User Guide to the 2019 Period/2018 Cohort Linked Birth/Infant Death Public Use File

2019 Period/2018 Cohort Linked Birth/Infant Death Data Set

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[User's Guide for the 2018 Natality File](#)

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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 both the 2019 period linked file and the 2018 cohort linked file.

Period file - The 2019 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 2019 linked to their corresponding birth certificates, whether the birth occurred in 2018 or 2019. The second file is the "denominator" file, which consists of all births occurring in 2018. 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 2018 birth cohort linked birth/infant death data set includes three data files. The numerator for the 2018 birth cohort linked file consists of deaths to infants born in 2018 linked to their corresponding birth certificates, whether the death occurred in 2018 or 2019 (each is a separate file the user can append together). The denominator for this data set is all births occurring in 2018.

Starting with the 2017 period/ 2016 cohort data files release, users can 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 using the period file, which is essentially cross-sectional in nature.

User Created Cohort File

To create a cohort file, combine the 2018 denominator file with the 2018 and 2019 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 2018-2019 numerator with the 2018 denominator file.

SAS code example for creating a cohort file

```
FILENAME B18 ' ';        /* put working directory path here */
FILENAME D18 ' ';        /* put working directory path here */
```

```
FILENAME D19 '   ';          /* put working directory path here */

DATA BORN18;              /* pull in 2018 denominator file */
INFILE B18;
INPUT
RESTATUS 104    SEQNUM_CO        365-371     DOD_YY  372-375;
IF RESTATUS < 4;

PROC SORT; BY SEQNUM_CO DOD_YY; RUN;

DATA DIED18;              /* includes infants born 2017 and 2018 */
INFILE D18;
INPUT
DOB_YY    9-12   RESTATUS 104    SEQNUM_CO        365-371
DOD_YY   372-375;
IF RESTATUS < 4 AND DOB_YY = 2018;       /* limit to infants born in 2018 */

PROC SORT; BY SEQNUM_CO DOD_YY; RUN;

DATA DIED19;                  /* includes infants born 2018 and 2019 */
INFILE D19;
INPUT
DOB_YY    9-12   RESTATUS 104    SEQNUM_CO        365-371
DOD_YY   372-375;

IF RESTATUS < 4 AND DOB_YY = 2018;       /* limit to infants born in 2018 */

PROC SORT; BY SEQNUM_CO DOD_YY; RUN;

/* merge 2018 births to those infants that were born and died in 2018 */

DATA B18D18;
MERGE BORN18 DIED18; BY SEQNUM_CO DOD_YY;

/* merge 2018 births/linked deaths to 2018 births that died in 2019 */
DATA B18D1819;
MERGE B18D18 DIED19; 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 "cohortfromperiod2018.log", replace
                    *NUMERATOR FILES*
*2018
```

```
local dat_name "VS18LINK.DETAILUS "
** The following line should contain the name of the output '.dta' file ;
local dta_name1 "alldat2018num"
** The following line should contain the name of the data dictionary file ;
local dct_name "numer_dct_2018.dct"
infile using "`dct_name'", using("`dat_name'") clear
compress
tempfile `dta_name1'
save "`dta_name1'", replace

*2019
local dat_name "VS19LINK.DETAILUS"
** The following line should contain the name of the output '.dta' file ;
local dta_name2 "alldat2019num"
** The following line should contain the name of the data dictionary file ;
local dct_name "numer_dct_2018.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*
*2018
local dat_name "VS18LINK.DENOMUS"
** The following line should contain the name of the output '.dta' file ;
local dta_name1d "alldat2018den"
** The following line should contain the name of the data dictionary file ;
local dct_name "denom_dct_2018.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: 2018 */
tab DOB_YY if _mgnumden==2  /* numerator only: 2018 and 2019 */
tab DOB_YY if _mgnumden==3  /* matched 2018 records */

/* check the year of death variable for merged records */
tab DOD_YY if _mgnumden==3  /* matched 2018 records: Year of death 2018-
2019 */

/* drop records that did not match, deaths where the year of
birth was either 2017 or 2019 */
drop if _mgnumden==2
save "mergedcohort_2017.dta", replace
log close
```

Incomplete National Reporting in the Period file - Using Reporting Flags

Reporting flags were developed to help the user more readily identify reporting
areas for items with less than national reporting; five items in the 2018 period file
have limited reporting areas. 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 2019 linked file may be different from those for the 2019
birth file, as items had to be reported by a state in both 2018 and 2019 to be able
to provide complete data. Thus, data for non-comparable items from states that
revised in 2019 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 2019 period/2018 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 principal source of payment item.

Sample SAS program

```
DATA work;
INFILE 'C:VS19LINK.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 User's Guide for the 2017 Natality File).

Prior to the 2017 linked file, 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. The race and Hispanic-origin groups shown in the user guide follow the 1997 standards and differ from the bridged-race categories shown in previous user guides that are based on data from 2016 and earlier. The new categories are: non-Hispanic single-race white, non-Hispanic single-race black or African American, non-Hispanic single-race American Indian or Alaska Native, non-Hispanic single-race Asian, non-Hispanic single-race Native Hawaiian or Other Pacific Islander, and Hispanic.

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:

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

A separate weight is computed for each state of residence of birth and each age at death category (<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.

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

Age of death

Historically, the linked birth/infant death files have included information on age of the infant's death (AOD) from the general mortality file. However, a comparison of AOD information based on date of birth from the death certificate, and a calculated AOD based on the date and time of birth from the birth certificate indicates better data quality when AOD is calculated from the data and time of birth from the birth certificate. Accordingly, beginning with the 2019 data year the linked file includes revised AOD variables based on the birth date and time of birth from the natality file. The revised variables (AGED, AGER5 and AGER22) more accurately reflect AOD for those infants who lived less than 24 hours. For 2019, this change resulted in an additional 550 infant death records reported with an age of death of less than 1 day and 550 fewer records for the age of death category of 1 day. Note that as a result, the AOD variables for 2019 and later are not comparable to those from 2018 and earlier for infants who lived less than 24 hours or for 1 day for years 2018 and earlier.

Marital status

National estimates of births to unmarried women are based on two methods of determining marital status. In 2019, 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 with 2017 data, 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. Accordingly, California data on marital status are not included in this file.

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 continue to be available in data files. See [Measuring Gestational Age in Vital Statistics Data: Transitioning to the Obstetric Estimate](#) for more detailed information about the transition from the LMP to the OE.

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 950 in the numerator and denominator files. The addition of this imputation has reduced the percent of not-stated responses for birthweight from 5.25 to 0.68% in the numerator file, and from 0.10 to 0.07% 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;

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 can differ for specific variables (e.g. age at death).

Rates per 1,000 live births are shown at the second 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.

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:

$$RSE(D)=100*\sqrt{\frac{1}{D}}$$ 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:

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

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.

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

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:

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

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

Methodology

States routinely link infant death certificates to their corresponding birth certificates for legal and statistical purposes. When the birth and death of an infant occurs in different states, copies of the records are exchanged by the state of death and state of birth to establish a link. 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 annual NCHS natality and mortality files include statistical data from birth and death certificates that are provided to NCHS by states under the Vital Statistics Cooperative Program (VSCP); these files are the basis for official U.S. birth and death statistics. These data have been coded according to uniform coding specifications, have passed quality control standards and have been edited and reviewed. NCHS obtains matching birth certificate numbers from states for all infant deaths that occurred in their jurisdiction. NCHS then uses this information to extract final, edited mortality and natality data from the NCHS natality and mortality statistical files. Individual birth and death records are selected from the respective files and linked into a single statistical record to create a national linked birth-death record file.

Percent of Records Linked

<u>The 2019 period linked file</u> for the 50 States and D.C. includes 20,814, linked infant death records and 155 unlinked infant death records (99.3% linked and 0.7% unlinked). The period linked file is weighted to the sum of linked plus unlinked records resulting in a total number of 20,969 weighted infant deaths by place of occurrence.

For 2019, thirty-one jurisdictions (30 states and D.C.) linked 100% of their infant deaths; 20 jurisdictions had less than a 100% linkage rate. Six states have a linkage of under 99%; Texas (96.0%), Arizona (97.4%), Washington (98.1%), New Mexico (98.3%), Delaware (98.6%), and Oklahoma (98.8%). When a high percentage of deaths are unlinked, unweighted infant mortality rates computed for these states are underestimated. Accordingly, weights are added to the file to correct for biases in the data due to lower data linkage for particular states.

<u>The 2018 cohort linked file</u> for the 50 States and D.C. includes 21,346 linked infant death records and 139 unlinked infant death records (99.4% linked, 0.6% 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 day of the birth of the newborn 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. Replacement - 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. Replacement - 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, 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.

For more detailed information on filling out birth certificate information, see the Facility worksheet for the live birth certificate and the Applying Best Practices for Reporting Medical and Health Information on Birth Certificates training.

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.

A maximum of 20 codes are captured on a record for multiple cause purposes. The codes are written in a 100-byte field with the underlying cause of death listed first, followed by ascending code order (5 bytes), 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.

