

# Technical Notes

## Vital Event Registration

New York State consists of two registration areas, New York City and New York State Exclusive of New York City (also referred as Rest of State). New York City (NYC) includes the five counties of Bronx, Kings (Brooklyn), New York (Manhattan), Queens and Richmond (Staten Island); the remaining 57 counties comprise New York State Exclusive of New York City (NYSENYC). The Bureau of Vital Records (BVR), New York State Department of Health, processes data from live birth, death, fetal death and marriage certificates recorded in New York State Exclusive of New York City. Through a cooperative agreement, the New York State Department of Health receives data on live births, deaths, fetal deaths and marriages recorded in New York City from the New York City Department of Health and on live births and deaths recorded outside of New York State to residents of New York State from other states and Canada. The Bureau of Vital and Health Statistics (BVHS) processes data from dissolution of marriage certificates recorded for the entire state.

## Vital Events:

### Live Births

New York State Public Health Law (§4130) defines a live birth as the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which, after such separation, breathes or shows any other evidence of life such as beating of the heart, pulsation of the umbilical cord or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached.

### Spontaneous Fetal Deaths/Induced Abortions

Fetal deaths include both spontaneous fetal deaths and induced abortions which are presented separately in this report.

Fetal death is defined by New York State Public Health Law (§4160) to be the death prior to the complete expulsion or extraction from its mother of a product of conception; the death is indicated by the fact that after such separation, the fetus does not breathe or show any other evidence of life such as beating of the heart, pulsation of the umbilical cord or definite movement of voluntary muscles. New York State Public Health Law requires the registration of all fetal deaths regardless of the gestation of the fetus.

The Public Health Law limits access to individual Fetal Death records, both Spontaneous Fetal Deaths and Abortions, to the patient.

### Deaths

New York State Public Health Law does not require that death be pronounced by a physician. Unless there is a local law that requires otherwise, anyone may make the pronouncement of death. However, this decision is more likely to fall upon emergency medical technicians, policemen, firemen and other emergency personnel. The pronouncement may even be implied by the decision to call a funeral director or coroner/medical examiner instead of an ambulance. NYS PHL §4140 requires that a death certificate be filed within 72 hours after death, or the finding of the body, by a funeral director or undertaker licensed and currently registered by the New York State Department of Health.

## Marriage and Dissolution of Marriage

Marriages in New York State are required to be reported through town and county clerks. Marriages in New York City are tabulated by borough in which the license is issued. New York City marriage data is obtained from the City of New York, Office of the City Clerk and not from the New York City Health Department. Beginning in 1997, the City Clerk's office provides New York City marriage information by borough and month only.

Dissolution of Marriage Certificates are filed by attorneys with the County Clerk of the county where the divorce is granted. The certificate is forwarded directly to the BVR by the County Clerk. A local copy of the dissolution is not kept by the Clerk. This process applies for all counties of the state, including those in New York City.

## Report Measures:

Except for marriages and dissolution of marriages, which are presented by county/borough of occurrence, all the vital statistics presented in this report are based on the county/borough of residence.

Vital events occurring to inmates of state and federal institutions within the first year of their incarceration are allocated to their residence at the time of admission. After one year, the institution then becomes the place of residence. Vital events occurring to staff who reside at the institution are allocated to the institution district.

County and municipality of residence and school district are determined by geocoding of the reported resident address. Events occurring to residents of communities neighboring major metropolitan areas are sometimes misallocated, particularly in areas where postal boundaries and civil divisions do not coincide.

## Live Births

Beginning on January 1, 2004, a web-based live birth registration system was implemented in the NYSENYC area of the state. At this same time the live birth certificate was revised based on National Center of Health Statistics (NCHS) guidelines. New York City implemented NCHS guidelines in 2008.

One major change associated with the adoption of the revised birth certificate is the way race is reported. Prior to 2004, a mother was allowed to select only one race category (1990 Census scheme), even when she identified herself with more than one race due to her multiple race heritage. Beginning in 2004, the Census 2000 coding scheme for race is used for NYSENYC recorded births. With the Census 2000 scheme, the mother and the father are allowed to report more than one race from among 15 race categories. Under this system, a response of *White* means that the respondent does not identify herself of any other race but *White*, a response of *Black* means that the respondent does not identify herself of any other race but *Black*. This coding scheme is distinguished from the previous scheme by the use of labels *White Alone* and *Black Alone* respectively. All other respondents are included in a race category of *Other*. Although not presented in this report, it is possible to tabulate the race of the mother or the race of a decedent in several race combination categories.

