159	28	14	7	5	8	15	10	70	2
Infant Mortality Rate....................	10.39	875.00	*	*	*	*	*	*	4.97	*
Female										
Live births....................................	14,647	18	35	39	47	51	247	817	13,386	7
Infant deaths...............................	116	14	12	11	3	5	10	7	54	-
Infant Mortality Rate....................	7.92	*	*	*	*	*	*	*	4.03	-
Non-Hispanic Asian										
Both sexes										
Live births....................................	249,250	275	476	516	679	906	3,920	14,487	227,910	81
Infant deaths...............................	943	242	187	63	30	23	60	88	246	3
Infant Mortality Rate....................	3.78	880.00	392.86	122.09	44.18	25.39	15.31	6.07	1.08	*
Male										
Live births....................................	128,520	151	233	275	355	463	2,055	6,770	118,176	42
Infant deaths...............................	530	137	112	36	15	12	34	43	137	3
Infant Mortality Rate....................	4.12	907.28	480.69	130.91	*	*	16.55	6.35	1.16	*
Female										
Live births....................................	120,730	124	243	241	324	443	1,865	7,717	109,734	39
Infant deaths...............................	413	105	76	27	15	11	26	45	108	-
Infant Mortality Rate....................	3.42	846.77	312.76	112.03	46.30	24.83	13.94	5.83	0.98	-
Non-Hispanic Native Hawaiian or Other Pacific Islander										
Both sexes										
Live births....................................	9,426	14	24	15	28	29	162	459	8,691	4
Infant deaths...............................	72	12	10	1	5	2	6	7	27	2
Infant Mortality Rate....................	7.64	*	*	*	*	*	*	*	3.11	*

Documentation Table 2. Live births,infant deaths and infant mortality rates by race of mother, sex and birthweight of child: United States, 2017 Period Data -Con.
[Rates are per 1,000 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
Male										
Live births......................................	4,954	6	12	7	16	16	91	219	4,584	3
Infant deaths................................	39	4	5	1	4	1	4	2	16	2
Infant Mortality Rate....................	7.87	*	*	*	*	*	*	*	*	*
Female										
Live births......................................	4,472	8	12	8	12	13	71	240	4,107	1
Infant deaths................................	33	8	5	-	1	1	2	5	11	-
Infant Mortality Rate....................	7.38	*	*	-	*	*	*	*	*	-
Hispanic										
Both sexes										
Live births......................................	898,764	1,279	2,044	2,210	2,557	3,353	12,774	42,720	831,573	254
Infant deaths................................	4,584	1,103	782	276	180	133	350	402	1,344	13
Infant Mortality Rate....................	5.10	862.39	382.58	124.89	70.39	39.67	27.40	9.41	1.62	*
Male										
Live births......................................	457,788	651	1,046	1,154	1,321	1,732	6,440	19,923	425,391	130
Infant deaths................................	2,473	573	437	168	107	79	166	202	736	7
Infant Mortality Rate....................	5.40	880.18	417.78	145.58	81.00	45.61	25.78	10.14	1.73	*
Female										
Live births......................................	440,976	628	998	1,056	1,236	1,621	6,334	22,797	406,182	124
Infant deaths................................	2,110	531	345	108	74	54	184	201	609	6
Infant Mortality Rate....................	4.78	845.54	345.69	102.27	59.87	33.31	29.05	8.82	1.50	*

* Figure does not meet standard of reliability or precision: based on fewer than 20 deaths in the numerator
- Quantity zero
1/ Includes Aleut and Eskimos

Documentation Table 3. Live births, infant deaths, and infant mortality rates by birthweight, race of mother, and gestational age: United States, 2017 period data

[Rates are per 1,000 live births]

Birthweight	Total	<28 Weeks	28-31 Weeks	32-33 Weeks	34-36 Weeks	37-39 Weeks	40 Weeks	41 Weeks	42 Weeks or more	Not Stated
All Races										
Total										
Live births.......................................	3,855,500	25,913	35,476	45,028	276,309	2,434,939	781,645	240,871	12,560	2,759
Infant deaths...................................	22,341	9,961	1,553	923	2,350	5,786	1,113	364	50	241
Infant Mortality Rate......................	5.79	384.40	43.78	20.50	8.50	2.38	1.42	1.51	3.98	87.35
Less than 2,500 grams										
Live births.......................................	319,748	25,715	34,489	41,459	119,415	93,318	4,173	737	97	345
Infant deaths...................................	14,975	9,955	1,521	824	1,473	1,031	83	23	8	57
Infant Mortality Rate......................	46.83	387.13	44.10	19.88	12.34	11.05	19.89	31.21	*	165.22
Less than 500 grams										
Live births.......................................	6,189	6,081	77	1	3	1	-	-	-	26
Infant deaths...................................	5,314	5,257	33	1	-	-	-	-	-	23
Infant Mortality Rate......................	858.62	864.50	428.57	*	-	-	-	-	-	884.62
500-749 grams										
Live births.......................................	9,471	8,672	729	37	13	2	-	-	-	18
Infant deaths...................................	3,410	3,276	110	13	3	-	-	-	-	8
Infant Mortality Rate......................	360.05	377.77	150.89	*	*	-	-	-	-	*
750-999 grams										
Live births.......................................	10,625	7,213	3,051	195	68	67	11	5	1	14
Infant deaths...................................	1,318	1,039	227	22	16	5	1	-	-	7
Infant Mortality Rate......................	124.05	144.05	74.40	112.82	*	*	*	-	-	*
1,000-1,249 grams										
Live births.......................................	12,709	3,071	7,808	1,208	396	168	30	8	-	20
Infant deaths...................................	801	289	361	68	58	18	3	-	-	3
Infant Mortality Rate......................	63.03	94.11	46.23	56.29	146.46	*	*	-	-	*
1,250-1,499 grams										
Live births.......................................	15,995	485	9,514	3,804	1,781	335	49	11	2	14
Infant deaths...................................	645	62	316	125	103	35	2	-	-	2
Infant Mortality Rate......................	40.33	127.84	33.21	32.86	57.83	104.48	*	-	-	*
1,500-1,999 grams										
Live births.......................................	62,617	121	11,860	20,870	24,076	5,351	212	56	10	61
Infant deaths...................................	1,556	28	383	361	510	247	15	3	1	7
Infant Mortality Rate......................	24.85	231.40	32.29	17.30	21.18	46.16	*	*	*	*
2,000-2,499 grams										
Live births.......................................	202,142	72	1,450	15,344	93,078	87,394	3,871	657	84	192
Infant deaths...................................	1,931	3	90	234	784	725	61	20	7	7
Infant Mortality Rate......................	9.55	*	62.07	15.25	8.42	8.30	15.76	30.44	*	*

Documentation Table 3. Live births, infant deaths, and infant mortality rates by birthweight, race of mother, and gestational age: United States, 2017 period data -Con.

[Rates are per 1,000 live births]

Birthweight	Total	<28 Weeks	28-31 Weeks	32-33 Weeks	34-36 Weeks	37-39 Weeks	40 Weeks	41 Weeks	42 Weeks or more	Not Stated
2,500 grams or more										
Live births..	3,533,652	87	924	3,526	156,788	2,341,101	777,190	240,058	12,452	1,526
Infant deaths..................................	7,188	3	31	98	875	4,752	1,029	341	42	16
Infant Mortality Rate......................	2.03	*	33.55	27.79	5.58	2.03	1.32	1.42	3.37	*
Not Stated										
Live births..	2,100	111	63	43	106	520	282	76	11	888
Infant deaths..................................	178	3	1	1	1	3	1	-	-	168
Infant Mortality Rate......................	84.76	*	*	*	*	*	*	-	-	189.19
Non-Hispanic White										
Total										
Live births..	1,992,461	9,200	15,429	21,132	134,561	1,237,324	424,118	141,621	8,025	1,051
Infant deaths..................................	9,306	3,492	676	420	1,123	2,761	538	189	26	81
Infant Mortality Rate......................	4.67	379.57	43.81	19.88	8.35	2.23	1.27	1.33	3.24	77.07
Less than 2,500 grams										
Live births..	139,651	9,121	15,012	19,386	54,489	39,385	1,724	345	51	138
Infant deaths..................................	5,740	3,489	659	372	694	457	36	9	7	16
Infant Mortality Rate......................	41.10	382.52	43.90	19.19	12.74	11.60	20.88	*	*	*
Less than 500 grams										
Live births..	1,985	1,944	28	1	3	-	-	-	-	9
Infant deaths..................................	1,717	1,697	11	1	-	-	-	-	-	8
Infant Mortality Rate......................	864.99	872.94	*	*	-	-	-	-	-	*
500-749 grams										
Live births..	3,235	2,916	288	20	5	1	-	-	-	5
Infant deaths..................................	1,228	1,175	42	8	2	-	-	-	-	1
Infant Mortality Rate......................	379.60	402.95	145.83	*	*	-	-	-	-	*
750-999 grams										
Live births..	4,038	2,660	1,215	91	24	32	7	3	1	5
Infant deaths..................................	544	431	85	11	10	2	1	-	-	3
Infant Mortality Rate......................	134.72	162.03	69.96	*	*	*	*	-	-	*
1,000-1,249 grams										
Live births..	5,239	1,311	3,116	530	181	75	15	3	-	8
Infant deaths..................................	358	137	155	28	28	8	-	-	-	1
Infant Mortality Rate......................	68.33	104.50	49.74	52.83	154.70	*	-	-	-	*
1,250-1,499 grams										
Live births..	6,765	215	3,989	1,592	785	150	20	6	-	8
Infant deaths..................................	304	32	144	59	50	18	1	-	-	-
Infant Mortality Rate......................	44.94	148.84	36.10	37.06	63.69	*	*	-	-	-