2019 Period Linked Birth/Infant Death Data Set

2019 Period Numerator Files:

 <u>United States</u>
 A. Record count (occurrence, unweighted):   20,814
 B. Record length: 1,743

 <u>Territories</u>
 A. Record count (occurrence):   164
 B. Record length: 1,743

2019 Period Denominator Files:

 <u>United States</u>
 A. Record count (occurrence):   3,757,582
 B. Record length: 1,346

 <u>Territories</u>
 A. Record count (occurrence):   23,464
 B. Record length: 1,346

2018 Cohort Numerator Files:

 <u>United States</u>
 A. Record count (occurrence, unweighted):   21,379
 B. Record length: 1,743

2018 Cohort Denominator Files:

 <u>United States</u>
 A. Record count (occurrence):   3,801,534
 B. Record length: 1,346

2019 Period/ 2018 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**		2018	2019
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	1	P,G	MHISPX	**Mother's Hispanic Origin Recode**	116	0	Non-Hispanic
						1	Mexican
						2	Puerto Rican
						3	Cuban
						4	Central and South American
						5	Dominican
						6	Other and Unknown Hispanic origin
						9	Hispanic origin not stated
113-114	2		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-		1	Non-Hispanic White (only)
						2	Non-Hispanic Black (only)
						3	Non-Hispanic AIAN (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
				race categories (field 110) see "Coding for bridge-race and Hispanic origin categories" in the Detailed Technical Notes.		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
						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

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
127-141	15		FILLER11	**Filler**		Blank	
142	1	P,G	FAGERPT_FLG	**Father's Reported Age Used**		Blank 1	Father's reported age not used Father's reported age used
143-146	4		FILLER12	**Filler**		Blank	
147-148	2	P,G	FAGECOMB	**Father's Combined Age (Revised)**		09-98 99	Father's combined age in years Unknown or not stated
149-150	2	P,G	FAGE11	**Father's Age Recode 11**		01 02 03 04 05 06 07 08 09 10 11	Under 15 years 15-19 years 20-24 years 25-29 years 30-34 years 35-39 years 40-44 years 45-49 years 50-54 years 55-98 years Not stated
151-152	2	P,G	FRACE31	**Father's Race Recode 31**		01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20	White (only) [only one race reported] Black (only) AIAN (American Indian or Alaskan Native) (only) Asian (only) NHOPI (Native Hawaiian or Other Pacific Islander) (only) Black and White Black and AIAN Black and Asian Black and NHOPI AIAN and White AIAN and Asian AIAN and NHOPI Asian and White Asian and NHOPI NHOPI and White Black, AIAN, and White Black, AIAN, and Asian Black, AIAN, and NHOPI Black, Asian, and White Black, Asian, and NHOPI

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
						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
						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
156-159	4		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

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
						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**	336	00	None
						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**	363	Y	Yes
						N	No
						U	Unknown or not stated
361	1	P,G	OB_FAIL	**Failed External Cephalic Version**	364	Y	Yes
						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**	126	1	True
						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

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
446	1	P,G	APGAR5R	**Five Minute APGAR Recode**	447	1	A score of 0-3
						2	A score of 4-6
						3	A score of 7-8
						4	A score of 9-10
						5	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 2018		00-10	A score of 0-10
						88	Not applicable
						99	Unknown or not stated
450	1	P,G	APGAR10R	**Ten Minute APGAR Recode** Use reporting flag in field 126 for 2018		1	A score of 0-3
						2	A score of 4-6
						3	A score of 7-8
						4	A score of 9-10
						5	Not stated/not applicable
451-453	1		FILLER41	**Filler**		Blank	
454	1	P,G	DPLURAL	**Plurality Recode**		1	Single
						2	Twin
						3	Triplet
						4	Quadruplet or higher
455	1		FILLER42	**Filler**		Blank	
456	1	P,G	IMP_PLUR	**Plurality Imputed**		Blank	Plurality is imputed
						1	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	Male
						F	Female
476	1	P,G	IMP_SEX	**Imputed Sex**		Blank	Infant Sex not Imputed
						1	Infant Sex is Imputed
477-478	2	P,G	DLMP_MM	**Last Normal Menses Month**		01	January
						02	February

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
						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
						3	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
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
511	1	P,G	BWTR4	**Birth Weight Recode 4**		1	227 - 1499 grams

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
						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
540	1	P,G	CA_CDH	**Congenital Diaphragmatic Hernia**	546		

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
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**	559	C	Confirmed
						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**	126	1	True
						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
568	1	P,G	ILIVE	**Infant Living at Time of Report**		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
					126	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
571-1345	759	P,G	FILLER54	**Filler**		Blank	
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	AGEDX	Age at Death in Days		000-365	Number of days
1359	1	P,G	AGER5X	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	AGER22X	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
1363	1	P,G	DISPO	Method of Disposition		B	Burial

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
						C	Cremation
						O	Other
						U	Unknown
1364	1	P,G	AUTOPSY	Autopsy		Y	Yes
						N	No
						U	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	Home
						1	Residential institution
						2	School, other institution and public administrative area
						3	Sports and athletics area
						4	Street and highway
						5	Trade and service area
						6	Industrial and construction area
						7	Farm
						8	Other Specified Places
						9	Unspecified place
						Blank	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	UCOD	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*	Field	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 align="center">Positions 1 – 4: Condition Code</div>

Position	Len	File*	Field	Description
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

Position	Len	File*	Field	Description	Flag Position	Values	Definition
1633-1669	37	P,G	FILLER61	**Filler**		Blank	
1670	1	P,G	HOSPD	<u>Place of Death and Decedent'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
						9	Unknown

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
1672-1675	4	P,G	DOD_YY	Data Year		2019	2019
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

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

ADDENDUM
Detailed geographic information for the territories.

Position	Len	File*	Field	Description	Flag Position	Values	Definition
24-25	2	T,G	OSTATE	**Occurrence Postal State**			
				U.S. Territories			GU Guam, PR Puerto Rico
28-30	3	T,G	OCNTYFIPS	**Occurrence FIPS County**		000-nnn	County of Occurrence
31	1	T,G	OCNTYPOP	**Occurrence County Population**		0	County of 1,000,000 or more
						1	County of 500,000 to 1,000,000
						2	County of 250,000 to 500,000
						3	County of 100,000 to 250,000
						4	County of 50,000 to 100,000
						5	County of 25,000 to 50,000
						6	County of 10,000 to 25,000
						9	County less than 10,000
80-81	2	T,G	MBCNTRY	**Mother's Birth Country**		AA-ZZ	See Geographic Documentation
85-86	2	G	MRCNTRY	**Mother's Residence Country**		AA-ZZ	See Geographic Documentation
89-90	2	T,G	MRSTATEPSTL	**Mother's Residence Postal State**			
				U.S. Territories			GU Guam, PR Puerto Rico
				Foreign			CC Canada, CU Cuba, MX Mexico, XX Not Applicable, ZZ Not Classifiable
91-93	3	T,G	MRCNTYFIPS	**Mother's FIPS County**		000-998	See Geographic Tables
						999	Foreign
99	1	T,G	RCNTY_POP	**Population of Residence County**		0	County of 1,000,000 or more
						1	County of 500,000 to 1,000,000
						2	County of 250,000 to 500,000
						3	County of 100,000 to 250,000
						4	County of 50,000 to 100,000
						5	County of 25,000 to 50,000
						6	County of 10,000 to 25,000
						9	County less than 10,000
						Z	Foreign resident
100	1	G	RCITY_POP	**Population of Residence City**		0	City of 1,000,000 or more
						1	City of 500,000 to 1,000,000
						2	City of 250,000 to 500,000
						3	City of 100,000 to 250,000
						4	City of 50,000 to 100,000
						5	City of 25,000 to 50,000

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
						6	City of 10,000 to 25,000
						9	All other areas in the US
						Z	Foreign resident
103	1	T,G	RECTYPE	**Record Type**		1	RESIDENT: State and county of occurrence and residence are the same.
						2	NONRESIDENT: State and county of occurrence and residence are different.
1635	1		D_RESTATUS	**Death Resident Status**			
				Puerto Rico Occurrence		1	RESIDENTS Territory and County-equivalent of Occurrence and Residence are the same.
						2	INTRASTATE NONRESIDENTS Territory of Occurrence and Residence are the same, but County-equivalent is different.
						3	INTERTERRITORY NONRESIDENTS Territory of occurrence and residence are different, but both are a Territory.
						4	FOREIGN RESIDENTS Occurred in Puerto Rico to a resident of any other place.
				Guam Occurrence		1	RESIDENTS Occurred in Guam to a resident of Guam or to a resident of the U.S.
						3	INTERTERRITORY NONRESIDENTS Territory of occurrence and residence are different, but both are a Territory.
						4	FOREIGN RESIDENTS Occurred in Guam to a resident of any place other than Guam or the U.S.
1636-1637	2	DOSTATE		**State of Occurrence (FIPS) of Death**			
						PR	Puerto Rico
						GU	Guam

1638-1640   3   DOCNTY   **County of Occurrence (FIPS) of Death**
Counties and county equivalents (independent and coextensive cities) are numbered alphabetically within each State and identify each county. (Note: To uniquely identify a county, both the state and county codes must be used.) A complete list of counties is shown in the Geographic Code Outline further back in this document.

    001-nnn Code range

Position	Len	File*	Field	Description	Flag Position	Values	Definition
1641-1643	3	FILLER048		**FILLER**		Blank	
1644-1645	2	DRSTATE		**State of Residence (FIPS)**			
						PR	Puerto Rico

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
						GU	Guam
				Puerto Rico Occurrence		PR	Puerto Rico
						AL-WY, VI,AS,GU, MP,ZZ	
							Foreign residents: refer to U.S. for specific code structure.
				Guam Occurrence		GU	Guam
						AL-WY	U.S. resident. Also considered a resident of Guam.
						PR,AS, VI,MP, ZZ	
							Foreign residents: refer to U.S. for specific code structure.
1646-1647	2		FILLER049	**FILLER**			Blank
1648-1649	2		DRSTCNTRY	**State/Country of Residence of Death Recode**			
				Territorial resident		PR	Puerto Rico
						GU	Guam
				Foreign residents			
						CC	Canada
						MX	Mexico
						CU	Cuba
						YY	Remainder of the world
				Puerto Rico Occurrence		PR	Puerto Rico
						AL-ZZ	Foreign residents: refer to U.S. for specific code structure.
				Guam Occurrence		GU	Guam
						AL-WY	U.S. resident. Also considered a resident of Guam
						PR,VI,AS, MP,ZZ	
							Foreign residents: refer to U.S. for specific code structure.
1650-1652	3		DRCNTY	**County of Residence (FIPS) of Death** (To uniquely identify a county, both the state and county codes must be used.)			