The selection of race for the statistical reporting of live births is based upon the race of the mother only. Prior to 1991, the reporting of the infant's race was based on the race of both the mother and the father.

A second important change with the birth certificate revision in 2004 is the coding of the variable **Financial Coverage**. The Primary Payer field expanded to the following choices:

- Medicaid / Family Health Plus
- Private Insurance

- Self-pay, Indian Health Service, CHAMPUS / TRICARE, Other Government / Child Health Plus B, Other, Unknown

Unchanged from previous year reports, ethnicity is separate from race and is based on the ethnicity of the mother. Ethnicity distinguishes individuals of Spanish origin regardless of race. Vital events classified as *Hispanic* include *Hispanic Whites*, *Hispanic Blacks*, *Hispanics of Other Races* and *Hispanics with Race Not Stated*.

Early prenatal care is defined as prenatal care during the first trimester of the pregnancy. Late prenatal care is defined as prenatal care during the third trimester of the pregnancy. For 1993 and subsequent years, the month in which prenatal care began is determined by calculating the interval between the date of last normal menses and the date of the first prenatal visit. This calculation is consistent with the calculation of gestational age.

Attendant at birth is categorized as physician, midwife or other. Physician includes medical doctors and doctors of osteopathy. Midwife includes certified nurse midwives and midwives.

The number of out of wedlock live births is imputed. New York State Public Health Law (§4135) prohibits the specific statement on the birth certificate as to whether the child was born in- or out-of-wedlock. Out-of-wedlock live births are defined as those births for which a mother reports that a paternity acknowledgement has been filed or births for which no father information is supplied by the mother. Beginning in 1993, out-of-state recorded live births to New York State residents do not have paternity acknowledgements filed with them.

## Spontaneous Fetal Deaths / Abortions

New York State Public Health Law requires the registration of all fetal deaths regardless of the gestation of the fetus. Unlike birth and death registration, the registration of fetal mortality is not uniform across the United States. In order to provide data comparable to other states, this report presents data for both spontaneous fetal deaths of gestation 20 weeks or more and for spontaneous fetal deaths of all gestations. Due to suspected underreporting of spontaneous fetal deaths, particularly those under 20 weeks gestation, caution should be used when analyzing spontaneous fetal death data.

Categories used to report operative procedure for induced abortions include dilation and curettage (D&C), suction and curettage, dilation and evacuation (D&E), saline injection, prostaglandin injection, medical (non-surgical) and other that includes hysterectomy, hysterotomy and other procedures. Beginning in 1998, New York City combines saline and prostaglandin injection, and this combination is reported in the saline injection procedure.

## Pregnancy

Pregnancy counts are the sum of live births, spontaneous fetal deaths of all gestations and induced abortions.

## Deaths

The cause of death reported in this publication is the underlying cause classified according to the tenth revision of the International Classification of Diseases (ICD, 10th revision) adopted by New York State in 1999. Historically, several revisions of the ICD have been used, therefore, it is necessary to employ a comparability ratio when comparing cause of death statistics across revisions. Comparability ratios have been published by the NCHS.

An ICD-10 code for COVID-19 cause of death became effective April 1, 2020.

Infant and neonatal mortality rates published in this report are based on all live births regardless of birth weight or gestation. No attempt was made to account for the viability of the infant at birth. These rates for a specific year are based on deaths and live births that occurred during that year.

When tabulating deaths by place of death, other institution is defined as state institution, Veterans Administration facility, federal institution, health related facility or home for the aged.

## Population

*Population Estimates* - Population estimates for the year 2021 in this report are derived from the Vintage 2022 Annual Estimates of the Resident Population for Counties published by the U.S. Census Bureau, Population Division. For population estimates methodology details, see <https://www.census.gov/programs-surveys/popest/technical-documentation/methodology.html>.

*Life Tables*: Table 3 contains three sections including the total, male and female populations of New York State. Each life table section consists of seven columns.

They are:

- *Age* -- the interval between two exact ages,  $x$  to  $x+n$ . For example, the age group 15-19 includes the five-year interval of all persons aged 15 to 1 day less than 20 years old.
- *q*-- is the probability of dying during  $x$  to  $x+n$ . This is the proportion of deaths that occurs during the interval  $x$  to  $x+n$  among a cohort who were alive at the beginning of the interval.
- *l* -- is the number of survivors at exact age  $x$ . Starting with a cohort of 100,000 live births,  $l$  is the number of persons who survived to the beginning of each age interval. The number of survivors at the beginning of an age interval multiplied by the probability of surviving the interval gives the number of survivors at the beginning of the next age interval.
- *d* -- is the number of persons dying during  $x$  to  $x+n$ . This column represents the number of persons from the cohort of 100,000 who die during  $x$  to  $x+n$ .
- *L* -- is the number of person-years lived during  $x$  to  $x+n$ . The number of person-years includes those who live the full  $n$  years of the interval and those who live less than  $n$  years.
- *T* -- is the number of person-years lived beyond exact age  $x$ .
- *E* -- is the expectation of life at exact age  $x$ . This is the average years of life remaining to be lived by persons of exact age  $x$ .

