VITAL STATISTICS OF THE UNITED STATES

1975

VOLUME II—MORTALITY

PART A

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE

NATIONAL CENTER FOR HEALTH STATISTICS

Hyattsville, Maryland: 1979
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Section 6. Technical Appendix

SECTION 6 - TECHNICAL APPENDIX

SOURCES OF DATA

Death and fetal-death statistics

Mortality statistics for 1975 are again, as for all previous years except 1972, based on information from all death records received by the National Center for Health Statistics (NCHS). The records are furnished by all the States, the District of Columbia, and the independent registration area of New York City. Mortality statistics for 1972 were based on information obtained from a 50-percent sample of death records instead of from all records, as a result of personnel and budgetary restrictions. Fetal death statistics for 1975 were based, as always, on all fetal death records received.

Although the United States vital statistics system covers the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, and Guam, in this report the term *United States* refers only to the aggregate of the 50 States (including New York City) and the District of Columbia.

Death statistics for Puerto Rico, the Virgin Islands, and Guam were not included for 1972 but are included in Section 8 of the reports for each of the years 1973-75. The Virgin Islands were admitted to the "registration area" for deaths in 1924; Puerto Rico, in 1932; and Guam, in 1970. Tabulations for Puerto Rico and the Virgin Islands have been regularly shown in the annual volumes from the year of their admission through 1971, except for the years 1967 through 1969. Tabulations for Guam have been included only for the years 1970 and 1971. Information for 1972 for these three areas is published in the respective annual vital statistics reports of the Department of Health of the Commonwealth of Puerto Rico, the Department of Health of the Virgin Islands, and the Department of Public Health and Social Services of the Government of Guam.

Another change from procedures for prior years, begun for 1971 and continued for 1972 through 1975, is that tabulations of deaths are based on information from two sources. Before 1971 tabulations of deaths and fetal deaths were based solely on information obtained from copies of the original certificates. The information from these copies was edited, classified, and tabulated. For 1960 and for each year thereafter through 1970 all mortality information taken from these records has been transferred by NCHS to magnetic tape for computer processing.

However, beginning with 1971 for demographic data and 1974 for medical data, tabulations are based on information derived from computer tapes of data coded by an increasing number of States according to NCHS specifications and provided to NCHS through the Cooperative Health Statistics System. The year in which utilization of State-coded data was begun is shown below for each of the 23 States now furnishing demographic data.

1971	
	Florida
1972	
	Maine
	Missouri
	New Hampshire
	Rhode Island
	Vermont
1973	
	Colorado
	Michigan
	New York (except New York City)
1974	
	Illinois
	Iowa
	Kansas
	Montana
	Nebraska
	Oregon
	South Carolina
1975	
	Maryland
	North Carolina
	Oklahoma
	Louisiana
	Tennessee
	Virginia
	Wisconsin

Utilization of State-coded data was begun in 1974 for two States furnishing medical data (Iowa and Michigan) and in 1975 for five more States furnishing medical data (Louisiana, Nebraska, North Carolina, Virginia, and Wisconsin).