Documentation Table 3. Live births, infant deaths, and infant mortality rates by birthweight, race of mother, and gestational age: United States, 2017 period data -Con.
[Rates are per 1,000 live births]

Birthweight	Total	Gestation								
		<28 Weeks	28-31 Weeks	32-33 Weeks	34-36 Weeks	37-39 Weeks	40 Weeks	41 Weeks	42 Weeks or more	Not Stated
1,500-1,999 grams										
Live births..	27,973	51	5,639	9,407	10,352	2,372	97	23	10	22
Infant deaths....................................	694	14	177	152	233	107	7	1	1	1
Infant Mortality Rate.......................	24.81	*	31.39	16.16	22.51	45.11	*	*	*	*
2,000-2,499 grams										
Live births..	90,416	24	737	7,745	43,139	36,755	1,585	310	40	81
Infant deaths....................................	894	2	44	112	371	322	27	8	6	2
Infant Mortality Rate.......................	9.89	*	59.70	14.46	8.60	8.76	17.03	*	*	*
2,500 grams or more										
Live births..	1,851,905	41	387	1,718	80,005	1,197,621	422,218	141,221	7,967	727
Infant deaths....................................	3,499	1	17	47	428	2,302	500	180	19	4
Infant Mortality Rate.......................	1.89	*	*	27.36	5.35	1.92	1.18	1.27	*	*
Not Stated										
Live births..	905	38	30	28	67	318	176	55	7	186
Infant deaths....................................	67	2	-	1	1	1	1	-	-	61
Infant Mortality Rate.......................	74.03	*	-	*	*	*	*	-	-	327.96
Non-Hispanic Black										
Total										
Live births..	560,715	8,548	9,070	9,656	50,750	355,389	97,486	27,786	1,585	445
Infant deaths....................................	6,152	3,250	404	217	504	1,372	239	70	15	80
Infant Mortality Rate.......................	10.97	380.21	44.54	22.47	9.93	3.86	2.45	2.52	*	179.78
Less than 2,500 grams										
Live births..	78,126	8,491	8,875	9,112	26,910	23,476	996	155	25	86
Infant deaths....................................	4,452	3,248	398	199	338	234	10	5	-	20
Infant Mortality Rate.......................	56.98	382.52	44.85	21.84	12.56	9.97	*	*	-	232.56
Less than 500 grams										
Live births..	2,285	2,252	22	-	-	-	-	-	-	11
Infant deaths....................................	1,925	1,909	7	-	-	-	-	-	-	9
Infant Mortality Rate.......................	842.45	847.69	*	-	-	-	-	-	-	*
500-749 grams										
Live births..	3,280	3,037	226	10	3	-	-	-	-	4
Infant deaths....................................	1,029	986	35	5	1	-	-	-	-	2
Infant Mortality Rate.......................	313.72	324.66	154.87	*	*	-	-	-	-	*
750-999 grams										
Live births..	3,355	2,284	982	50	15	20	1	1	-	2
Infant deaths....................................	356	283	67	2	2	2	-	-	-	-
Infant Mortality Rate.......................	106.11	123.91	68.23	*	*	*	-	-	-	-

Documentation Table 3. Live births, infant deaths, and infant mortality rates by birthweight, race of mother, and gestational age: United States, 2017 period data -Con.

[Rates are per 1,000 live births]

Birthweight	Total	<28 Weeks	28-31 Weeks	32-33 Weeks	34-36 Weeks	37-39 Weeks	40 Weeks	41 Weeks	42 Weeks or more	Not Stated
1,000-1,249 grams										
Live births......................................	3,650	768	2,394	325	104	46	2	4	-	7
Infant deaths..................................	185	56	101	14	8	3	-	-	-	2
Infant Mortality Rate......................	50.68	72.92	42.19	*	*	*	-	-	-	*
1,250-1,499 grams										
Live births......................................	4,280	103	2,577	1,035	475	73	9	2	2	4
Infant deaths..................................	152	9	86	30	20	5	-	-	-	2
Infant Mortality Rate......................	35.51	*	33.37	28.99	42.11	*	-	-	-	*
1,500-1,999 grams										
Live births......................................	15,232	23	2,447	5,053	6,267	1,372	41	13	-	16
Infant deaths..................................	355	5	89	92	115	46	3	1	-	3
Infant Mortality Rate......................	23.31	*	36.37	18.21	18.35	33.53	*	*	-	*
2,000-2,499 grams										
Live births......................................	46,044	24	227	2,639	20,046	21,965	943	135	23	42
Infant deaths..................................	450	-	12	55	191	178	7	4	-	2
Infant Mortality Rate......................	9.77	-	*	20.84	9.53	8.10	*	*	-	*
2,500 grams or more										
Live births......................................	482,265	19	179	537	23,819	331,833	96,453	27,625	1,557	243
Infant deaths..................................	1,641	1	5	18	166	1,138	229	65	15	3
Infant Mortality Rate......................	3.40	*	*	*	6.97	3.43	2.37	2.35	*	*
Not Stated										
Live births......................................	324	38	16	7	21	80	37	6	3	116
Infant deaths..................................	59	1	1	-	-	-	-	-	-	57
Infant Mortality Rate......................	182.10	*	*	-	-	-	-	-	-	491.38
Non-Hispanic American Indian or Alaskan Native /1										
Total										
Live births......................................	29,957	213	304	406	2,622	19,154	5,534	1,585	80	59
Infant deaths..................................	276	87	19	14	39	84	17	10	-	5
Infant Mortality Rate......................	9.21	408.45	*	*	14.87	4.39	*	*	-	*
Less than 2,500 grams										
Live births......................................	2,479	210	292	360	942	624	37	4	-	10
Infant deaths..................................	150	87	19	12	20	8	2	-	-	1
Infant Mortality Rate......................	60.51	414.29	*	*	21.23	*	*	-	-	*
Less than 500 grams										
Live births......................................	50	49	1	-	-	-	-	-	-	-
Infant deaths..................................	42	42	-	-	-	-	-	-	-	-
Infant Mortality Rate......................	840.00	857.14	-	-	-	-	-	-	-	-

Documentation Table 3. Live births, infant deaths, and infant mortality rates by birthweight, race of mother, and gestational age: United States, 2017 period data -Con.

[Rates are per 1,000 live births]

Birthweight	Total	Gestation								
		<28 Weeks	28-31 Weeks	32-33 Weeks	34-36 Weeks	37-39 Weeks	40 Weeks	41 Weeks	42 Weeks or more	Not Stated
500-749 grams										
Live births......................................	74	68	5	-	-	-	-	-	-	1
Infant deaths..................................	26	24	2	-	-	-	-	-	-	-
Infant Mortality Rate......................	351.35	352.94	*	-	-	-	-	-	-	-
750-999 grams										
Live births......................................	77	55	20	1	1	-	-	-	-	-
Infant deaths..................................	18	15	2	1	-	-	-	-	-	-
Infant Mortality Rate......................	*	*	*	*	-	-	-	-	-	-
1,000-1,249 grams										
Live births......................................	100	28	59	8	4	-	-	-	-	1
Infant deaths..................................	8	3	3	1	1	-	-	-	-	-
Infant Mortality Rate......................	*	*	*	*	*	-	-	-	-	-
1,250-1,499 grams										
Live births......................................	129	7	69	26	18	7	2	-	-	-
Infant deaths..................................	13	1	6	2	3	-	1	-	-	-
Infant Mortality Rate......................	*	*	*	*	*	-	*	-	-	-
1,500-1,999 grams										
Live births......................................	516	3	117	170	183	39	4	-	-	-
Infant deaths..................................	25	2	6	7	8	2	-	-	-	-
Infant Mortality Rate......................	48.45	*	*	*	*	*	-	-	-	-
2,000-2,499 grams										
Live births......................................	1,533	-	21	155	736	578	31	4	-	8
Infant deaths..................................	17	-	-	1	8	6	1	-	-	1
Infant Mortality Rate......................	*	-	-	*	*	*	*	-	-	*
2,500 grams or more										
Live births......................................	27,463	2	12	45	1,680	18,525	5,495	1,580	80	44
Infant deaths..................................	124	-	-	2	19	76	15	10	-	2
Infant Mortality Rate......................	4.52	-	-	*	*	4.10	*	*	-	*
Not Stated										
Live births......................................	15	1	-	1	-	5	2	1	-	5
Infant deaths..................................	2	-	-	-	-	-	-	-	-	2
Infant Mortality Rate......................	*	-	-	-	-	-	-	-	-	*
Non-Hispanic Asian										
Total										
Live births......................................	249,250	1,246	1,751	2,456	15,797	165,095	50,033	12,439	366	67
Infant deaths..................................	943	483	52	36	98	223	33	11	-	6
Infant Mortality Rate......................	3.78	387.64	29.70	14.66	6.20	1.35	0.66	*	-	*