						000	Foreign residents
						001-nnn	Code range
1653-1665	13		FILLER69	**FILLER**		Blank	
1666	1		DRCNTYPOP	**Population Size of County of Residence of Death** Based on the results of the 2010 Census		0	County of 1,000,000 or more
						1	County of 500,000 to 1,000,000
						2	County of 250,000 to 500,000
						3	County of 100,000 to 250,000

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
						4	County of 50,000 to 100,000
						5	County of 25,000 to 50,000
						6	County of 10,000 to 25,000
						9	County of less than 10,000
						Z	Foreign residents

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

     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)

      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

       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)

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 *****

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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)
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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

 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, (Residence of birth is of the Mother)

| State | Live Births | | Infant Deaths | | | | Infant Mortality Rate |
| | Occurrence | Residence | Unweighted | | Weighted 1/ | | |
			Occurrence	Residence	Occurrence	Residence	
United States /2	3,757,582	3,747,540	20,814	20,772	20,969	20,927	5.58
Alabama	57,224	58,615	445	452	445	452	7.71
Alaska	9,735	9,822	49	49	49	49	4.99
Arizona	80,371	79,375	421	420	432	431	5.43
Arkansas	35,314	36,564	238	255	239	256	7.00
California	447,653	446,479	1,870	1,871	1,888	1,889	4.23
Colorado	63,520	62,869	327	304	328	305	4.85
Connecticut	35,557	34,258	153	150	153	150	4.38
Delaware	10,935	10,562	66	67	67	68	6.44
Dist of Columbia	13,384	9,079	81	45	81	45	4.96
Florida	220,230	220,002	1,359	1,341	1,360	1,342	6.10
Georgia	127,255	126,371	899	886	900	887	7.02
Hawaii	16,827	16,797	85	86	85	86	5.12
Idaho	21,762	22,063	91	95	91	95	4.31
Illinois	136,602	140,128	741	793	742	794	5.67
Indiana	81,354	80,859	519	527	521	529	6.54
Iowa	37,558	37,649	177	189	177	189	5.02
Kansas	36,986	35,395	180	191	181	192	5.42
Kentucky	50,874	53,069	254	259	255	260	4.90
Louisiana	59,111	58,941	466	470	466	470	7.97
Maine	11,509	11,779	65	64	65	64	5.43
Maryland	66,793	70,178	387	410	387	410	5.84
Massachusetts	69,916	69,117	261	257	262	258	3.73
Michigan	106,918	107,886	674	685	677	688	6.38
Minnesota	65,082	66,027	299	298	300	299	4.53
Mississippi	35,663	36,636	288	319	288	319	8.71
Missouri	72,912	72,127	498	440	501	443	6.14
Montana	11,122	11,079	54	53	54	53	4.78
Nebraska	25,146	24,755	135	121	136	122	4.93
Nevada	34,731	35,072	197	198	198	199	5.67
New Hampshire	11,825	11,839	31	38	31	38	3.21
New Jersey	96,906	99,585	389	420	389	420	4.22
New Mexico	21,574	22,960	119	129	120	130	5.66
New York	111,904	116,138	495	542	499	546	4.70
New York City	110,443	105,401	443	412	444	413	3.92
North Carolina	120,577	118,725	812	805	812	805	6.78
North Dakota	12,022	10,454	82	78	82	78	7.46
Ohio	134,854	134,461	946	927	946	927	6.89
Oklahoma	47,667	49,143	335	343	336	344	7.00
Oregon	42,288	41,858	209	202	210	203	4.85
Pennsylvania	133,589	134,230	831	796	831	796	5.93
Rhode Island	10,708	10,175	66	60	66	60	5.90
South Carolina	53,448	57,038	373	393	373	393	6.89
South Dakota	12,223	11,449	91	80	91	80	6.99
Tennessee	86,066	80,450	615	557	618	560	6.96

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

| State | Live Births | | Infant Deaths | | | | |
| | | | Unweighted | | Weighted 1/ | | |
	Occurrence	Residence	Occurrence	Residence	Occurrence	Residence	Infant Mortality Rate
Texas	386,178	377,599	2,007	1,985	2,093	2,069	5.48
Utah	48,023	46,826	272	247	272	247	5.27
Vermont	5,193	5,361	17	15	17	15	2.80
Virginia	97,400	97,429	548	565	549	566	5.81
Washington	84,764	84,895	346	354	354	362	4.26
West Virginia	19,004	18,136	116	111	116	111	6.12
Wisconsin	62,961	63,270	366	371	366	371	5.86
Wyoming	5,921	6,565	26	47	26	47	7.16
Puerto Rico	20,408	20,353	134	134	135	135	6.63
Guam	3,056	3,041	30	30	30	30	9.87

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, 2019
[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.........................	3,747,540	5,904	8,879	10,098	12,326	15,403	61,226	198,317	3,432,666	2,721
Infant deaths.....................	20,927	5,084	3,105	1,171	734	614	1,455	1,855	6,767	142
Infant Mortality Rate.........	5.58	861.11	349.70	115.96	59.55	39.86	23.76	9.35	1.97	52.19
Male										
Live births.........................	1,917,446	3,014	4,434	5,072	6,207	7,673	29,528	90,306	1,769,733	1,479
Infant deaths.....................	11,662	2,688	1,808	708	414	329	728	947	3,944	96
Infant Mortality Rate.........	6.08	891.84	407.76	139.59	66.70	42.88	24.65	10.49	2.23	64.91
Female										
Live births.........................	1,830,094	2,890	4,445	5,026	6,119	7,730	31,698	108,011	1,662,933	1,242
Infant deaths.....................	9,265	2,396	1,297	462	320	285	727	908	2,823	46
Infant Mortality Rate.........	5.06	829.07	291.79	91.92	52.30	36.87	22.94	8.41	1.70	37.04
Non-Hispanic White										
Both sexes										
Live births.........................	1,915,912	1,805	2,980	3,727	4,837	6,386	26,583	85,951	1,782,422	1,221
Infant deaths.....................	8,603	1,592	1,159	495	336	270	635	841	3,231	44
Infant Mortality Rate.........	4.49	881.99	388.93	132.81	69.46	42.28	23.89	9.78	1.81	36.04
Male										
Live births.........................	981,620	938	1,513	1,911	2,493	3,161	12,834	38,810	919,300	660
Infant deaths.....................	4,860	856	679	300	199	138	315	435	1914	24
Infant Mortality Rate.........	4.95	912.58	448.78	156.99	79.82	43.66	24.54	11.21	2.08	36.36
Female										
Live births.........................	934,292	867	1,467	1,816	2,344	3,225	13,749	47,141	863,122	561
Infant deaths.....................	3,743	736	480	195	136	132	320	406	1,318	20
Infant Mortality Rate.........	4.01	848.90	327.20	107.38	58.02	40.93	23.27	8.61	1.53	35.65
Non-Hispanic Black										
Both sexes										
Live births.........................	548,075	2,222	3,132	3,221	3,677	4,147	15,263	46,125	469,917	371
Infant deaths.....................	5,821	1,865	957	300	168	152	373	469	1,500	37
Infant Mortality Rate.........	10.62	839.33	305.56	93.14	45.69	36.65	24.44	10.17	3.19	99.73
Male										
Live births.........................	278,494	1,118	1,519	1,561	1,777	1,986	7,018	20,541	242,778	196
Infant deaths.....................	3,179	974	565	175	83	79	184	231	860	27
Infant Mortality Rate.........	11.41	871.20	371.96	112.11	46.71	39.78	26.22	11.25	3.54	137.76

Documentation Table 2. Live births,infant deaths and infant mortality rates by race of mother, sex and birthweight of child: United States, 2018
[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........................	269,581	1,104	1,613	1,660	1,900	2,161	8,245	25,584	227,139	175
Infant deaths....................	2,642	891	392	125	84	73	189	238	641	10
Infant Mortality Rate.........	9.80	807.07	243.03	75.30	44.21	33.78	22.92	9.30	2.82	*
Non-Hispanic American Indian or Alaska Native /1										
Both sexes										
Live births........................	28,450	36	61	65	82	127	449	1,472	26,147	11
Infant deaths....................	225	32	25	6	8	6	11	20	115	-
Infant Mortality Rate.........	7.91	888.89	409.84	*	*	*	*	13.59	4.40	*
Male										
Live births........................	14,500	20	23	29	45	57	233	677	13,409	7
Infant deaths....................	126	16	10	3	5	4	5	9	73	-
Infant Mortality Rate.........	8.69	*	*	*	*	*	*	*	5.44	*
Female										
Live births........................	13,950	16	38	36	37	70	216	795	12,738	4
Infant deaths....................	99	16	15	3	3	2	6	11	42	-
Infant Mortality Rate.........	7.10	*	*	*	*	*	*	*	3.30	*
Non-Hispanic Asian										
Both sexes										
Live births........................	238,769	272	411	496	617	838	3,679	14,425	217,903	128
Infant deaths....................	806	244	151	44	27	18	49	59	203	10
Infant Mortality Rate.........	3.38	897.06	367.40	88.71	43.76	21.48	13.32	4.09	0.93	*
Male										
Live births........................	123,806	140	216	243	310	448	1,873	6,859	113,642	75
Infant deaths....................	449	128	87	29	14	11	21	31	122	6
Infant Mortality Rate.........	3.63	914.29	402.78	119.34	*	*	11.21	4.52	1.07	*
Female										
Live births........................	114,963	132	195	253	307	390	1,806	7,566	104,261	53
Infant deaths....................	357	116	64	15	13	7	27	28	81	4
Infant Mortality Rate.........	3.11	878.79	328.21	*	*	*	14.95	3.70	0.78	*
Non-Hispanic Native Hawaiian or Other Pacific Islander										
Both sexes										
Live births........................	9,770	21	28	22	26	37	142	466	9,021	7
Infant deaths....................	80	19	11	5	1	2	4	1	36	-
Infant Mortality Rate.........	8.19	*	*	*	*	*	*	*	3.99	*

Documentation Table 2. Live births,infant deaths and infant mortality rates by race of mother, sex and birthweight of child: United States, 2018
[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.........................	5,026	13	16	9	14	19	64	201	4,685	5
Infant deaths....................	51	12	7	5	1	1	1	1	23	-
Infant Mortality Rate.........	10.15	*	*	*	*	*	*	*	4.91	*
Female										
Live births.........................	4,744	8	12	13	12	18	78	265	4,336	2
Infant deaths....................	28	7	4	-	-	1	3	-	13	1
Infant Mortality Rate.........	5.90	*	*	*	*	*	*	*	*	*
Hispanic										
Both sexes										
Live births.........................	886,467	1,256	1,942	2,213	2,680	3,309	12,873	42,821	818,991	382
Infant deaths....................	4,462	1,076	671	262	163	132	326	400	1,403	28
Infant Mortality Rate.........	5.03	856.69	345.52	118.39	60.82	39.89	25.32	9.34	1.71	73.30
Male										
Live births.........................	452,492	631	977	1,143	1,369	1,736	6,465	19,961	419,988	222