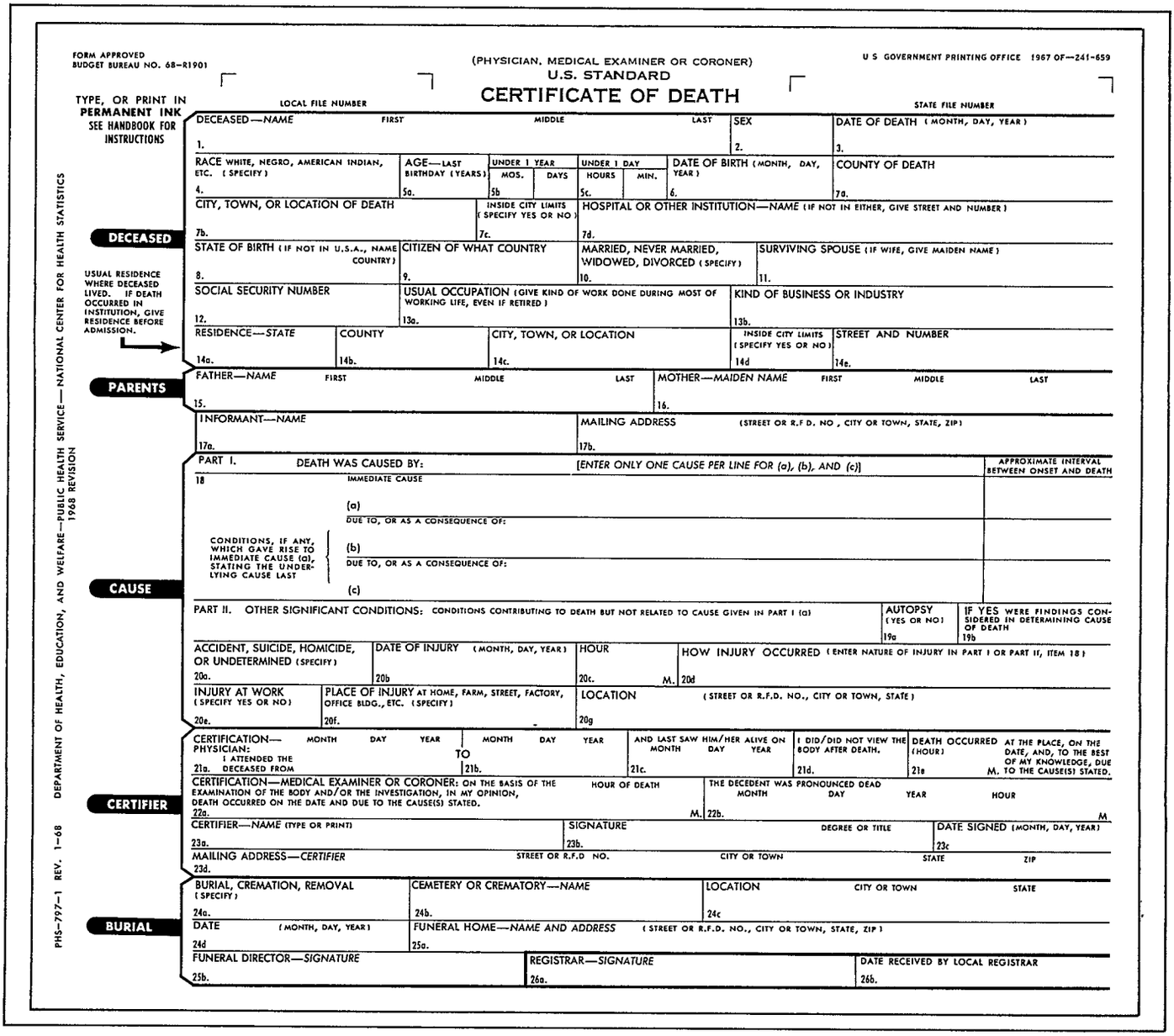
For the remaining 27 States, the District of Columbia, and New York City, mortality statistics for 1975 are again based on information obtained directly from copies of the original certificates received from the registration offices. All fetal-death data are obtained directly from copies of the original certificates.

Standard certificates

Standard certificates of death and fetal death, issued by the Public Health Service, have served for many years as the principal means of attaining uniformity in the content of the documents used to collect information on these events. They have been modified in each State to the extent necessitated by the particular needs of the State or by special provisions of the State vital statistics law. However, the certificates of most States conform closely in content and arrangement to the standard certificates.

The first issue of the Standard Certificate of Death appeared shortly before the formation of the registration area. Since then it has been revised

Figure 6-A



FORM APPROVED
BUDGET BUREAU NO. 68-R1901

(PHYSICIAN, MEDICAL EXAMINER OR CORONER)
U.S. STANDARD
CERTIFICATE OF DEATH

U S GOVERNMENT PRINTING OFFICE 1967 OF—241-659

TYPE, OR PRINT IN PERMANENT INK SEE HANDBOOK FOR INSTRUCTIONS

LOCAL FILE NUMBER

STATE FILE NUMBER

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE—PUBLIC HEALTH SERVICE—NATIONAL CENTER FOR HEALTH STATISTICS
1968 REVISION