Documentation Table 3. Live births, infant deaths, and infant mortality rates by birthweight, race of mother, and gestational age: United States, 2017 period data -Con.

[Rates are per 1,000 live births]

Birthweight	Total	Gestation								
		<28 Weeks	28-31 Weeks	32-33 Weeks	34-36 Weeks	37-39 Weeks	40 Weeks	41 Weeks	42 Weeks or more	Not Stated
Less than 2,500 grams										
Live births...	21,259	1,232	1,700	2,309	7,818	7,810	329	48	5	8
Infant deaths...................................	694	482	51	34	67	51	4	1	-	3
Infant Mortality Rate......................	32.64	391.23	30.00	14.72	8.57	6.53	*	*	-	*
Less than 500 grams										
Live births...	275	270	4	-	-	1	-	-	-	-
Infant deaths...................................	242	240	2	-	-	-	-	-	-	-
Infant Mortality Rate......................	880.00	888.89	*	-	-	-	-	-	-	-
500-749 grams										
Live births...	476	432	42	-	1	-	-	-	-	1
Infant deaths...................................	187	181	5	-	-	-	-	-	-	1
Infant Mortality Rate......................	392.86	418.98	*	-	-	-	-	-	-	*
750-999 grams										
Live births...	516	337	157	9	6	4	1	-	-	2
Infant deaths...................................	63	47	12	-	2	-	-	-	-	2
Infant Mortality Rate......................	122.09	139.47	*	-	*	-	-	-	-	*
1,000-1,249 grams										
Live births...	679	162	402	79	23	10	3	-	-	-
Infant deaths...................................	30	10	9	6	4	1	-	-	-	-
Infant Mortality Rate......................	44.18	*	*	*	*	*	-	-	-	-
1,250-1,499 grams										
Live births...	906	20	474	258	129	21	4	-	-	-
Infant deaths...................................	23	4	7	7	4	1	-	-	-	-
Infant Mortality Rate......................	25.39	*	*	*	*	*	-	-	-	-
1,500-1,999 grams										
Live births...	3,920	7	567	1,221	1,695	412	12	5	-	1
Infant deaths...................................	60	-	12	15	23	9	1	-	-	-
Infant Mortality Rate......................	15.31	-	*	*	13.57	*	*	-	-	-
2,000-2,499 grams										
Live births...	14,487	4	54	742	5,964	7,362	309	43	5	4
Infant deaths...................................	88	-	4	6	34	40	3	1	-	-
Infant Mortality Rate......................	6.07	-	*	*	5.70	5.43	*	*	-	-
2,500 grams or more										
Live births...	227,910	5	50	146	7,977	157,259	49,689	12,389	361	34
Infant deaths...................................	246	1	1	2	31	172	29	10	-	-
Infant Mortality Rate......................	1.08	*	*	*	3.89	1.09	0.58	*	-	-

Documentation Table 3. Live births, infant deaths, and infant mortality rates by birthweight, race of mother, and gestational age: United States, 2017 period data -Con.

[Rates are per 1,000 live births]

Birthweight	Total	<28 Weeks	28-31 Weeks	32-33 Weeks	34-36 Weeks	37-39 Weeks	40 Weeks	41 Weeks	42 Weeks or more	Not Stated
Not Stated										
Live births........................	81	9	1	1	2	26	15	2	-	25
Infant deaths....................	3	-	-	-	-	-	-	-	-	3
Infant Mortality Rate......................	*	-	-	-	-	-	-	-	-	*
Non-Hispanic Native Hawaiian or Other Pacific Islander										
Total										
Live births........................	9,426	51	79	122	740	5,916	1,831	629	42	16
Infant deaths....................	72	25	5	2	8	22	7	-	-	3
Infant Mortality Rate......................	7.64	490.20	*	*	*	3.72	*	-	-	*
Less than 2,500 grams										
Live births........................	731	51	79	105	241	236	15	1	-	3
Infant deaths....................	43	25	5	2	4	5	1	-	-	1
Infant Mortality Rate......................	58.82	490.20	*	*	*	*	*	-	-	*
Less than 500 grams										
Live births........................	14	14	-	-	-	-	-	-	-	-
Infant deaths....................	12	12	-	-	-	-	-	-	-	-
Infant Mortality Rate......................	*	*	-	-	-	-	-	-	-	-
500-749 grams										
Live births........................	24	20	4	-	-	-	-	-	-	-
Infant deaths....................	10	10	-	-	-	-	-	-	-	-
Infant Mortality Rate......................	*	*	-	-	-	-	-	-	-	-
750-999 grams										
Live births........................	15	10	4	-	-	-	-	-	-	1
Infant deaths....................	1	-	-	-	-	-	-	-	-	1
Infant Mortality Rate......................	*	-	-	-	-	-	-	-	-	*
1,000-1,249 grams										
Live births........................	28	7	16	5	-	-	-	-	-	-
Infant deaths....................	5	3	2	-	-	-	-	-	-	-
Infant Mortality Rate......................	*	*	*	-	-	-	-	-	-	-
1,250-1,499 grams										
Live births........................	29	-	19	6	3	1	-	-	-	-
Infant deaths....................	2	-	2	-	-	-	-	-	-	-
Infant Mortality Rate......................	*	-	*	-	-	-	-	-	-	-
1,500-1,999 grams										
Live births........................	162	-	29	57	53	18	4	-	-	1
Infant deaths....................	6	-	1	2	1	2	-	-	-	-
Infant Mortality Rate......................	*	-	*	*	*	*	-	-	-	-

Documentation Table 3. Live births, infant deaths, and infant mortality rates by birthweight, race of mother, and gestational age: United States, 2017 period data -Con.

[Rates are per 1,000 live births]

Birthweight	Total	<28 Weeks	28-31 Weeks	32-33 Weeks	34-36 Weeks	37-39 Weeks	40 Weeks	41 Weeks	42 Weeks or more	Not Stated
2,000-2,499 grams										
Live births.........................	459	-	7	37	185	217	11	1	-	1
Infant deaths....................	7	-	-	-	3	3	1	-	-	-
Infant Mortality Rate......................	*	-	-	-	*	*	*	-	-	-
2,500 grams or more										
Live births.........................	8,691	-	-	17	499	5,680	1,816	628	42	9
Infant deaths....................	27	-	-	-	4	17	6	-	-	-
Infant Mortality Rate......................	3.11	-	-	-	*	*	*	-	-	-
Not Stated										
Live births.........................	4	-	-	-	-	-	-	-	-	4
Infant deaths....................	2	-	-	-	-	-	-	-	-	2
Infant Mortality Rate......................	*	-	-	-	-	-	-	-	-	*
Hispanic										
Live births.........................	898,764	5,605	7,635	9,785	63,368	582,315	178,815	48,752	2,034	455
Infant deaths....................	4,584	2,140	339	199	481	1,106	229	61	6	22
Infant Mortality Rate......................	5.10	381.80	44.40	20.34	7.59	1.90	1.28	1.25	*	48.35
Less than 2,500 grams										
Live births.........................	66,937	5,570	7,348	8,838	25,255	18,775	934	151	11	55
Infant deaths....................	3,226	2,140	331	177	297	240	26	5	-	9
Infant Mortality Rate......................	48.19	384.20	45.05	20.03	11.76	12.78	27.84	*	-	*
Less than 500 grams										
Live births.........................	1,279	1,257	17	-	-	-	-	-	-	5
Infant deaths....................	1,103	1,088	10	-	-	-	-	-	-	5
Infant Mortality Rate......................	862.39	865.55	*	-	-	-	-	-	-	*
500-749 grams										
Live births.........................	2,044	1,900	129	6	4	1	-	-	-	4
Infant deaths....................	782	757	21	-	-	-	-	-	-	3
Infant Mortality Rate......................	382.58	398.42	162.79	-	-	-	-	-	-	*
750-999 grams										
Live births.........................	2,210	1,562	580	36	20	10	1	1	-	-
Infant deaths....................	276	212	53	8	2	1	-	-	-	-
Infant Mortality Rate......................	124.89	135.72	91.38	*	*	*	-	-	-	-
1,000-1,249 grams										
Live births.........................	2,557	681	1,533	222	76	32	10	1	-	2
Infant deaths....................	180	62	79	16	15	5	3	-	-	-
Infant Mortality Rate......................	70.39	91.04	51.53	*	*	*	*	-	-	-