Infant deaths....................	2,477	564	384	161	96	75	172	202	798	24
Infant Mortality Rate.........	5.47	893.82	393.04	140.86	70.12	43.20	26.60	10.12	1.90	108.11
Female										
Live births.........................	433,975	625	965	1,070	1,311	1,573	6,408	22,860	399,003	160
Infant deaths....................	1,985	512	287	101	68	57	153	198	605	4
Infant Mortality Rate.........	4.57	819.20	297.41	94.39	51.87	36.24	23.88	8.66	1.52	*

* 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,
[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
All Races										
Total										
Live births.........................	3,747,540	24,758	34,748	44,253	279,302	2,455,393	702,999	194,246	9,435	2,406
Infant deaths....................	20,927	9,271	1,464	850	2,292	5,556	974	285	54	181
Infant Mortality Rate.........	5.58	374.46	42.13	19.21	8.21	2.26	1.39	1.47	5.72	75.23
Less than 2,500 grams										
Live births.........................	312,153	24,515	33,667	40,525	118,273	91,095	3,250	505	82	241
Infant deaths....................	14,018	9,263	1,418	760	1,401	1,058	58	19	8	33
Infant Mortality Rate.........	44.91	377.85	42.12	18.75	11.85	11.61	17.85	*	*	136.93
Less than 500 grams										
Live births.........................	5,904	5,806	76	-	4	-	-	-	-	18
Infant deaths....................	5,084	5,031	41	-	1	-	-	-	-	11
Infant Mortality Rate.........	861.11	866.52	539.47	*	*	*	*	*	*	*
500-749 grams										
Live births.........................	8,879	8,124	692	22	22	2	-	-	-	17
Infant deaths....................	3,105	2,984	98	10	5	-	-	-	-	7
Infant Mortality Rate.........	349.70	367.31	141.62	*	*	*	*	*	*	*
750-999 grams										
Live births.........................	10,098	6,890	2,929	172	51	34	7	6	-	9
Infant deaths....................	1,171	908	207	31	15	3	-	-	-	6
Infant Mortality Rate.........	115.96	131.79	70.67	180.23	*	*	*	*	*	*
1,000-1,249 grams										
Live births.........................	12,326	3,024	7,639	1,092	332	202	22	7	2	6
Infant deaths....................	734	250	345	77	42	14	1	2	1	2
Infant Mortality Rate.........	59.55	82.67	45.16	70.51	126.51	*	*	*	*	*
1,250-1,499 grams										
Live births.........................	15,403	469	9,354	3,530	1,643	334	52	10	1	10
Infant deaths....................	614	57	312	111	92	38	4	-	-	-
Infant Mortality Rate.........	39.86	121.54	33.35	31.44	56.00	113.77	*	*	*	*
1,500-1,999 grams										
Live births.........................	61,226	133	11,373	20,434	23,932	5,104	169	30	12	39
Infant deaths....................	1,455	24	337	319	473	279	15	2	4	2
Infant Mortality Rate.........	23.76	180.45	29.63	15.61	19.76	54.66	*	*	*	*
2,000-2,499 grams										
Live births.........................	198,317	69	1,604	15,275	92,289	85,419	3,000	452	67	142
Infant deaths....................	1,855	9	78	213	773	723	38	14	2	5
Infant Mortality Rate.........	9.35	*	48.63	13.94	8.38	8.46	12.67	*	*	*

Documentation Table 3. Live births, infant deaths, and infant mortality rates by birthweight, race of mother, and gestational age: United States,
[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.........................	3,432,666	89	960	3,654	160,812	2,363,484	699,465	193,624	9,322	1,256
Infant deaths....................	6,767	8	45	90	890	4,496	916	266	46	10
Infant Mortality Rate.........	1.97	*	46.88	24.63	5.53	1.90	1.31	1.37	4.93	*
Not Stated										
Live births.........................	2,721	154	121	74	217	814	284	117	31	909
Infant deaths....................	142	-	1	-	1	2	-	-	-	138
Infant Mortality Rate.........	52.19	*	*	*	*	*	*	*	*	151.82
Non-Hispanic White										
Total										
Live births.........................	1,915,912	8,487	14,735	20,310	133,807	1,243,141	376,525	111,869	6,114	924
Infant deaths....................	8,603	3,230	666	379	1,053	2,600	450	136	32	56
Infant Mortality Rate.........	4.49	380.58	45.20	18.66	7.87	2.09	1.20	1.22	5.23	60.61
Less than 2,500 grams										
Live births.........................	132,269	8,412	14,241	18,451	52,178	37,301	1,328	215	38	105
Infant deaths....................	5,328	3,227	640	332	614	470	21	6	5	12
Infant Mortality Rate.........	40.28	383.62	44.94	17.99	11.77	12.60	15.81	*	*	114.29
Less than 500 grams										
Live births.........................	1,805	1,768	30	-	3	-	-	-	-	4
Infant deaths....................	1,592	1,575	14	-	-	-	-	-	-	3
Infant Mortality Rate.........	881.99	890.84	*	*	*	*	*	*	*	*
500-749 grams										
Live births.........................	2,980	2,684	272	9	8	-	-	-	-	7
Infant deaths....................	1,159	1,113	37	4	2	-	-	-	-	3
Infant Mortality Rate.........	388.93	414.68	136.03	*	*	*	*	*	*	*
750-999 grams										
Live births.........................	3,727	2,472	1,126	82	21	17	5	1	-	3
Infant deaths....................	495	379	93	13	5	3	-	-	-	2
Infant Mortality Rate.........	132.81	153.32	82.59	*	*	*	*	*	*	*
1,000-1,249 grams										
Live births.........................	4,837	1,213	2,938	428	151	88	10	3	2	4
Infant deaths....................	336	116	159	36	17	3	-	1	1	2
Infant Mortality Rate.........	69.46	95.63	54.12	84.11	*	*	*	*	*	*
1,250-1,499 grams										
Live births.........................	6,386	199	3,862	1,463	680	147	25	5	-	5
Infant deaths....................	270	28	138	53	34	15	1	-	-	-
Infant Mortality Rate.........	42.28	140.70	35.73	36.23	50.00	*	*	*	*	*

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

Birthweight		Gestation								
	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
1,500-1,999 grams										
Live births.........................	26,583	53	5,233	8,870	10,136	2,179	71	17	7	17
Infant deaths....................	635	11	157	124	217	117	5	1	2	1
Infant Mortality Rate.........	23.89	*	30.00	13.98	21.41	53.69	*	*	*	*
2,000-2,499 grams										
Live births.........................	85,951	23	780	7,599	41,179	34,870	1,217	189	29	65
Infant deaths....................	841	5	42	101	339	332	15	4	2	1
Infant Mortality Rate.........	9.78	*	53.85	13.29	8.23	9.52	*	*	*	*
2,500 grams or more										
Live births.........................	1,782,422	39	441	1,811	81,502	1,205,349	375,030	111,570	6,058	622
Infant deaths....................	3,231	3	25	47	438	2,128	429	130	27	4
Infant Mortality Rate.........	1.81	*	56.69	25.95	5.37	1.77	1.14	1.17	4.46	*
Not Stated										
Live births.........................										
Infant deaths....................	1,221	36	53	48	127	491	167	84	18	197
Infant Mortality Rate.........	44	-	1	-	1	2	-	-	-	40
	36.04	*	*	*	*	*	*	*	*	203.05
Non-Hispanic Black										
Total										
Live births.........................	548,075	8,332	8,927	9,804	51,766	357,489	87,995	22,261	1,175	326
Infant deaths....................	5,821	3,068	350	225	543	1,303	222	54	9	48
Infant Mortality Rate.........	10.62	368.22	39.21	22.95	10.49	3.64	2.52	2.43	*	147.24
Less than 2,500 grams										
Live births.........................	77,787	8,253	8,751	9,247	27,420	23,119	794	128	21	54
Infant deaths....................	4,284	3,066	347	210	363	270	13	5	2	8
Infant Mortality Rate.........	55.07	371.50	39.65	22.71	13.24	11.68	*	*	*	*
Less than 500 grams										
Live births.........................	2,222	2,190	25	-	-	-	-	-	-	7
Infant deaths....................	1,865	1,844	15	-	-	-	-	-	-	6
Infant Mortality Rate.........	839.33	842.01	*	*	*	*	*	*	*	*
500-749 grams										
Live births.........................	3,132	2,892	218	7	11	1	-	-	-	3
Infant deaths....................	957	922	28	4	3	-	-	-	-	-
Infant Mortality Rate.........	305.56	318.81	128.44	*	*	*	*	*	*	*
750-999 grams										
Live births.........................	3,221	2,188	964	40	18	7	1	3	-	-
Infant deaths....................	300	230	58	6	6	-	-	-	-	-
Infant Mortality Rate.........	93.14	105.12	60.17	*	*	*	*	*	*	*

Documentation Table 3. Live births, infant deaths, and infant mortality rates by birthweight, race of mother, and gestational age: United States,
[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.........................	3,677	839	2,384	321	74	52	4	1 -		2
Infant deaths....................	168	53	86	13	9	5	1	-	-	-
Infant Mortality Rate.........	45.69	63.17	36.07	*	*	*	*	*	*	*
1,250-1,499 grams										
Live births.........................	4,147	88	2,542	981	452	72	6	4 -		2
Infant deaths....................	152	9	81	34	18	9	1 -		-	-
Infant Mortality Rate.........	36.65	*	31.86	34.66	*	*	*	*	*	*
1,500-1,999 grams										
Live births.........................	15,263	36	2,376	5,161	6,308	1,330	36	3	2	11
Infant deaths....................	373	7	65	107	123	63	2	1	2	1
Infant Mortality Rate.........	24.44	*	27.36	20.73	19.50	47.37	*	*	*	*
2,000-2,499 grams										
Live births.........................	46,125	20	242	2,737	20,557	21,657	747	117	19	29
Infant deaths....................	469	1	13	45	203	193	9	4 -		1
Infant Mortality Rate.........	10.17	*	*	16.44	9.87	8.91	*	*	*	*
2,500 grams or more										
Live births.........................	469,917	20	142	547	24,312	334,254	87,165	22,125	1,152	200
Infant deaths....................	1,500	2	3	15	180	1,033	209	49	7	3
Infant Mortality Rate.........	3.19	*	*	*	7.40	3.09	2.40	2.21	*	*
Not Stated										
Live births.........................	371	59	34	10	34	116	36	8	2	72
Infant deaths....................	37 -		-	-	-	-	-	-	-	37
Infant Mortality Rate.........	99.73	*	*	*	*	*	*	*	*	513.89
Non-Hispanic American Indian or Alaskan Native /1										
Total										
Live births.........................	28,450	162	284	378	2,468	18,766	5,013	1,260	73	46
Infant deaths....................	224	64	15	9	28	89	15	2	1 -	
Infant Mortality Rate.........	7.87	395.06	*	*	11.35	4.74	*	*	*	*
Less than 2,500 grams										
Live births.........................	2,292	162	270	321	876	628	24	2	1	9
Infant deaths....................	109	64	15	8	11	10	-	-	-	-
Infant Mortality Rate.........	47.56	395.06	*	*	*	*	*	*	*	*
Less than 500 grams										
Live births.........................	36	36 -		-	-	-	-	-	-	-