## Data Presentation:

The race variable in all birth tables pools *White Alone* from New York State Exclusive of New York City births with records coded as *White Alone* from New York City Recorded births; *Black Alone* with *Black Alone*; and *Other* with *Other*. This is a departure from the past when VS Annual Report data was reported as *White*, *Black* and *Other*. *White Alone* is a subset of the records previously coded as *White* and does not include records where *White* was reported with one or more other races. The following table illustrates the scheme for coding of race used for the current year birth certificates. By adding the counts thus classified in each column, the total for each race category was obtained for a region or a county for presentation in this report.

Race Coding Scheme used by Region

Resident Region			
Recorded Region	Rest of State*	New York City	Out-of-State
Rest of State	Census 2000	Census 2000	Census 2000
New York City	Census 2000	Census 2000	Census 2000
Out-of-State	Varies**	Varies**	Varies**

\*Rest of State Region includes 57 counties outside New York City.

\*\*Race codes depend on the system used by individual states.

Vital Statistics Rates and Ratios

The definitions of the rates used for this report are given below. In a definition, the numerator reflects the number of vital events counted in a specified period of time, usually a calendar year. When the denominator is a population count, it refers to the count at a specified point in time, usually mid-calendar year. For 2021, denominator population counts were derived from the Vintage 2022 Annual Estimates of Resident Population published by the U.S. Census Bureau, Population Division. In previous years, denominator population counts were derived from the Bridged-Race Postcensal Population Estimates published by the National Center for Health Statistics.

- *Live Birth Rate*: Annual number of live births per 1,000 population.
- *General Fertility Rate*: Annual number of live births per 1,000 female population aged 15-44.
- *Teenage Live Birth Rate*: Annual number of live births to women aged 15-19 per 1,000 female population aged 15-19.
- *Spontaneous Fetal Mortality Rate*: Annual number of spontaneous fetal deaths (all gestations) per 1,000 spontaneous fetal deaths (all gestations) plus live births occurring during the year.
- *Abortion Ratio*: Annual number of induced abortions per 1,000 live births occurring during the year.
- *Total Pregnancy Rate*: Annual number of pregnancies per 1,000 female population aged 15-44.
- *Teenage Pregnancy Rate*: Annual number of teenage pregnancies per 1,000 female population aged 15-19.
- *(Crude) Death Rate*: Annual number of deaths per 1,000 population.
- *Infant Mortality Rate*: Annual number of deaths under one year of age per 1,000 live births occurring during the year.
- *Neonatal Mortality Rate*: Annual number of deaths under 28 days of age per 1,000 live births occurring during the year.
- *Postneonatal Mortality Rate*: Annual number of deaths at age 28 days and older but less than one year per 1,000 live births occurring during the year.
- *Perinatal Mortality Rate*: Annual number of (neonatal deaths plus spontaneous fetal deaths of gestation 20 weeks or more) per 1,000 (spontaneous fetal deaths of gestation 20 weeks or more plus live births) occurring during the year.
- *Age-Specific Rate*: Annual number of deaths in a specified age group per 1,000 population in the same age group. Age is decedent's age at last birthday.
- *Cause-Specific Death Rate*: Annual number of deaths from a specified cause or group of causes per 100,000 population. Exception: the death rate from complications of pregnancy, childbirth and the

puerperium (also called Maternal Mortality Rate) is defined as number of deaths from complications of pregnancy, childbirth and the puerperium occurring during the year per 100,000 live births occurring during that year. This death rate is called the maternal mortality rate. This cause of death category also includes any maternal death which may have resulted from an induced abortion.

- *Age-Sex-Adjusted Death Rate (Direct Method)*: Death rate of a group calculated as a weighted average of the age-sex-specific death rate of the same group. The system of weights is the age-sex-distribution of a population called the standard population. In this report, the standard population is the United States population as enumerated by the Bureau of the Census on April 1, 2000.

## Small Area Data

In tabulating vital events for cities and villages with 10,000 or less population, the problem of small frequencies occurs. Statistics based on a small number of vital events are subject to a large degree of variability and inferences should be made with care.