Documentation Table 3. Live births, infant deaths, and infant mortality rates by birthweight, race of mother, and gestational age: United States, 2017 period data -Con.
[Rates are per 1,000 live births]

Birthweight	Total	<28 Weeks	28-31 Weeks	32-33 Weeks	34-36 Weeks	37-39 Weeks	40 Weeks	41 Weeks	42 Weeks or more	Not Stated
1,250-1,499 grams										
Live births.........................	3,353	118	2,066	770	311	71	13	3	-	1
Infant deaths.................................	133	13	67	21	21	10	-	-	-	-
Infant Mortality Rate......................	39.67	*	32.43	27.27	67.52	*	-	-	-	-
1,500-1,999 grams										
Live births.........................	12,774	35	2,681	4,286	4,750	958	41	12	-	11
Infant deaths.................................	350	7	78	80	110	70	3	1	-	1
Infant Mortality Rate......................	27.40	*	29.09	18.67	23.16	73.07	*	*	-	*
2,000-2,499 grams										
Live births.........................	42,720	17	342	3,518	20,094	17,703	869	134	11	32
Infant deaths.................................	402	1	22	53	149	153	20	4	-	-
Infant Mortality Rate......................	9.41	*	64.33	15.07	7.42	8.64	23.01	*	-	-
2,500 grams or more										
Live births.........................	831,573	16	274	941	38,101	563,463	177,837	48,593	2,022	326
Infant deaths.................................	1,344	-	7	21	184	865	203	56	6	2
Infant Mortality Rate......................	1.62	-	*	22.32	4.83	1.54	1.14	1.15	*	*
Not Stated										
Live births.........................	254	19	13	6	12	77	44	8	1	74
Infant deaths.................................	13	-	-	-	-	2	-	-	-	11
Infant Mortality Rate......................	*	-	-	-	-	*	-	-	-	*

-/ Quality Zero

*/ Figure does not meet standard of reliability or precision: based on fewer than 20 deaths in the numerator

1/ Includes Aleuts and Eskimos

Documentation Table 4. Live births, infant deaths and infant mortality rates by birthweight, race of mother, and age at death: United States, 2017 period data.

[Infant deaths are under 1 year. Neonatal deaths are under 28 days; early neonatal, 0-6 days; late neonatal, 7-27 days. Postneonatal deaths are 28 days to less than 12 months. Rates are per 1,000 live births]

Birthweight and race of mother	Live Births	Infant	Total Neonatal	Early Neonatal	Late Neonatal	Post-Neonatal
All Races						
Total (all birthweights)	3,855,500	22,341	14,844	11,971	2,873	7,497
Rate		5.79	3.85	3.10	0.75	1.94
Less than 2,500 grams	319,748	14,975	12,177	10,304	1,873	2,798
Rate		46.83	38.08	32.23	5.86	8.75
Less than 500 grams	6,189	5,314	5,192	5,012	180	122
Rate		858.62	838.91	809.82	29.08	19.71
500-749 grams	9,471	3,410	2,892	2,207	685	519
Rate		360.05	305.35	233.03	72.33	54.80
750-999 grams	10,625	1,318	1,022	725	297	296
Rate		124.05	96.19	68.24	27.95	27.86
1,000-1,249 grams	12,709	801	574	446	128	227
Rate		63.03	45.16	35.09	10.07	17.86
1,250-1,499 grams	15,995	645	456	366	90	188
Rate		40.33	28.51	22.88	5.63	11.75
1,500-1,749 grams	23,872	741	507	410	97	234
Rate		31.04	21.24	17.17	4.06	9.80
1,750-1,999 grams	38,745	815	511	399	112	304
Rate		21.03	13.19	10.30	2.89	7.85
2,000-2,499 grams	202,142	1,931	1,023	739	284	908
Rate		9.55	5.06	3.66	1.40	4.49
2,500 grams or more	3,533,652	7,188	2,501	1,509	992	4,687
Rate		2.03	0.71	0.43	0.28	1.33
Not Stated	2,100	178	166	159	7	12
Rate		84.76	79.05	75.71	*	*
Non-Hispanic White						
Total (all birthweights)	1,992,461	9,306	6,060	4,754	1,306	3,246
Rate		4.67	3.04	2.39	0.66	1.63

Documentation Table 4. Live births, infant deaths and infant mortality rates by birthweight, race of mother, and age at death: United States, 2017 period data -Con.

[Infant deaths are under 1 year. Neonatal deaths are under 28 days; early neonatal, 0-6 days; late neonatal, 7-27 days. Postneonatal deaths are 28 days to less than 12 months. Rates are per 1,000 live births]

Birthweight and race of mother	Live Births	Infant	Total Neonatal	Early Neonatal	Late Neonatal	Post-Neonatal
Less than 2,500 grams	139,651	5,740	4,676	3,901	774	1,064
Rate		41.10	33.48	27.93	5.54	7.62
Less than 500 grams	1,985	1,717	1,687	1,619	68	30
Rate		864.99	849.87	815.62	34.26	15.11
500-749 grams	3,235	1,228	1,065	818	247	163
Rate		379.60	329.21	252.86	76.35	50.39
750-999 grams	4,038	544	438	312	126	105
Rate		134.72	108.47	77.27	31.20	26.00
1,000-1,249 grams	5,239	358	265	210	55	93
Rate		68.33	50.58	40.08	10.50	17.75
1,250-1,499 grams	6,765	304	229	191	38	75
Rate		44.94	33.85	28.23	5.62	11.09
1,500-1,749 grams	10,551	323	236	186	50	87
Rate		30.61	22.37	17.63	4.74	8.25
1,750-1,999 grams	17,422	371	255	206	49	116
Rate		21.29	14.64	11.82	2.81	6.66
2,000-2,499 grams	90,416	894	501	360	141	394
Rate		9.89	5.54	3.98	1.56	4.36
2,500 grams or more	1,851,905	3,499	1,320	791	529	2,179
Rate		1.89	0.71	0.43	0.29	1.18
Not Stated	905	67	64	62	2	3
Rate		74.03	70.72	68.51	*	*
Non-Hispanic Black						
Total (all birthweights)	560,715	6,152	4,012	3,278	734	2,140
Rate		10.97	7.16	5.85	1.31	3.82
Less than 2,500 grams	78,126	4,452	3,521	2,981	539	931
Rate		56.98	45.07	38.16	6.90	11.92
Less than 500 grams	2,285	1,925	1,865	1,786	79	60
Rate		842.45	816.19	781.62	34.57	26.26

Documentation Table 4. Live births, infant deaths and infant mortality rates by birthweight, race of mother, and age at death: United States, 2017 period data -Con.
[Infant deaths are under 1 year. Neonatal deaths are under 28 days; early neonatal, 0-6 days; late neonatal, 7-27 days. Postneonatal deaths are 28 days to less than 12 months. Rates are per 1,000 live births]

Birthweight and race of mother	Live Births	Infant	Total Neonatal	Early Neonatal	Late Neonatal	Post-Neonatal
500-749 grams	3,280	1,029	832	608	224	196
Rate		313.72	253.66	185.37	68.29	59.76
750-999 grams	3,355	356	246	169	77	110
Rate		106.11	73.32	50.37	22.95	32.79
1,000-1,249 grams	3,650	185	120	91	29	64
Rate		50.68	32.88	24.93	7.95	17.53
1,250-1,499 grams	4,280	152	93	67	26	59
Rate		35.51	21.73	15.65	6.07	13.79
1,500-1,749 grams	5,974	179	102	78	24	77
Rate		29.96	17.07	13.06	4.02	12.89
1,750-1,999 grams	9,258	175	91	66	25	84
Rate		18.90	9.83	7.13	2.70	9.07
2,000-2,499 grams	46,044	450	169	114	55	280
Rate		9.77	3.67	2.48	1.19	6.08
2,500 grams or more	482,265	1,641	436	241	195	1,205
Rate		3.40	0.90	0.50	0.40	2.50
Not Stated	324	59	55	55	0	4
Rate		182.10	169.75	169.75	-	*
Non-Hispanic American Indian or Alaskan Native /1						
Total (all birthweights)	29,957	276	144	118	26	132
Rate		9.21	4.81	3.94	0.87	4.41
Less than 2,500 grams	2,479	150	113	96	17	36
Rate		60.51	45.58	38.73	*	14.52
Less than 500 grams	50	42	41	39	2	1
Rate		840.00	820.00	780.00	*	*
500-749 grams	74	26	22	17	5	4
Rate		351.35	297.30	*	*	*

Documentation Table 4. Live births, infant deaths and infant mortality rates by birthweight, race of mother, and age at death: United States, 2017 period data -Con.