Infant deaths....................	32	32 -		-	-	-	-	-	-	-
Infant Mortality Rate.........	888.89	888.89	*	*	*	*	*	*	*	*

Documentation Table 3. Live births, infant deaths, and infant mortality rates by birthweight, race of mother, and gestational age: United States,
[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					
500-749 grams										
Live births.........................	61	53	8	-	-	-	-	-	-	-
Infant deaths....................	25	25	-	-	-	-	-	-	-	-
Infant Mortality Rate.........	409.84	*	*	*	*	*	*	*	*	*
750-999 grams										
Live births.........................	65	41	23	1	-	-	-	-	-	-
Infant deaths....................	6	2	3	1	-	-	-	-	-	-
Infant Mortality Rate.........	*	*	*	*	*	*	*	*	*	*
1,000-1,249 grams										
Live births.........................	82	24	45	7	5	1	-	-	-	-
Infant deaths....................	8	3	4	-	-	1	-	-	-	-
Infant Mortality Rate.........	*	*	*	*	*	*	*	*	*	*
1,250-1,499 grams										
Live births.........................	127	5	71	32	15	2	-	-	-	2
Infant deaths....................	6	1	2	2	1	-	-	-	-	-
Infant Mortality Rate.........	*	*	*	*	*	*	*	*	*	*
1,500-1,999 grams										
Live births.........................	449	1	103	141	165	37	-	-	1	1
Infant deaths....................	11	-	4	3	1	3	-	-	-	-
Infant Mortality Rate.........	*	*	*	*	*	*	*	*	*	*
2,000-2,499 grams										
Live births.........................	1,472	1	20	140	691	588	24	2	-	6
Infant deaths....................	20	1	2	2	9	6	-	-	-	-
Infant Mortality Rate.........	13.59	*	*	*	*	*	*	*	*	*
2,500 grams or more										
Live births.........................	26,147	-	14	57	1,589	18,135	4,988	1,257	72	35
Infant deaths....................	115	-	-	1	17	79	15	2	1	-
Infant Mortality Rate.........	4.40	*	*	*	*	4.36	3.01	*	*	*
Not Stated										
Live births.........................	11	1	-	-	3	3	1	1	-	2
Infant deaths....................	-	-	-	-	-	-	-	-	-	-
Infant Mortality Rate.........	*	*	*	*	*	*	*	*	*	*
Non-Hispanic Asian										
Total										
Live births.........................	238,769	1,118	1,766	2,208	15,725	162,699	45,110	9,854	238	51
Infant deaths....................	806	437	50	29	67	165	35	10	1	12
Infant Mortality Rate.........	3.38	390.88	28.31	13.13	4.26	1.01	0.78	*	*	*

Documentation Table 3. Live births, infant deaths, and infant mortality rates by birthweight, race of mother, and gestational age: United States,
[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
Less than 2,500 grams										
Live births.........................	20,690	1,108	1,690	2,097	7,759	7,723	259	37	6	11
Infant deaths....................	636	423	63	36	63	40	6	-	-	3
Infant Mortality Rate.........	30.74	381.77	37.28	17.17	8.12	5.18	*	*	*	*
Less than 500 grams										
Live births.........................	272	270	1	-	-	-	-	-	-	1
Infant deaths....................	244	242	1	-	-	-	-	-	-	1
Infant Mortality Rate.........	897.06	896.30	*	*	*	*	*	*	*	*
500-749 grams										
Live births.........................	411	360	48	3	-	-	-	-	-	-
Infant deaths....................	151	146	5	-	-	-	-	-	-	-
Infant Mortality Rate.........	367.40	405.56	*	*	*	*	*	*	*	*
750-999 grams										
Live births.........................	496	320	161	10	3	2	-	-	-	-
Infant deaths....................	44	36	7	1	-	-	-	-	-	-
Infant Mortality Rate.........	88.71	112.50	*	*	*	*	*	*	*	*
1,000-1,249 grams										
Live births.........................	617	131	386	65	22	11	2	-	-	-
Infant deaths....................	27	10	8	5	3	1	-	-	-	-
Infant Mortality Rate.........	43.76	*	*	*	*	*	*	*	*	*
1,250-1,499 grams										
Live births.........................	838	14	464	218	119	22	1	-	-	-
Infant deaths....................	18	-	11	-	6	1	-	-	-	-
Infant Mortality Rate.........	*	*	*	*	*	*	*	*	*	*
1,500-1,999 grams										
Live births.........................	3,679	3	578	1,087	1,635	363	12	1	-	-
Infant deaths....................	48	1	12	12	8	14	1	-	-	-
Infant Mortality Rate.........	13.05	*	*	*	*	*	*	*	*	*
2,000-2,499 grams										
Live births.........................	14,425	4	63	703	5,957	7,417	244	34	2	1
Infant deaths....................	59	-	4	7	23	23	1	1	-	-
Infant Mortality Rate.........	4.09	*	*	*	3.86	3.10	*	*	*	*
2,500 grams or more										
Live births.........................	217,903	4	59	122	7,985	154,831	44,826	9,815	233	28
Infant deaths....................	203	1	2	4	26	126	33	9	1	1
Infant Mortality Rate.........	0.93	*	*	*	3.26	0.81	0.74	*	*	*

Documentation Table 3. Live births, infant deaths, and infant mortality rates by birthweight, race of mother, and gestational age: United States,
[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.........................	128	12	6	-	4	53	25	4	3	21
Infant deaths....................	10	-	-	-	-	-	-	-	-	10
Infant Mortality Rate.........	78.13	*	*	*	*	*	*	*	*	*
Non-Hispanic Native Hawaiian or Other Pacific Islander										
Total										
Live births.........................	9,770	82	80	121	805	6,279	1,853	512	23	15
Infant deaths....................	80	33	4	5	9	22	5	1	-	-
Infant Mortality Rate.........	8.19	402.44	*	*	*	3.50	*	*	*	*
Less than 2,500 grams										
Live births.........................	742	82	77	103	260	210	8	2	0	1
Infant deaths....................	44	33	4	4	2	-	-	-	-	-
Infant Mortality Rate.........	59.30	402.44	*	*	*	*	*	*	*	*
Less than 500 grams										
Live births.........................	21	21	-	-	-	-	-	-	-	-
Infant deaths....................	19	19	-	-	-	-	-	-	-	-
Infant Mortality Rate.........	*	*	*	*	*	*	*	*	*	*
500-749 grams										
Live births.........................	28	28	-	-	-	-	-	-	-	-
Infant deaths....................	11	11	-	-	-	-	-	-	-	-
Infant Mortality Rate.........	*	*	*	*	*	*	*	*	*	*
750-999 grams										
Live births.........................	22	16	4	2	-	-	-	-	-	-
Infant deaths....................	5	3	1	1	-	-	-	-	-	-
Infant Mortality Rate.........	*	*	*	*	*	*	*	*	*	*
1,000-1,249 grams										
Live births.........................	26	14	10	-	-	2	-	-	-	-
Infant deaths....................	1	-	1	-	-	-	-	-	-	-
Infant Mortality Rate.........	*	*	*	*	*	*	*	*	*	*
1,250-1,499 grams										
Live births.........................	37	2	18	12	5	-	-	-	-	-
Infant deaths....................	2	-	2	-	-	-	-	-	-	-
Infant Mortality Rate.........	*	*	*	*	*	*	*	*	*	*
1,500-1,999 grams										
Live births.........................	142	-	40	47	49	6	-	-	-	-
Infant deaths....................	4	-	-	2	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,
[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.........................	466	-	5	42	206	202	8	2	-	1
Infant deaths....................	1	-	-	1	-	-	-	-	-	-
Infant Mortality Rate.........	*	*	*	*	*	*	*	*	*	*
2,500 grams or more										
Live births.........................	9,021	-	2	17	545	6,067	1,843	510	23	14
Infant deaths....................	36	-	-	1	7	22	5	1	-	-
Infant Mortality Rate.........	3.99	*	*	*	*	3.63	*	*	*	*
Not Stated										
Live births.........................	7	1	1	1	-	2	2	-	-	-
Infant deaths....................	-	-	-	-	-	-	-	-	-	-
Infant Mortality Rate.........	*	*	*	*	*	*	*	*	*	*
Hispanic										
Live births.........................	886,467	5,620	7,699	9,797	65,238	591,269	163,551	41,513	1,436	344
Infant deaths....................	4,462	1,998	301	179	510	1,163	202	66	10	35
Infant Mortality Rate.........	5.03	355.52	39.10	18.27	7.82	1.97	1.24	1.59	*	101.74
Less than 2,500 grams										
Live births.........................	67,094	5,561	7,411	8,822	25,608	18,809	723	102	18	40
Infant deaths....................	3,031	1,996	291	157	320	235	21	6	0	35
Infant Mortality Rate.........	45.18	358.93	39.27	17.80	12.50	12.49	29.05	*	*	875.00
Less than 500 grams										
Live births.........................	1,256	1,234	19	-	1	-	-	-	-	2
Infant deaths....................	1,076	1,063	11	-	1	-	-	-	-	1
Infant Mortality Rate.........	856.69	861.43	*	*	*	*	*	*	*	*
500-749 grams										
Live births.........................	1,942	1,808	121	3	3	1	-	-	-	6
Infant deaths....................	671	643	22	2	-	-	-	-	-	3
Infant Mortality Rate.........	345.52	355.64	181.82	*	*	*	*	*	*	*
750-999 grams										
Live births.........................	2,213	1,619	545	31	6	7	1	2	-	2
Infant deaths....................	262	217	33	8	3	-	-	-	-	-
Infant Mortality Rate.........	118.39	134.03	60.55	*	*	*	*	*	*	*
1,000-1,249 grams										
Live births.........................	2,680	704	1,626	231	69	42	5	3	-	-
Infant deaths....................	163	51	75	20	12	4	-	1	-	-
Infant Mortality Rate.........	60.82	72.44	46.13	86.58	*	*	*	*	*	*

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

Birthweight		Gestation								
	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..........................	3,309	148	2,055	699	308	81	16	1	1	-
Infant deaths....................	132	15	57	18	26	13	2	-	-	-
Infant Mortality Rate.........	39.89	*	27.74	*	84.42	*	*	*	*	*
1,500-1,999 grams										
Live births..........................	12,873	30	2,629	4,364	4,779	1,016	43	7	1	4
Infant deaths....................	326	4	78	62	105	71	6	-	-	-
Infant Mortality Rate.........	25.32	*	29.67	14.21	21.97	69.88	*	*	*	*
2,000-2,499 grams										
Live births..........................	42,821	18	416	3,494	20,442	17,662	658	89	16	26
Infant deaths....................	400	2	13	47	172	147	12	5	-	2
Infant Mortality Rate.........	9.34	*	*	13.45	8.41	8.32	*	*	*	*
2,500 grams or more										
Live births..........................	818,991	22	266	962	39,592	572,335	162,795	41,397	1,411	211
Infant deaths....................	1,403	2	10	22	190	928	181	60	10	-
Infant Mortality Rate.........	1.71	*	*	22.87	4.80	1.62	1.11	1.45	*	*
Not Stated										
Live births..........................	382	37	22	13	38	125	33	14	7	93
Infant deaths....................	28	-	-	-	-	-	-	-	-	28
Infant Mortality Rate.........	73.30	*	*	*	*	*	*	*	*	301.08

-/ 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, 2019 period data.