[Infant deaths are under 1 year. Neonatal deaths are under 28 days; early neonatal, 0-6 days; late neonatal, 7-27 days. Postneonatal deaths are 28 days to less than 12 months. Rates are per 1,000 live births]

Birthweight and race of mother	Live Births	Infant	Total Neonatal	Early Neonatal	Late Neonatal	Post-Neonatal
750-999 grams	77	18	14	13	1	4
Rate		*	*	*	*	*
1,000-1,249 grams	100	8	5	3	2	3
Rate		*	*	*	*	*
1,250-1,499 grams	129	13	10	8	2	3
Rate		*	*	*	*	*
1,500-1,749 grams	209	13	10	9	1	3
Rate		*	*	*	*	*
1,750-1,999 grams	307	12	8	4	4	4
Rate		*	*	*	*	*
2,000-2,499 grams	1,533	17	3	3	0	14
Rate		*	*	*	-	*
2,500 grams or more	27,463	124	28	19	9	96
Rate		4.52	1.02	*	*	3.50
Not Stated	15	2	2	2	0	0
Rate		*	*	*	-	-
Non-Hispanic Asian						
Total (all birthweights)	249,250	943	675	560	115	268
Rate		3.78	2.71	2.25	0.46	1.08
Less than 2,500 grams	21,259	694	571	488	83	123
Rate		32.64	26.86	22.95	3.90	5.79
Less than 500 grams	275	242	235	233	2	7
Rate		880.00	854.55	847.27	*	*
500-749 grams	476	187	155	121	34	32
Rate		392.86	325.63	254.20	71.43	67.23
750-999 grams	516	63	48	32	16	15
Rate		122.09	93.02	62.02	*	*
1,000-1,249 grams	679	30	21	17	4	9
Rate		44.18	30.93	*	*	*

Documentation Table 4. Live births, infant deaths and infant mortality rates by birthweight, race of mother, and age at death: United States, 2017 period data -Con.

[Infant deaths are under 1 year. Neonatal deaths are under 28 days; early neonatal, 0-6 days; late neonatal, 7-27 days. Postneonatal deaths are 28 days to less than 12 months. Rates are per 1,000 live births]

Birthweight and race of mother	Live Births	Infant	Total Neonatal	Early Neonatal	Late Neonatal	Post-Neonatal
1,250-1,499 grams	906	23	20	15	5	3
Rate		25.39	22.08	*	*	*
1,500-1,749 grams	1,424	27	21	18	3	6
Rate		18.96	14.75	*	*	*
1,750-1,999 grams	2,496	33	19	13	6	14
Rate		13.22	*	*	*	*
2,000-2,499 grams	14,487	88	51	38	13	37
Rate		6.07	3.52	2.62	*	2.55
2,500 grams or more	227,910	246	102	70	32	144
Rate		1.08	0.45	0.31	0.14	0.63
Not Stated	81	3	3	3	0	0
Rate		*	*	*	-	-
Non-Hispanic Native Hawaiian or Other Pacific Islander						
Total (all birthweights)	9,426	72	36	29	7	36
Rate		7.64	3.82	3.08	*	3.82
Less than 2,500 grams	731	43	29	26	3	14
Rate		58.82	39.67	35.57	*	*
Less than 500 grams	14	12	12	12	0	0
Rate		*	*	*	-	-
500-749 grams	24	10	7	5	2	3
Rate		*	*	*	*	*
750-999 grams	15	1	1	1	0	0
Rate		*	*	*	-	-
1,000-1,249 grams	28	5	2	1	1	3
Rate		*	*	*	*	*
1,250-1,499 grams	29	2	2	2	0	0
Rate		*	*	*	-	-
1,500-1,749 grams	56	4	2	2	0	2
Rate		*	*	*	-	*

Documentation Table 4. Live births, infant deaths and infant mortality rates by birthweight, race of mother, and age at death: United States, 2017 period data -Con.
[Infant deaths are under 1 year. Neonatal deaths are under 28 days; early neonatal, 0-6 days; late neonatal, 7-27 days. Postneonatal deaths are 28 days to less than 12 months. Rates are per 1,000 live births]

Birthweight and race of mother	Live Births	Infant	Total Neonatal	Early Neonatal	Late Neonatal	Post-Neonatal
1,750-1,999 grams	106	2	2	2	0	0
Rate		*	*	*	-	-
2,000-2,499 grams	459	7	1	1	0	6
Rate		*	*	*	-	*
2,500 grams or more	8,691	27	5	1	4	22
Rate		3.11	*	*	*	2.53
Not Stated	4	2	2	2	0	0
Rate		*	*	*	-	*
Hispanic						
Total (all birthweights)	898,764	4,584	3,200	2,640	560	1,384
Rate		5.10	3.56	2.94	0.62	1.54
Less than 2,500 grams	66,937	3,226	2,688	2,311	377	538
Rate		48.19	40.16	34.53	5.63	8.04
Less than 500 grams	1,279	1,103	1,082	1,060	22	21
Rate		862.39	845.97	828.77	17.20	16.42
500-749 grams	2,044	782	679	535	144	102
Rate		382.58	332.19	261.74	70.45	49.90
750-999 grams	2,210	276	227	167	60	49
Rate		124.89	102.71	75.57	27.15	22.17
1,000-1,249 grams	2,557	180	133	100	33	47
Rate		70.39	52.01	39.11	12.91	18.38
1,250-1,499 grams	3,353	133	86	70	16	47
Rate		39.67	25.65	20.88	*	14.02
1,500-1,749 grams	4,912	165	117	101	16	48
Rate		33.59	23.82	20.56	*	9.77
1,750-1,999 grams	7,862	184	114	89	25	70
Rate		23.40	14.50	11.32	3.18	8.90
2,000-2,499 grams	42,720	402	249	189	60	153
Rate		9.41	5.83	4.42	1.40	3.58

Documentation Table 4. Live births, infant deaths and infant mortality rates by birthweight, race of mother, and age at death: United States, 2017 period data -Con.

[Infant deaths are under 1 year. Neonatal deaths are under 28 days; early neonatal, 0-6 days; late neonatal, 7-27 days. Postneonatal deaths are 28 days to less than 12 months. Rates are per 1,000 live births]

Birthweight and race of mother	Live Births	Infant	Total Neonatal	Early Neonatal	Late Neonatal	Post-Neonatal
2,500 grams or more	831,573	1,344	501	318	183	843
Rate		1.62	0.60	0.38	0.22	1.01
Not Stated	254	13	11	11	0	2
Rate		*	*	*	-	*

*/ Figure does not meet standard of reliability or precision: based on fewer than 20 deaths in the numerator

-/ Quantity zero

Documentation Table 5. Infant deaths and infant mortality rates by age of death and birthweight for 10 major causes of infant death: United States, 2017 period data

[Infant deaths are under 1 year. Neonatal deaths are under 28 days; early neonatal, 0-6 days; late neonatal, 7-27 days. Postneonatal deaths are 28 days to less than 12 months. Rates are per 100,000 live births]

Cause of death and birthweight	Live Births	Total Infant Deaths	Total Neonatal	Early Neonatal	Late Neonatal	Post-Neonatal
All birthweights						
All Causes	3,855,500	22,341	14,844	11,971	2,873	7,497
		579.5	385.0	310.5	74.5	194.4
Congenital malformations (Q00-Q99).....................................		4,596	3,356	2,684	672	1,240
		119.2	87.0	69.6	17.4	32.2
Short gestation and low birthweight nec (P07)........................		3,757	3,653	3,535	118	104
		97.4	94.7	91.7	3.1	2.7
Maternal complications of pregnancy (P01)...........................		1,436	1,425	1,411	14	11
		37.2	37.0	36.6	*	*
Sudden infant death syndrome (R95).....................................		1,360	122	26	96	1,237
		35.3	3.2	0.7	2.5	32.1
Accidents (unintentional injures) (V01-X59)...........................		1,313	111	21	90	1,202
		34.1	2.9	0.5	2.3	31.2
Complications of placenta, cord, membranes (P02)...............		840	830	796	34	10
		21.8	21.5	20.6	0.9	*
Bacterial sepsis of newborn (P36)...		593	577	258	319	16
		15.4	15.0	6.7	8.3	*
Respiratory distress of newborn (P22)...................................		441	420	340	80	21
		11.4	10.9	8.8	2.1	0.5
Diseases of the circulatory system (I00-I99)...........................		447	86	46	40	361
		11.6	2.2	1.2	1.0	9.4
Neonatal hemorrhage (P50-P52, P54).....................................		382	370	259	111	12
		9.9	9.6	6.7	2.9	*
All other causes..		7,176	3,893	2,595	1,298	3,283
		186.1	101.0	67.3	33.7	85.2
Less than 2,500 grams						
All Causes	319,748	14,975	12,177	10,303	1,873	2,798
		4683.4	3808.3	3222.2	585.8	875.1
Congenital malformations (Q00-Q99).....................................		2,865	2,290	1,960	329	575
		896.0	716.2	613.0	102.9	179.8
Short gestation and low birthweight nec (P07)........................		3,671	3,569	3,451	118	102
		1148.1	1116.2	1079.3	36.9	31.9
Maternal complications of pregnancy (P01)...........................		1,377	1,366	1,354	12	11
		430.7	427.2	423.5	*	*
Sudden infant death syndrome (R95).....................................		298	23	6	17	275
		93.2	7.2	*	*	86.0
Accidents (unintentional injures) (V01-X59)...........................		241	20	5	15	221
		75.4	6.3	*	*	69.1
Complications of placenta, cord, membranes (P02)...............		731	724	699	25	7
		228.6	226.4	218.6	7.8	*
Bacterial sepsis of newborn (P36)...		538	523	222	301	15
		168.3	163.6	69.4	94.1	*

Documentation Table 5. Infant deaths and infant mortality rates by age of death and birthweight for 10 major causes of infant death: United States, 2017 period data -Con.

[Infant deaths are under 1 year. Neonatal deaths are under 28 days; early neonatal, 0-6 days; late neonatal, 7-27 days. Postneonatal deaths are 28 days to less than 12 months. Rates are per 100,000 live births]

Cause of death and birthweight	Live Births	Total Infant Deaths	Total Neonatal	Early Neonatal	Late Neonatal	Post-Neonatal
Respiratory distress of newborn (P22).....................................		435	414	336	78	21
		136.0	129.5	105.1	24.4	6.6
Diseases of the circulatory system (I00-I99)............................		214	41	19	22	172
		66.9	12.8	*	6.9	53.8
Neonatal hemorrhage (P50-P52, P54)...................................		350	339	243	96	11
		109.5	106.0	76.0	30.0	*
All other causes...		4,255	2,868	2,008	860	1,388
		1330.7	897.0	628.0	269.0	434.1
2,500 grams or more						
All Causes	3,533,652	7,188	2,501	1,509	992	4,687
		203.4	70.8	42.7	28.1	132.6
Congenital malformations (Q00-Q99).....................................		1,720	1,059	720	339	660
		48.7	30.0	20.4	9.6	18.7
Short gestation and low birthweight nec (P07)........................		12	11	11	0	1
		*	*	*	-	*
Maternal complications of pregnancy (P01)............................		20	20	19	1	0
		0.6	0.6	*	*	-
Sudden infant death syndrome (R95).....................................		1,061	99	20	79	962
		30.0	2.8	0.6	2.2	27.2
Accidents (unintentional injures) (V01-X59).............................		1,071	91	16	75	980
		30.3	2.6	*	2.1	27.7
Complications of placenta, cord, membranes (P02)................		90	87	78	9	3
		2.5	2.5	2.2	*	*
Bacterial sepsis of newborn (P36)...		55	54	36	18	1
		1.6	1.5	1.0	*	*
Respiratory distress of newborn (P22).....................................		6	6	4	2	0
		*	*	*	*	-
Diseases of the circulatory system (I00-I99)............................		231	43	26	17	188
		6.5	1.2	0.7	*	5.3
Neonatal hemorrhage (P50-P52, P54)...................................		32	31	16	15	1
		0.9	0.9	*	*	*
All other causes...		2,888	998	562	436	1,890
		81.7	28.2	15.9	12.3	53.5

*/Figure does not meet standard of reliability or precision; based on fewer than 20 deaths in the numerator.

-/ Quantity zero

Documentation Table 6. Live births, infant deaths, and infant mortality rates by gestational age and age at death: United States, 2017 period data
[Rates are per 1,000 live births]

Age at Death	Total	<28 Weeks	28-31 Weeks	32-33 Weeks	34-36 Weeks	37-39 Weeks	40 Weeks	41 Weeks	42 Weeks or more	Not Stated
						Gestation				
Total										
Live births............................	3,855,500	25,913	35,476	45,028	276,309	2,434,939	781,645	240,871	12,560	2,759
Infant deaths........................	22,341	9,961	1,553	923	2,350	5,786	1,113	364	50	241
Infant Mortality Rate...........	5.79	384.40	43.78	20.50	8.50	2.38	1.42	1.51	3.98	87.35
Early Neonatal										
Live births............................	3,855,500	25,913	35,476	45,028	276,309	2,434,939	781,645	240,871	12,560	2,759
Infant deaths........................	11,971	7,920	842	493	935	1,222	213	106	24	216
Infant Mortality Rate...........	3.10	305.64	23.73	10.95	3.38	0.50	0.27	0.44	1.91	78.29
Late Neonatal										
Live births............................	3,855,500	25,913	35,476	45,028	276,309	2,434,939	781,645	240,871	12,560	2,759
Infant deaths........................	2,873	1,142	257	120	339	807	139	49	9	10
Infant Mortality Rate...........	0.75	44.07	7.24	2.67	1.23	0.33	0.18	0.20	*	*
Postneonatal										
Live births............................	3,855,500	25,913	35,476	45,028	276,309	2,434,939	781,645	240,871	12,560	2,759
Infant deaths........................	7,497	899	454	310	1,075	3,757	761	209	17	15
Infant Mortality Rate...........	1.94	34.69	12.80	6.88	3.89	1.54	0.97	0.87	*	*

*/ Figure does not meet standard of reliability or precision: based on fewer than 20 deaths in the numerator

Documentation Table 1. Live births and infant death by state of occurrence of birth and by state of residence at birth: United States, 2016 Cohort Data.
(Residence at birth is of the mother)

State	Live Births		Infant Deaths		Infant Mortality Rate
	Occurrence	Residence	Occurrence	Residence	
United States	3,956,112	3,945,875	22,927	22,893	5.80
Alabama	57,647	59,151	521	531	8.98
Alaska	11,095	11,209	58	62	5.53
Arizona	85,573	84,520	428	434	5.13
Arkansas	36,913	38,274	307	310	8.10
California	489,976	488,827	2,041	2,037	4.17
Colorado	67,183	66,613	333	307	4.61
Connecticut	37,467	36,015	172	180	5.00
Delaware	11,415	10,992	78	78	7.10
Dist of Columbia	14,847	9,858	109	67	6.80
Florida	225,260	225,022	1,361	1,352	6.01
Georgia	130,961	130,042	978	973	7.48
Hawaii	18,057	18,059	109	105	5.81
Idaho	22,179	22,482	113	118	5.25
Illinois	150,789	154,445	938	980	6.35
Indiana	83,983	83,091	617	626	7.53
Iowa	39,094	39,403	206	230	5.84
Kansas	39,317	38,053	206	212	5.57
Kentucky	53,062	55,449	320	359	6.47
Louisiana	63,277	63,178	509	509	8.06
Maine	12,477	12,705	69	68	5.35
Maryland	69,832	73,136	449	470	6.43
Massachusetts	71,935	71,317	301	287	4.02
Michigan	112,349	113,315	724	731	6.45
Minnesota	68,831	69,749	365	359	5.15
Mississippi	37,139	37,928	288	314	8.28
Missouri	75,864	74,705	519	471	6.30
Montana	12,280	12,282	76	78	6.35
Nebraska	27,101	26,589	171	156	5.87
Nevada	35,918	36,260	198	202	5.57
New Hampshire	12,350	12,267	43	50	4.08
New Jersey	100,379	102,647	397	407	3.97
New Mexico	23,322	24,692	136	150	6.07
New York	114,494	118,892	589	621	5.22
New York City	120,367	115,391	476	448	3.88
North Carolina	122,780	120,779	878	862	7.14
North Dakota	13,025	11,383	78	70	6.15
Ohio	138,570	138,085	1,051	1,019	7.38
Oklahoma	51,319	52,592	362	377	7.17
Oregon	45,973	45,535	224	219	4.81
Pennsylvania	138,637	139,409	874	857	6.15
Rhode Island	11,430	10,798	67	62	5.74
South Carolina	53,810	57,342	363	387	6.75
South Dakota	12,910	12,275	64	58	4.73
Tennessee	86,540	80,807	662	591	7.31
Texas	406,945	398,047	2,256	2,230	5.60
Utah	51,521	50,464	290	278	5.51
Vermont	5,567	5,756	18	20	3.47
Virginia	101,216	102,460	563	594	5.80