Birthweight and race of mother	Live Births	Infant	Total Neonatal	Early Neonatal	Late Neonatal	Post-Neonatal
All Races						
Total (all birthweights)	3,747,540	20,927	13,834	11,124	2,710	7,093
Rate		5.58	3.69	2.97	0.72	1.89
Less than 2,500 grams	312,153	14,017	11,341	9,569	1,772	2,676
Rate		44.90	36.33	30.65	5.68	8.57
Less than 500 grams	5,904	5,084	4,946	4,737	209	138
Rate		861.11	837.74	802.34	35.40	23.37
500-749 grams	8,879	3,105	2,617	2,004	613	487
Rate		349.70	294.74	225.70	69.04	54.85
750-999 grams	10,098	1,171	905	630	275	266
Rate		115.96	89.62	62.39	27.23	26.34
1,000-1,249 grams	12,326	734	551	427	124	182
Rate		59.55	44.70	34.64	10.06	14.77
1,250-1,499 grams	15,403	614	446	361	85	167
Rate		39.86	28.96	23.44	5.52	10.84
1,500-1,749 grams	23,303	719	457	357	100	262
Rate		30.85	19.61	15.32	4.29	11.24
1,750-1,999 grams	37,923	736	453	342	111	283
Rate		19.41	11.95	9.02	2.93	7.46
2,000-2,499 grams	198,317	1,855	964	711	254	891
Rate		9.35	4.86	3.59	1.28	4.49
2,500 grams or more	3,432,666	6,767	2,363	1,426	936	4,405
Rate		1.97	0.69	0.42	0.27	1.28
Not Stated	2,721	142	130	128	2	12
Rate		52.19	47.78	47.04	*	*
Non-Hispanic White						
Total (all birthweights)	1,915,912	8,603	5,589	4,424	1,165	3,014
Rate		4.49	2.92	2.31	0.61	1.57

Documentation Table 4. Live births, infant deaths and infant mortality rates by birthweight,

[Infant deaths are under 1 year. Neonatal deaths are under 28 days; early neonatal, 0-6 days;

Birthweight and race of mother	Live Births	Infant	Total Neonatal	Early Neonatal	Late Neonatal	Post-Neonatal
Less than 2,500 grams	132,269	5,327	4,330	3,638	692	997
Rate		40.27	32.74	27.50	5.23	7.54
Less than 500 grams	1,805	1,592	1,553	1,488	64	39
Rate		881.99	860.39	824.38	35.46	21.61
500-749 grams	2,980	1,159	1,001	784	216	158
Rate		388.93	335.91	263.09	72.48	53.02
750-999 grams	3,727	495	394	293	101	101
Rate		132.81	105.72	78.62	27.10	27.10
1,000-1,249 grams	4,837	336	270	207	63	65
Rate		69.46	55.82	42.80	13.02	13.44
1,250-1,499 grams	6,386	270	210	169	40	60
Rate		42.28	32.88	26.46	6.26	9.40
1,500-1,749 grams	10,052	313	216	171	44	97
Rate		31.14	21.49	17.01	4.38	9.65
1,750-1,999 grams	16,531	322	215	162	53	107
Rate		19.48	13.01	9.80	3.21	6.47
2,000-2,499 grams	85,951	841	472	363	109	369
Rate		9.78	5.49	4.22	1.27	4.29
2,500 grams or more	1,782,422	3,231	1,219	746	473	2,012
Rate		1.81	0.68	0.42	0.27	1.13
Not Stated	1,221	44	40	40	-	4
Rate		36.04	32.76	32.76	*	*
Non-Hispanic Black						
Total (all birthweights)	548,075	5,821	3,754	3,041	713	2,067
Rate		10.62	6.85	5.55	1.30	3.77
Less than 2,500 grams	77,787	4,283	3,330	2,803	527	953
Rate		55.06	42.81	36.03	6.77	12.25
Less than 500 grams	2,222	1,865	1,802	1,711	91	63
Rate		839.33	810.98	770.03	40.95	28.35

Documentation Table 4. Live births, infant deaths and infant mortality rates by birthweight,
[Infant deaths are under 1 year. Neonatal deaths are under 28 days; early neonatal, 0-6 days;

Birthweight and race of mother	Live Births	Infant	Total Neonatal	Early Neonatal	Late Neonatal	Post-Neonatal
500-749 grams	3,132	957	762	563	200	194
Rate		305.56	243.30	179.76	63.86	61.94
750-999 grams	3,221	300	217	133	84	83
Rate		93.14	67.37	41.29	26.08	25.77
1,000-1,249 grams	3,677	168	107	82	24	61
Rate		45.69	29.10	22.30	6.53	16.59
1,250-1,499 grams	4,147	152	97	75	22	55
Rate		36.65	23.39	18.09	5.31	13.26
1,500-1,749 grams	5,969	185	96	71	25	89
Rate		30.99	16.08	11.89	4.19	14.91
1,750-1,999 grams	9,294	188	85	63	22	103
Rate		20.23	9.15	6.78	2.37	11.08
2,000-2,499 grams	46,125	469	165	106	59	304
Rate		10.17	3.58	2.30	1.28	6.59
2,500 grams or more	469,917	1,500	386	202	185	1,114
Rate		3.19	0.82	0.43	0.39	2.37
Not Stated	371	37	37	36	1	-
Rate		99.73	99.73	97.04	*	*
Non-Hispanic American Indian or Alaskan Native /1						
Total (all birthweights)	28,450	224	114	89	25	110
Rate		7.87	4.01	3.13	0.88	3.87
Less than 2,500 grams	2,292	109	87	76	11	22
Rate		47.56	37.96	33.16	*	9.60
Less than 500 grams	36	32	30	30	-	2
Rate		888.89	833.33	833.33	*	*
500-749 grams	61	25	22	16	6	3
Rate		409.84	360.66	*	*	*

Documentation Table 4. Live births, infant deaths and infant mortality rates by birthweight,
[Infant deaths are under 1 year. Neonatal deaths are under 28 days; early neonatal, 0-6 days;

Birthweight and race of mother	Live Births	Infant	Total Neonatal	Early Neonatal	Late Neonatal	Post-Neonatal
750-999 grams	65	6	5	5	-	1
Rate		*	*	*	*	*
1,000-1,249 grams	82	8	7	6	1	1
Rate		*	*	*	*	*
1,250-1,499 grams	127	6	4	3	1	2
Rate		*	*	*	*	*
1,500-1,749 grams	162	6	4	3	1	2
Rate		*	*	*	*	*
1,750-1,999 grams	287	5	3	2	1	2
Rate		*	*	*	*	*
2,000-2,499 grams	1,472	20	11	10	1	9
Rate		13.59	*	*	*	*
2,500 grams or more	26,147	115	27	13	14	88
Rate		4.40	1.03	*	*	3.37
Not Stated	11	-	-	-	-	-
Rate		*	*	*	*	*
Non-Hispanic Asian						
Total (all birthweights)	238,769	806	602	504	98	204
Rate		3.38	2.52	2.11	0.41	0.85
Less than 2,500 grams	20,738	593	497	429	68	95
Rate		28.59	23.97	20.69	3.28	4.58
Less than 500 grams	272	244	239	231	8	5
Rate		897.06	878.68	849.26	*	*
500-749 grams	411	151	125	101	24	26
Rate		367.40	304.14	245.74	58.39	63.26
750-999 grams	496	44	35	26	9	9
Rate		88.71	70.56	52.42	*	*
1,000-1,249 grams	617	27	21	17	4	6
Rate		43.76	34.04	*	*	*

Documentation Table 4. Live births, infant deaths and infant mortality rates by birthweight,

[Infant deaths are under 1 year. Neonatal deaths are under 28 days; early neonatal, 0-6 days;

Birthweight and race of mother	Live Births	Infant	Total Neonatal	Early Neonatal	Late Neonatal	Post-Neonatal
1,250-1,499 grams	838	18	12	10	2	6
Rate		*	*	*	*	*
1,500-1,749 grams	1,327	23	14	12	2	9
Rate		17.33	*	*	*	*
1,750-1,999 grams	2,352	25	18	10	8	7
Rate		10.63	*	*	*	*
2,000-2,499 grams	14,425	59	32	21	11	27
Rate		4.09	2.22	1.46	*	1.87
2,500 grams or more	217,903	203	95	65	30	108
Rate		0.93	0.44	0.30	0.14	0.50
Not Stated	128	10	10	10	-	-
Rate		*	*	*	*	*
Non-Hispanic Native Hawaiian or Other Pacific Islander						
Total (all birthweights)	9,770	80	49	44	5	31
Rate		8.19	5.02	4.50	*	3.17
Less than 2,500 grams	742	43	39	35	4	4
Rate		57.95	52.56	47.17	*	*
Less than 500 grams	21	19	19	18	1	-
Rate		*	*	*	*	*
500-749 grams	28	11	11	9	2	-
Rate		*	*	*	*	*
750-999 grams	22	5	4	4	-	1
Rate		*	*	*	*	*
1,000-1,249 grams	26	1	1	1	-	-
Rate		*	*	*	*	*
1,250-1,499 grams	37	2	1	1	-	1
Rate		*	*	*	*	*
1,500-1,749 grams	55	-	-	-	-	-
Rate		*	*	*	*	*

Documentation Table 4. Live births, infant deaths and infant mortality rates by birthweight,
[Infant deaths are under 1 year. Neonatal deaths are under 28 days; early neonatal, 0-6 days;

Birthweight and race of mother	Live Births	Infant	Total Neonatal	Early Neonatal	Late Neonatal	Post-Neonatal
1,750-1,999 grams	87	4	2	1	1	2
Rate		*	*	*	*	*
2,000-2,499 grams	466	1	1	1	-	-
Rate		*	*	*	*	*
2,500 grams or more	9,021	36	9	8	1	27
Rate		3.99	*	*	*	2.99
Not Stated	7	-	-	-	-	-
Rate		*	*	*	*	*
Hispanic						
Total (all birthweights)	886,467	4,462	3,091	2,486	606	1,371
Rate		5.03	3.49	2.80	0.68	1.55
Less than 2,500 grams	67,094	3,030	2,522	2,124	398	508
Rate		45.16	37.59	31.66	5.93	7.57
Less than 500 grams	1,256	1,076	1,052	1,019	33	24
Rate		856.69	837.58	811.31	26.27	19.11
500-749 grams	1,942	671	580	438	142	90
Rate		345.52	298.66	225.54	73.12	46.34
750-999 grams	2,213	262	203	134	69	59
Rate		118.39	91.73	60.55	31.18	26.66
1,000-1,249 grams	2,680	163	124	96	28	39
Rate		60.82	46.27	35.82	10.45	14.55
1,250-1,499 grams	3,309	132	98	81	17	34
Rate		39.89	29.62	24.48	5.14	10.28
1,500-1,749 grams	4,897	163	108	83	25	55
Rate		33.29	22.05	16.95	5.11	11.23
1,750-1,999 grams	7,976	162	110	91	19	52
Rate		20.31	13.79	11.41	2.38	6.52
2,000-2,499 grams	42,821	400	247	182	64	154
Rate		9.34	5.77	4.25	1.49	3.60

Documentation Table 4. Live births, infant deaths and infant mortality rates by birthweight,
[Infant deaths are under 1 year. Neonatal deaths are under 28 days; early neonatal, 0-6 days;

Birthweight and race of mother	Live Births	Infant	Total Neonatal	Early Neonatal	Late Neonatal	Post-Neonatal
2,500 grams or more	818,991	1403	541	333	207	863
Rate		1.71	0.66	0.41	0.25	1.05
Not Stated	382	28	28	28	-	-
Rate		73.30	73.30	73.30	*	*

*/ Figure does not meet standard of reliability or precision: based on fewer than 20 deaths in
-/ 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, 2019 period data

Cause of death and birthweight	Live Births	Total Infant Deaths	Total Neonatal	Early Neonatal	Late Neonatal	Post-Neonatal
All birthweights						
All Causes	3,747,540	20,927	13,834	11,124	2,710	7,093
		558.4	369.2	296.8	72.3	189.3
Congenital malformations (Q00-Q99)............................		4,313	3,070	2,467	603	1,243
		115.1	81.9	65.8	16.1	33.2
Short gestation and low birthweight nec (P07)..............		3,460	3,389	3,296	92	71
		92.3	90.4	88.0	2.5	1.9
Maternal complications of pregnancy (P01)...................		1,250	1,245	1,225	20	5
		33.4	33.2	32.7	0.5	*
Sudden infant death syndrome (R95)............................		1,251	140	31	108	1,111
		33.4	3.7	0.8	2.9	29.7
Accidents (unintentional injures) (V01-X59)...................		1,264	140	30	110	1,124
		33.7	3.7	0.8	2.9	30.0
Complications of placenta, cord, membranes (P02).......		737	726	699	27	11
		19.7	19.4	18.7	0.7	*
Bacterial sepsis of newborn (P36)..................................		607	583	264	319	24
		16.2	15.6	7.0	8.5	0.6
Respiratory distress of newborn (P22)...........................		429	415	322	92	14
		11.5	11.1	8.6	2.5	*
Diseases of the circulatory system (I00-I99)...................		404	81	49	32	324
		10.8	2.2	1.3	0.9	8.7
Neonatal hemorrhage (P50-P52, P54)...........................		351	338	255	82	13
		9.4	9.0	6.8	2.2	*
All other causes...		6,861	3,708	2,485	1,223	3,153
		183.1	98.9	66.3	32.6	84.1