Documentation Table 1. Live births and infant death by state of occurrence of birth and by state of residence at birth: United States, 2016 Cohort Data.
(Residence at birth is of the mother)

State	Live Births		Infant Deaths		Infant Mortality Rate
	Occurrence	Residence	Occurrence	Residence	
Washington	90,301	90,505	400	396	4.38
West Virginia	19,887	19,079	148	142	7.44
Wisconsin	66,238	66,615	396	412	6.18
Wyoming	6,710	7,386	28	37	5.01

Documentation Table 2. Live births,infant deaths and infant mortality rates by race of mother, sex and birthweight of child: United States, 2016 cohort data.
[Rates are per 1,000 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										
Both sexes										
Live births..........................	3,945,875	6,434	9,650	10,792	13,044	16,043	62,880	203,883	3,619,575	3,574
Infant deaths.....................	22,893	5,439	3,648	1,323	740	659	1,602	1,928	7,402	152
Infant Mortality Rate.........	5.80	845.35	378.03	122.59	56.73	41.08	25.48	9.46	2.04	42.53
Male										
Live births..........................	2,018,183	3,316	4,872	5,442	6,728	8,038	30,462	92,961	1,864,482	1,882
Infant deaths.....................	12,723	2,885	2,086	786	421	354	856	1,029	4,201	105
Infant Mortality Rate.........	6.30	870.02	428.16	144.43	62.57	44.04	28.10	11.07	2.25	55.79
Female										
Live births..........................	1,927,692	3,118	4,778	5,350	6,316	8,005	32,418	110,922	1,755,093	1,692
Infant deaths.....................	10,170	2,554	1,562	537	319	305	746	899	3,201	47
Infant Mortality Rate.........	5.28	819.11	326.92	100.37	50.51	38.10	23.01	8.10	1.82	27.78
Non-Hispanic White										
Both sexes										
Live births..........................	2,056,332	2,119	3,364	4,255	5,527	7,007	28,589	92,705	1,910,901	1,865
Infant deaths.....................	9,802	1,821	1,374	558	336	301	773	868	3,715	56
Infant Mortality Rate.........	4.77	859.37	408.44	131.14	60.79	42.96	27.04	9.36	1.94	30.03
Male										
Live births..........................	1,054,533	1,083	1,744	2,155	2,838	3,500	13,738	41,914	986,570	991
Infant deaths.....................	5,439	965	802	331	189	154	410	460	2,089	39
Infant Mortality Rate.........	5.16	891.04	459.86	153.60	66.60	44.00	29.84	10.97	2.12	39.35
Female										
Live births..........................	1,001,799	1,036	1,620	2,100	2,689	3,507	14,851	50,791	924,331	874
Infant deaths.....................	4,363	856	572	227	147	147	363	408	1,626	17
Infant Mortality Rate.........	4.36	826.25	353.09	108.10	54.67	41.92	24.44	8.03	1.76	*
Non-Hispanic Black										
Both sexes										
Live births..........................	558,622	2,372	3,315	3,389	3,522	4,185	14,889	44,952	481,398	600
Infant deaths.....................	6,313	1,975	1,132	380	178	160	347	477	1,617	47
Infant Mortality Rate.........	11.30	832.63	341.48	112.13	50.54	38.23	23.31	10.61	3.36	78.33
Male										
Live births..........................	282,923	1,229	1,634	1,673	1,762	1,984	6,953	20,026	247,358	304
Infant deaths.....................	3,503	1,062	649	224	92	82	191	261	909	33
Infant Mortality Rate.........	12.38	864.12	397.18	133.89	52.21	41.33	27.47	13.03	3.67	108.55

Documentation Table 2. Live births,infant deaths and infant mortality rates by race of mother, sex and birthweight of child: United States, 2016 cohort data.
[Rates are per 1,000 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
Female										
Live births..........................	275,699	1,143	1,681	1,716	1,760	2,201	7,936	24,926	234,040	296
Infant deaths.....................	2,810	913	483	156	86	78	156	216	708	14
Infant Mortality Rate.........	10.19	798.78	287.33	90.91	48.86	35.44	19.66	8.67	3.03	*
Non-Hispanic American Indian or Alaskan Native /1										
Both sexes										
Live births..........................	31,452	45	90	78	101	131	483	1,523	28,987	14
Infant deaths.....................	285	40	40	17	7	10	16	19	136	0
Infant Mortality Rate.........	9.06	888.89	444.44	*	*	*	*	*	4.69	*
Male										
Live births..........................	15,882	31	38	41	64	74	231	735	14,660	8
Infant deaths.....................	165	29	19	6	5	6	5	9	86	0
Infant Mortality Rate.........	10.39	935.48	*	*	*	*	*	*	5.87	*
Female										
Live births..........................	15,570	14	52	37	37	57	252	788	14,327	6
Infant deaths.....................	120	11	21	11	2	4	11	10	50	0
Infant Mortality Rate.........	7.71	*	403.85	*	*	*	*	*	3.49	*
Non-Hispanic Asian										
Both sexes										
Live births..........................	254,471	279	449	485	691	919	3,822	14,839	232,799	188
Infant deaths.....................	936	242	197	47	22	30	60	86	245	7
Infant Mortality Rate.........	3.68	867.38	438.75	96.91	31.84	32.64	15.70	5.80	1.05	*
Male										
Live births..........................	131,568	146	224	272	370	502	1,961	7,001	120,992	100
Infant deaths.....................	533	131	112	34	12	17	35	45	143	4
Infant Mortality Rate.........	4.05	897.26	500.00	125.00	*	*	17.85	6.43	1.18	*
Female										
Live births..........................	122,903	133	225	213	321	417	1,861	7,838	111,807	88
Infant deaths.....................	403	111	85	13	10	13	25	41	102	3
Infant Mortality Rate.........	3.28	834.59	377.78	*	*	*	13.43	5.23	0.91	*
Non-Hispanic Native Hawaiian or Other Pacific Islander										
Both sexes										
Live births..........................	9,342	12	22	33	38	34	149	430	8,619	5
Infant deaths.....................	85	11	12	4	3	1	6	7	40	1
Infant Mortality Rate.........	9.10	*	*	*	*	*	*	*	4.64	*

Documentation Table 2. Live births,infant deaths and infant mortality rates by race of mother, sex and birthweight of child: United States, 2016 cohort data.
[Rates are per 1,000 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
Male										
Live births..........................	4,780	5	9	15	27	22	81	207	4,410	4
Infant deaths.....................	49	4	7	1	3	1	5	4	23	1
Infant Mortality Rate.........	10.25	*	*	*	*	*	*	*	5.22	*
Female										
Live births..........................	4,562	7	13	18	11	12	68	223	4,209	1
Infant deaths.....................	36	7	5	3	0	0	1	3	17	0
Infant Mortality Rate.........	7.89	*	*	*	*	*	*	*	*	*
Hispanic										
Both sexes										
Live births..........................	918,447	1,289	2,051	2,204	2,721	3,245	12,910	42,926	850,690	411
Infant deaths.....................	4,507	1,066	735	265	171	139	339	403	1,369	20
Infant Mortality Rate.........	4.91	827.00	358.36	120.24	62.84	42.84	26.26	9.39	1.61	48.66
Male										
Live births..........................	468,504	659	1,046	1,089	1,437	1,675	6,484	20,103	435,796	215
Infant deaths.....................	2,514	546	410	163	108	85	183	216	790	13
Infant Mortality Rate.........	5.37	828.53	391.97	149.68	75.16	50.75	28.22	10.74	1.81	*
Female										
Live births..........................	449,943	630	1,005	1,115	1,284	1,570	6,426	22,823	414,894	196
Infant deaths.....................	1,993	520	325	102	63	54	156	187	579	7
Infant Mortality Rate.........	4.43	825.40	323.38	91.48	49.07	34.39	24.28	8.19	1.40	*

* Figure does not meet standard of reliability or precision: based on fewer than 20 deaths in the numerator
- Quantity zero
1/ Includes Aleut and Eskimos

Documentation Table 3. Live births, infant deaths, and infant mortality rates by birthweight, race of mother, and gestational age: United States, 2016 cohort data
[Rates are per 1,000 live births]

Birthweight	Total	<28 Weeks	28-31 Weeks	32-33 Weeks	34-36 Weeks	37-39 Weeks	40 Weeks	41 Weeks	42 Weeks or more	Not Stated
									Gestation	
All Races										
Live births..........................	3,945,875	26,618	36,239	45,979	279,382	2,473,848	814,775	251,667	13,913	3,454
Infant deaths.....................	22,893	10,291	1,593	911	2,396	5,817	1,213	383	56	233
Infant Mortality Rate.........	5.80	386.62	43.96	19.81	8.58	2.35	1.49	1.52	4.03	67.46
Non-Hispanic White										
Live births..........................	2,056,332	9,766	16,101	21,956	138,031	1,265,832	444,886	149,525	8,826	1,409
Infant deaths.....................	9,802	3,731	704	432	1,195	2,837	597	201	25	80
Infant Mortality Rate.........	4.77	382.04	43.72	19.68	8.66	2.24	1.34	1.34	2.83	56.78
Non-Hispanic Black										
Live births..........................	558,622	8,729	8,987	9,785	49,333	352,194	99,282	28,154	1,652	506
Infant deaths.....................	6,313	3,419	402	186	539	1,346	262	76	10	73
Infant Mortality Rate.........	11.30	391.68	44.73	19.01	10.93	3.82	2.64	2.70	*	144.27
Non-Hispanic American Indian or Alaskan Native /1										
Live births..........................	31,452	227	321	388	2,641	19,861	6,014	1,827	116	57
Infant deaths.....................	285	99	17	7	34	97	17	11	1	2
Infant Mortality Rate.........	9.06	436.12	*	*	12.87	4.88	*	*	*	*
Non-Hispanic Asian										
Live births..........................	254,471	1,139	1,890	2,391	16,532	167,304	51,497	13,148	436	134
Infant deaths.....................	936	483	58	36	76	216	39	16	4	8
Infant Mortality Rate.........	3.68	424.06	30.69	15.06	4.60	1.29	0.76	*	*	*
Non-Hispanic Native Hawaiian or Other Pacific Islander										
Live births..........................	9,342	67	103	121	784	5,739	1,893	584	37	14
Infant deaths.....................	85	26	6	5	11	27	8	1	0	1
Infant Mortality Rate.........	9.10	388.06	*	*	*	4.70	*	*	*	*
Hispanic										
Live births..........................	918,447	5,649	7,665	9,881	63,496	592,481	186,469	49,833	2,297	676
Infant deaths.....................	4,507	2,040	357	210	467	1,073	248	59	15	38
Infant Mortality Rate.........	4.91	361.13	46.58	21.25	7.35	1.81	1.33	1.18	*	56.21

1/ Includes Aleut and Eskimos

Documentation Table 4. Infant deaths and infant mortality rates by age of death and birthweight for 10 major causes of infant death: United States, 2016 cohort data

[Infant deaths are under 1 year. Neonatal deaths are under 28 days; early neonatal, 0-6 days; late neonatal, 7-27 days. Postneonatal deaths are 28 days to less than 12 months. Rates are per 100,000 live births]

Cause of death and birthweight	Live Births	Total Infant Deaths	Total Neonatal	Early Neonatal	Late Neonatal	Post-Neonatal
All birthweights						
All Causes	3,945,875	22,893	15,185	12,260	2,925	7,708
		580.2	384.8	310.7	74.1	195.3
Congenital malformations (Q00-Q99)...		4,721	3,393	2,673	720	1,328
		119.6	86.0	67.7	18.2	33.7
Short gestation and low birthweight nec (P07)...............................		3,903	3,820	3,712	108	83
		98.9	96.8	94.1	2.7	2.1
Maternal complications of pregnancy (P01)...................................		1,398	1,384	1,371	13	14
		35.4	35.1	34.7	*	*
Sudden infant death syndrome (R95)...		1,463	121	22	99	1,342
		37.1	3.1	0.6	2.5	34.0
Accidents (unintentional injures) (V01-X59)...................................		1,252	137	31	106	1,115
		31.7	3.5	0.8	2.7	28.3
Complications of placenta, cord, membranes (P02).......................		831	820	786	34	11
		21.1	20.8	19.9	0.9	*
Bacterial sepsis of newborn (P36)....................................		578	551	248	303	27
		14.6	14.0	6.3	7.7	0.7
Respiratory distress of newborn (P22)..		491	480	379	101	11
		12.4	12.2	9.6	2.6	*
Diseases of the circulatory system (I00-I99)..................................		469	98	55	43	371
		11.9	2.5	1.4	1.1	9.4
Neonatal hemorrhage (P50-P52, P54)..		394	383	271	112	11
		10.0	9.7	6.9	2.8	*
All other causes...		7,393	3,998	2,712	1,286	3,395
		187.4	101.3	68.7	32.6	86.0
Less than 2,500 grams						
All Causes	322,726	15,339	12,437	10,550	1,887	2,902
		4752.9	3853.7	3269.0	584.7	899.2
Congenital malformations (Q00-Q99)...		2,892	2,282	1,921	361	610
		896.1	707.1	595.2	111.9	189.0
Short gestation and low birthweight nec (P07)...............................		3,800	3,720	3,612	108	80
		1177.5	1152.7	1119.2	33.5	24.8
Maternal complications of pregnancy (P01)...................................		1,361	1,348	1,335	13	13
		421.7	417.7	413.7	*	*
Sudden infant death syndrome (R95)...		314	26	4	22	288
		97.3	8.1	*	6.8	89.2
Accidents (unintentional injures) (V01-X59)...................................		235	21	8	13	214
		72.8	6.5	*	*	66.3
Complications of placenta, cord, membranes (P02).......................		738	732	705	27	6
		228.7	226.8	218.5	8.4	*
Bacterial sepsis of newborn (P36)....................................		516	492	216	276	24
		159.9	152.5	66.9	85.5	7.4
Respiratory distress of newborn (P22)..		480	469	370	99	11
		148.7	145.3	114.6	30.7	*
Diseases of the circulatory system (I00-I99)..................................		224	39	28	11	185
		69.4	12.1	8.7	*	57.3
Neonatal hemorrhage (P50-P52, P54)..		362	354	253	101	8
		112.2	109.7	78.4	31.3	*
All other causes...		4,417	2,954	2,098	856	1,463
		1368.7	915.3	650.1	265.2	453.3

Documentation Table 4. Infant deaths and infant mortality rates by age of death and birthweight for 10 major causes of infant death: United States, 2016 cohort data
[Infant deaths are under 1 year. Neonatal deaths are under 28 days; early neonatal, 0-6 days; late neonatal, 7-27 days. Postneonatal deaths are 28 days to less than 12 months. Rates are per 100,000 live births]

Cause of death and birthweight	Live Births	Total Infant Deaths	Total Neonatal	Early Neonatal	Late Neonatal	Post-Neonatal
2,500 grams or more						
All Causes	3,619,575	7,402	2,610	1,574	1,036	4,792
		204.5	72.1	43.5	28.6	132.4
Congenital malformations (Q00-Q99)............................		1,818	1,103	746	357	715
		50.2	30.5	20.6	9.9	19.8
Short gestation and low birthweight nec (P07)..............		16	14	14	0	2
		*	*	*	*	*
Maternal complications of pregnancy (P01)...................		18	17	17	0	1
		*	*	*	*	*
Sudden infant death syndrome (R95)............................		1,148	95	18	77	1,053
		31.7	2.6	*	2.1	29.1
Accidents (unintentional injures) (V01-X59)...................		1,014	115	22	93	899
		28.0	3.2	0.6	2.6	24.8
Complications of placenta, cord, membranes (P02).......		85	80	73	7	5
		2.3	2.2	2.0	*	*
Bacterial sepsis of newborn (P36)................................		61	58	31	27	3
		1.7	1.6	0.9	0.7	*
Respiratory distress of newborn (P22)...........................		10	10	8	2	0
		*	*	*	*	*
Diseases of the circulatory system (I00-I99)..................		245	59	27	32	186
		6.8	1.6	0.7	0.9	5.1
Neonatal hemorrhage (P50-P52, P54)...........................		32	29	18	11	3
		0.9	0.8	*	*	*
All other causes..		2,955	1,030	600	430	1,925
		81.6	28.5	16.6	11.9	53.2

*/Figure does not meet standard of reliability or precision; based on fewer than 20 deaths in the numerator.

-/ Quantity zero