Less than 2,500 grams						
All Causes	312,153	14,017	11,341	9,569	1,772	2,676
		4490.4	3633.2	3065.5	567.7	857.3
Congenital malformations (Q00-Q99)............................		2,704	2,106	1,800	306	598
		866.2	674.7	576.6	98.0	191.6
Short gestation and low birthweight nec (P07)..............		3,385	3,316	3,224	92	69
		1084.4	1062.3	1032.8	29.5	22.1
Maternal complications of pregnancy (P01)...................		1,193	1,188	1,170	18	5
		382.2	380.6	374.8	*	*
Sudden infant death syndrome (R95)............................		281	27	6	21	254
		90.0	8.7	*	6.7	81.4
Accidents (unintentional injures) (V01-X59)...................		251	32	9	23	219
		80.4	10.3	*	7.4	70.2
Complications of placenta, cord, membranes (P02).......		651	642	624	18	9
		208.6	205.7	199.9	*	*
Bacterial sepsis of newborn (P36)..................................		548	524	238	286	24
		175.6	167.9	76.2	91.6	7.7

Documentation Table 5. Infant deaths and infant mortality rates by age of death and birthweight for 10 major causes of infant death:
[Infant deaths are under 1 year. Neonatal deaths are under 28 days; early neonatal, 0-6 days; late neonatal, 7-27 days. Postneonatal

Cause of death and birthweight	Live Births	Total Infant Deaths	Total Neonatal	Early Neonatal	Late Neonatal	Post-Neonatal
Respiratory distress of newborn (P22)............................		423	410	317	92	13
		135.5	131.4	101.6	29.5	*
Diseases of the circulatory system (I00-I99)....................		197	37	26	11	159
		63.1	11.9	8.3	*	50.9
Neonatal hemorrhage (P50-P52, P54)............................		323	309	239	70	13
		103.5	99.0	76.6	22.4	*
All other causes...		4,061	2,749	1,915	834	1,313
		1301.0	880.7	613.5	267.2	420.6
2,500 grams or more						
All Causes	3,432,666	6,767	2,363	1,426	936	4,405
		197.1	68.8	41.5	27.3	128.3
Congenital malformations (Q00-Q99)............................		1,602	960	663	296	642
		46.7	28.0	19.3	8.6	18.7
Short gestation and low birthweight nec (P07)..............		14	12	12	-	2
		*	*	*	*	*
Maternal complications of pregnancy (P01)....................		22	22	20	2	-
		0.6	0.6	0.6	*	*
Sudden infant death syndrome (R95)............................		968	113	25	87	856
		28.2	3.3	*	2.5	24.9
Accidents (unintentional injures) (V01-X59)...................		1,012	108	21	87	903
		29.5	3.2	0.6	2.5	26.3
Complications of placenta, cord, membranes (P02).......		76	74	65	9	2
		2.2	2.2	1.9	*	*
Bacterial sepsis of newborn (P36).................................		59	59	26	33	-
		1.7	1.7	0.8	1.0	*
Respiratory distress of newborn (P22)............................		6	5	5	-	1
		*	*	*	*	*
Diseases of the circulatory system (I00-I99)....................		206	43	22	21	162
		6.0	1.3	0.6	0.6	4.7
Neonatal hemorrhage (P50-P52, P54)............................		28	28	16	12	-
		0.8	0.8	*	*	*
All other causes...		2,775	939	550	388	1,836
		80.8	27.4	16.0	11.3	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, 2019 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	Gestation 42 Weeks or more	Not Stated
Total										
Live births.........................	3,747,540	24,758	34,748	44,253	279,302	2,455,393	702,999	194,246	9,435	2,406
Infant deaths....................	20,927	9,271	1,464	850	2,292	5,556	974	285	54	181
Infant Mortality Rate........	5.58	374.46	42.13	19.21	8.21	2.26	1.39	1.47	5.72	75.23
Early Neonatal										
Live births.........................	3,747,540	24,758	34,748	44,253	279,302	2,455,393	702,999	194,246	9,435	2,406
Infant deaths....................	11,124	7,363	819	435	897	1,145	190	79	30	164
Infant Mortality Rate........	2.97	297.40	23.57	9.83	3.21	0.47	0.27	0.41	3.18	68.16
Late Neonatal										
Live births.........................	3,747,540	24,758	34,748	44,253	279,302	2,455,393	702,999	194,246	9,435	2,406
Infant deaths....................	2,710	1,088	234	114	328	784	113	39	4	6
Infant Mortality Rate........	0.72	43.95	6.73	2.58	1.17	0.32	0.16	0.20	*	*
Postneonatal										
Live births.........................	3,747,540	24,758	34,748	44,253	279,302	2,455,393	702,999	194,246	9,435	2,406
Infant deaths....................	7,093	820	411	301	1,066	3,627	671	167	19	11
Infant Mortality Rate........	1.89	33.12	11.83	6.80	3.82	1.48	0.95	0.86	*	*

*/ 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 is of the mother)

State	Live Births		Infant Deaths		Infant Mortality Rate
	Occurrence	Residence	Occurrence	Residence	
United States	3,801,534	3,791,712	21,379	21,346	5.63
Alabama	56,504	57,761	405	422	7.31
Alaska	9,961	10,086	57	60	5.95
Arizona	81,816	80,723	479	473	5.86
Arkansas	35,849	37,018	244	263	7.10
California	456,083	454,920	1908	1,911	4.20
Colorado	63,468	62,885	327	311	4.95
Connecticut	36,154	34,725	161	154	4.43
Delaware	10,961	10,621	74	70	6.59
Dist of Columbia	13,463	9,212	105	67	7.27
Florida	221,772	221,542	1344	1,328	5.99
Georgia	127,051	126,172	884	872	6.91
Hawaii	17,018	16,972	117	115	6.78
Idaho	21,128	21,403	93	110	5.14
Illinois	141,062	144,815	862	922	6.37
Indiana	82,146	81,646	552	563	6.90
Iowa	37,641	37,785	160	179	4.74
Kansas	37,770	36,261	216	233	6.43
Kentucky	51,603	53,922	263	299	5.55
Louisiana	59,815	59,615	465	471	7.90
Maine	11,998	12,311	66	70	5.69
Maryland	68,160	71,080	407	432	6.08
Massachusetts	69,808	69,109	289	284	4.11
Michigan	109,091	110,032	661	674	6.13
Minnesota	66,412	67,344	351	345	5.12
Mississippi	36,137	37,000	296	308	8.32
Missouri	74,099	73,269	524	452	6.17
Montana	11,505	11,513	63	67	5.82
Nebraska	25,886	25,488	152	144	5.65
Nevada	35,369	35,682	201	207	5.80
New Hampshire	11,977	11,995	45	44	3.67
New Jersey	98,792	101,223	366	394	3.89
New Mexico	21,711	23,039	125	130	5.64
New York	112,604	117,298	555	591	5.04
New York City	114,295	108,940	428	396	3.64
North Carolina	120,802	118,954	803	779	6.55
North Dakota	12,216	10,636	63	58	5.45
Ohio	135,728	135,134	986	940	6.96
Oklahoma	48,342	49,800	343	355	7.13
Oregon	42,705	42,188	189	180	4.27
Pennsylvania	135,010	135,673	836	819	6.04

| Rhode Island | 11,063 | 10,506 | 59 | 51 | 4.85 |

Documentation Table 1. Live births and infant death by state of occurrence of birth and by state of
(Residence at birth is of the mother)

State	Live Births		Infant Deaths		Infant Mortality Rate
	Occurrence	Residence	Occurrence	Residence	Rate
South Carolina	53,054	56,669	364	400	7.06
South Dakota	12,574	11,893	81	68	5.72
Tennessee	86,484	80,751	617	550	6.81
Texas	387,003	378,624	2,045	2,016	5.32
Utah	48,209	47,209	262	248	5.25
Vermont	5,327	5,432	30	33	6.08
Virginia	99,106	99,843	540	561	5.62
Washington	85,843	86,085	402	397	4.61
West Virginia	19,038	18,248	120	123	6.74
Wisconsin	63,932	64,098	371	372	5.80
Wyoming	5,989	6,562	23	35	5.33

Documentation Table 2. Live births,infant deaths and infant mortality rates by race of mother, sex and birthweight of child: United States, 2018 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............................	3,791,712	5,966	9,041	10,029	12,232	15,699	61,522	200,079	3,475,072	2,072
Infant deaths......................	21,346	5,078	3,252	1,146	752	648	1,510	1,908	6,906	146
Infant Mortality Rate..........	5.63	851.16	359.69	114.27	61.48	41.28	24.54	9.54	1.99	70.46
Male										
Live births............................	1,938,179	3,136	4,515	5,098	6,230	7,800	29,686	91,401	1,789,238	1,075
Infant deaths......................	12,033	2,753	1,868	702	444	375	792	1,011	3,994	94
Infant Mortality Rate..........	6.21	877.87	413.73	137.70	71.27	48.08	26.68	11.06	2.23	87.44
Female										
Live births............................	1,853,533	2,830	4,526	4,931	6,002	7,899	31,836	108,678	1,685,834	997
Infant deaths......................	9,313	2,325	1,384	444	308	273	718	897	2,912	52
Infant Mortality Rate..........	5.02	821.55	305.79	90.04	51.32	34.56	22.55	8.25	1.73	52.16
Non-Hispanic White										
Both sexes										
Live births............................	1,956,413	1,949	3,039	3,709	4,863	6,582	26,972	88,353	1,819,997	949
Infant deaths......................	8,891	1,698	1,190	476	339	273	636	889	3,341	49
Infant Mortality Rate..........	4.54	871.22	391.58	128.34	69.71	41.48	23.58	10.06	1.84	51.63
Male										
Live births............................	1,003,045	1,018	1,509	1,900	2,500	3,284	12,868	40,027	939,461	478
Infant deaths......................	5,033	906	692	303	200	159	324	457	1,961	31
Infant Mortality Rate..........	5.02	889.98	458.58	159.47	80.00	48.42	25.18	11.42	2.09	64.85
Female										
Live births............................	953,368	931	1,530	1,809	2,363	3,298	14,104	48,326	880,536	471
Infant deaths......................	3,858	792	498	173	139	114	312	432	1,380	18
Infant Mortality Rate..........	4.05	850.70	325.49	95.63	58.82	34.57	22.12	8.94	1.57	38.22
Non-Hispanic Black										
Both sexes										
Live births............................	552,029	2,159	3,208	3,235	3,559	4,232	15,412	46,048	473,877	299
Infant deaths......................	5,914	1,816	1,024	286	183	162	394	476	1,531	42
Infant Mortality Rate..........	10.71	841.13	319.20	88.41	51.42	38.28	25.56	10.34	3.23	140.47
Male										
Live births............................	279,914	1,140	1,575	1,589	1,755	2,014	7,240	20,651	243,784	166
Infant deaths......................	3,355	990	585	171	100	92	206	263	916	32
Infant Mortality Rate..........	11.99	868.42	371.43	107.61	56.98	45.68	28.45	12.74	3.76	192.77

Documentation Table 2. Live births,infant deaths and infant mortality rates by race of mother, sex and birthweight of child: United States,
[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..........................	272,115	1,019	1,633	1,646	1,804	2,218	8,172	25,397	230,093	133
Infant deaths.....................	2,559	826	439	115	83	70	188	213	615	10
Infant Mortality Rate..........	9.40	810.60	268.83	69.87	46.01	31.56	23.01	8.39	2.67	*
Non-Hispanic American Indian or Alaskan Native /1										
Both sexes										
Live births..........................	29,092	40	53	81	92	136	461	1,473	26,741	15
Infant deaths.....................	238	32	21	9	9	9	15	23	118	2
Infant Mortality Rate..........	8.18	800.00	396.23	*	*	*	32.54	15.61	4.41	*
Male										
Live births..........................	14,806	20	33	41	48	75	221	691	13,672	5
Infant deaths.....................	135	18	14	7	4	6	8	11	66	1
Infant Mortality Rate..........	9.12	900.00	*	*	*	*	*	*	4.83	*
Female										
Live births..........................	14,286	20	20	40	44	61	240	782	13,069	10
Infant deaths.....................	103	14	7	2	5	3	7	12	52	1
Infant Mortality Rate..........	7.21	*	*	*	*	*	*	*	3.98	*
Non-Hispanic Asian										
Both sexes										
Live births..........................	240,798	271	414	490	640	883	3,697	14,295	220,045	63
Infant deaths.....................	866	230	153	51	31	28	59	76	234	4
Infant Mortality Rate..........	3.60	848.71	369.57	104.08	48.44	31.71	15.96	5.32	1.06	*
Male										
Live births..........................	124,082	154	216	273	321	450	1,846	6,580	114,208	34
Infant deaths.....................	483	128	84	29	21	12	32	43	131	3
Infant Mortality Rate..........	3.89	831.17	388.89	106.23	65.42	*	17.33	6.53	1.15	*
Female										
Live births..........................	116,716	117	198	217	319	433	1,851	7,715	105,837	29
Infant deaths.....................	383	102	69	22	10	16	27	33	103	1
Infant Mortality Rate..........	3.28	871.79	348.48	101.38	*	*	14.59	4.28	0.97	*
Non-Hispanic Native Hawaiian or Other Pacific Islander										
Both sexes										
Live births..........................	9,476	15	29	26	26	47	164	545	8,618	6
Infant deaths.....................	92	13	17	3	2	3	5	6	42	1
Infant Mortality Rate..........	9.71	*	*	*	*	*	*	*	4.87	*

Documentation Table 2. Live births,infant deaths and infant mortality rates by race of mother, sex and birthweight of child: United States,
[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..........................	4,790	10	15	11	14	22	78	256	4,381	3
Infant deaths.....................	49	9	8	1	1	1	1	4	24	-
Infant Mortality Rate..........	10.23	*	*	*	*	*	*	*	5.48	*
Female										
Live births..........................	4,686	5	14	15	12	25	86	289	4,237	3
Infant deaths.....................	43	4	9	2	1	2	4	2	18	1
Infant Mortality Rate..........	9.18	*	*	*	*	*	*	*	*	*
Hispanic										
Both sexes										
Live births..........................	886,210	1,222	1,926	2,133	2,632	3,254	12,709	42,599	819,525	210
Infant deaths.....................	4,339	1,021	679	264	158	139	339	369	1,350	20
Infant Mortality Rate..........	4.90	835.52	352.54	123.77	60.03	42.72	26.67	8.66	1.65	95.24
Male										
Live births..........................	450,950	640	971	1,121	1,368	1,658	6,418	20,092	418,571	111
Infant deaths.....................	2,425	564	381	164	100	83	183	198	737	15
Infant Mortality Rate..........	5.38	881.25	392.38	146.30	73.10	50.06	28.51	9.85	1.76	*
Female										
Live births..........................	435,260	582	955	1,012	1,264	1,596	6,291	22,507	400,954	99
Infant deaths.....................	1,914	457	298	100	58	56	156	171	613	5
Infant Mortality Rate..........	4.40	785.22	312.04	98.81	45.89	35.09	24.80	7.60	1.53	*

* 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, 2018 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
All Races										
Live births..........................	3,791,712	24,945	34,386	44,700	275,746	2,425,627	748,794	223,689	11,318	2,507
Infant deaths.....................	21,346	9,455	1,474	972	2,218	5,603	1,087	293	57	187
Infant Mortality Rate.........	5.63	379.03	42.87	21.74	8.04	2.31	1.45	1.31	5.04	74.59
Non-Hispanic White										
Live births..........................	1,956,613	8,865	14,764	20,858	133,555	1,232,483	406,842	131,041	7,281	924
Infant deaths.....................	8,891	3,363	639	445	1,046	2,660	489	156	33	60
Infant Mortality Rate.........	4.54	379.36	43.28	21.33	7.83	2.16	1.20	1.19	4.53	64.94
Non-Hispanic Black										
Live births..........................	552,029	8,348	8,804	9,856	50,931	353,077	93,655	25,584	1,390	384
Infant deaths.....................	5,914	3,108	367	239	491	1,347	250	48	9	55
Infant Mortality Rate.........	10.71	372.30	41.69	24.25	9.64	3.82	2.67	1.88	*	143.23
Non-Hispanic American Indian or Alaskan Native /1										
Live births..........................	29,092	180	306	433	2,424	18,950	5,237	1,413	83	66
Infant deaths.....................	238	64	24	7	32	86	16	4	-	5
Infant Mortality Rate.........	8.18	355.56	78.43	*	13.20	4.54	*	*	*	*
Non-Hispanic Asian										
Live births..........................	240,798	1,124	1,739	2,226	15,540	161,362	47,129	11,302	319	57
Infant deaths.....................	866	426	65	35	89	192	41	9	2	7
Infant Mortality Rate.........	3.60	379.00	37.38	15.72	5.73	1.19	0.87	*	*	*
Non-Hispanic Native Hawaiian or Other Pacific Islander										
Live births..........................	9,476	72	119	149	776	5,970	1,810	533	34	13
Infant deaths.....................	92	34	4	6	7	31	6	2	-	2
Infant Mortality Rate.........	9.71	472.22	*	*	*	5.19	*	*	*	*
Hispanic										
Live births..........................	886,210	5,490	7,467	9,680	63,549	581,425	170,467	46,013	1,737	382
Infant deaths.....................	4,339	1,961	303	209	454	1,097	216	61	9	29
Infant Mortality Rate.........	4.90	357.19	40.58	21.59	7.14	1.89	1.27	1.33	*	75.92

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, 2018 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	3,791,712	21,346	14,205	11,471	2,734	7,141
		563.0	374.6	302.5	72.1	188.3
Congenital malformations (Q00-Q99)..........................		4,486	3,251	2,569	682	1,235
		118.3	85.7	67.8	18.0	32.6
Short gestation and low birthweight nec (P07)............		3,646	3,563	3,458	105	83
		96.2	94.0	91.2	2.8	2.2
Maternal complications of pregnancy (P01)................		1,356	1,353	1,336	17	3
		35.8	35.7	35.2	*	*
Sudden infant death syndrome (R95)..........................		1,300	137	22	115	1,163
		34.3	3.6	0.6	3.0	30.7
Accidents (unintentional injures) (V01-X59)...............		1,191	110	22	88	1,081
		31.4	2.9	0.6	2.3	28.5
Complications of placenta, cord, membranes (P02).....		716	707	676	31	9
		18.9	18.7	17.8	0.8	*
Bacterial sepsis of newborn (P36)...............................		579	557	236	321	22
		15.3	14.7	6.2	8.5	0.6
Respiratory distress of newborn (P22)........................		397	384	308	76	13
		10.5	10.1	8.1	2.0	*
Diseases of the circulatory system (I00-I99)...............		416	82	41	41	334
		11.0	2.2	1.1	1.1	8.8
Neonatal hemorrhage (P50-P52, P54).........................		372	361	262	99	11
		9.8	9.5	6.9	2.6	*
All other causes..		6,887	3,700	2,541	1,159	3,187
		181.6	97.6	67.0	30.6	84.1
Less than 2,500 grams						
All Causes	314,568	14,294	11,644	9,869	1,775	2,650
		4544.0	3701.6	3137.3	564.3	842.4
Congenital malformations (Q00-Q99)..........................		2,798	2,233	1,884	349	565
		889.5	709.9	598.9	111.0	179.6
Short gestation and low birthweight nec (P07)...........		3,570	3,488	3,384	104	82
		1134.9	1108.8	1075.8	33.1	26.1
Maternal complications of pregnancy (P01)................		1,303	1,300	1,285	15	3
		414.2	413.3	408.5	*	*
Sudden infant death syndrome (R95)..........................		272	20	2	18	252
		86.5	6.4	*	*	80.1
Accidents (unintentional injures) (V01-X59)...............		223	23	8	15	200
		70.9	7.3	*	*	63.6

Documentation Table 4. Infant deaths and infant mortality rates by age of death and birthweight for 10 major causes of infant

[Infant deaths are under 1 year. Neonatal deaths are under 28 days; early neonatal, 0-6 days; late neonatal, 7-27 days. Postneonatal

Cause of death and birthweight	Live Births	Total Infant Deaths	Total Neonatal	Early Neonatal	Late Neonatal	Post- Neonatal
Complications of placenta, cord, membranes (P02).....		629	620	599	21	9
		200.0	197.1	190.4	6.7	*
Bacterial sepsis of newborn (P36)................................		518	498	208	290	20
		164.7	158.3	66.1	92.2	6.4
Respiratory distress of newborn (P22).........................		384	371	300	71	13
		122.1	117.9	95.4	22.6	*
Diseases of the circulatory system (I00-I99)................		201	47	24	23	154
		63.9	14.9	7.6	7.3	49.0
Neonatal hemorrhage (P50-P52, P54)..........................		330	320	235	85	10
		104.9	101.7	74.7	27.0	*
All other causes...		4,066	2,724	1,940	784	1,342
		1292.6	866.0	616.7	249.2	426.6
2,500 grams or more						
All Causes	3,475,072	6,906	2,425	1,468	957	4,481
		198.7	69.8	42.2	27.5	129.0
Congenital malformations (Q00-Q99)..........................		1,681	1,014	681	333	667
		48.4	29.2	19.6	9.6	19.2
Short gestation and low birthweight nec (P07)............		12	11	10	1	1
		*	*	*	*	*
Maternal complications of pregnancy (P01)...............		19	19	17	2	-
		*	*	*	*	*
Sudden infant death syndrome (R95)..........................		1,027	116	19	97	911
		29.6	3.3	*	2.8	26.2
Accidents (unintentional injures) (V01-X59)................		965	86	13	73	879
		27.8	2.5	*	2.1	25.3
Complications of placenta, cord, membranes (P02).....		80	80	70	10	-
		2.3	2.3	2.0	*	*
Bacterial sepsis of newborn (P36)................................		61	59	28	31	2
		1.8	1.7	0.8	0.9	*
Respiratory distress of newborn (P22).........................		13	13	8	5	-
		*	*	*	*	*
Diseases of the circulatory system (I00-I99)................		214	35	17	18	179
		6.2	1.0	*	*	5.2
Neonatal hemorrhage (P50-P52, P54)..........................		41	40	26	14	1
		1.2	1.2	0.8	*	*
All other causes...		2,793	952	579	373	1,841
		80.4	27.4	16.7	10.7	53.0

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

-/ Quantity zero