PHS-797-1 REV. 1-68

DECEASED

1. DECEASED—*NAME* (FIRST, MIDDLE, LAST)
2. SEX
3. DATE OF DEATH (MONTH, DAY, YEAR)
4. RACE (WHITE, NEGRO, AMERICAN INDIAN, ETC. (SPECIFY))
5a. AGE—LAST BIRTHDAY (YEARS)
5b. UNDER 1 YEAR (MOS., DAYS)
5c. UNDER 1 DAY (HOURS, MIN.)
6. DATE OF BIRTH (MONTH, DAY, YEAR)
7a. COUNTY OF DEATH
7b. CITY, TOWN, OR LOCATION OF DEATH
7c. INSIDE CITY LIMITS (SPECIFY YES OR NO)
7d. HOSPITAL OR OTHER INSTITUTION—*NAME* (IF NOT IN EITHER, GIVE STREET AND NUMBER)
8. STATE OF BIRTH (IF NOT IN U.S.A., NAME COUNTRY)
9. CITIZEN OF WHAT COUNTRY
10. MARRIED, NEVER MARRIED, WIDOWED, DIVORCED (SPECIFY)
11. SURVIVING SPOUSE (IF WIFE, GIVE MAIDEN NAME)
12. SOCIAL SECURITY NUMBER
13a. USUAL OCCUPATION (GIVE KIND OF WORK DONE DURING MOST OF WORKING LIFE, EVEN IF RETIRED)
13b. KIND OF BUSINESS OR INDUSTRY

USUAL RESIDENCE WHERE DECEASED LIVED. IF DEATH OCCURRED IN INSTITUTION, GIVE RESIDENCE BEFORE ADMISSION.

14a. RESIDENCE—*STATE*
14b. COUNTY
14c. CITY, TOWN, OR LOCATION
14d. INSIDE CITY LIMITS (SPECIFY YES OR NO)
14e. STREET AND NUMBER

PARENTS

15. FATHER—*NAME* (FIRST, MIDDLE, LAST)
16. MOTHER—*MAIDEN NAME* (FIRST, MIDDLE, LAST)

17a. INFORMANT—*NAME*
17b. MAILING ADDRESS (STREET OR R.F.D. NO., CITY OR TOWN, STATE, ZIP)

CAUSE

PART I. DEATH WAS CAUSED BY: (ENTER ONLY ONE CAUSE PER LINE FOR (a), (b), AND (c))

18 IMMEDIATE CAUSE — (a)
DUE TO, OR AS A CONSEQUENCE OF:
CONDITIONS, IF ANY, WHICH GAVE RISE TO IMMEDIATE CAUSE (a), STATING THE UNDERLYING CAUSE LAST — (b)
DUE TO, OR AS A CONSEQUENCE OF:
(c)

APPROXIMATE INTERVAL BETWEEN ONSET AND DEATH

PART II. OTHER SIGNIFICANT CONDITIONS: CONDITIONS CONTRIBUTING TO DEATH BUT NOT RELATED TO CAUSE GIVEN IN PART I (a)

19a. AUTOPSY (YES OR NO)
19b. IF YES WERE FINDINGS CONSIDERED IN DETERMINING CAUSE OF DEATH

20a. ACCIDENT, SUICIDE, HOMICIDE, OR UNDETERMINED (SPECIFY)
20b. DATE OF INJURY (MONTH, DAY, YEAR)
20c. HOUR (M.)
20d. HOW INJURY OCCURRED (ENTER NATURE OF INJURY IN PART I OR PART II, ITEM 18)
20e. INJURY AT WORK (SPECIFY YES OR NO)
20f. PLACE OF INJURY AT HOME, FARM, STREET, FACTORY, OFFICE BLDG., ETC. (SPECIFY)
20g. LOCATION (STREET OR R.F.D. NO., CITY OR TOWN, STATE)

CERTIFIER

21a. CERTIFICATION—PHYSICIAN: I ATTENDED THE DECEASED FROM (MONTH, DAY, YEAR) TO (MONTH, DAY, YEAR)
21b.
21c. AND LAST SAW HIM/HER ALIVE ON (MONTH, DAY, YEAR)
21d. I DID/DID NOT VIEW THE BODY AFTER DEATH.
21e. DEATH OCCURRED AT THE PLACE, ON THE DATE, AND, TO THE BEST OF MY KNOWLEDGE, DUE TO THE CAUSE(S) STATED. (HOUR, M.)

22a. CERTIFICATION—MEDICAL EXAMINER OR CORONER: ON THE BASIS OF THE EXAMINATION OF THE BODY AND/OR THE INVESTIGATION, IN MY OPINION, DEATH OCCURRED ON THE DATE AND DUE TO THE CAUSE(S) STATED. HOUR OF DEATH (M.)
22b. THE DECEDENT WAS PRONOUNCED DEAD (MONTH, DAY, YEAR, HOUR, M.)
23a. CERTIFIER—*NAME* (TYPE OR PRINT)
23b. SIGNATURE, DEGREE OR TITLE
23c. DATE SIGNED (MONTH, DAY, YEAR)
23d. MAILING ADDRESS—*CERTIFIER* (STREET OR R.F.D NO., CITY OR TOWN, STATE, ZIP)

BURIAL

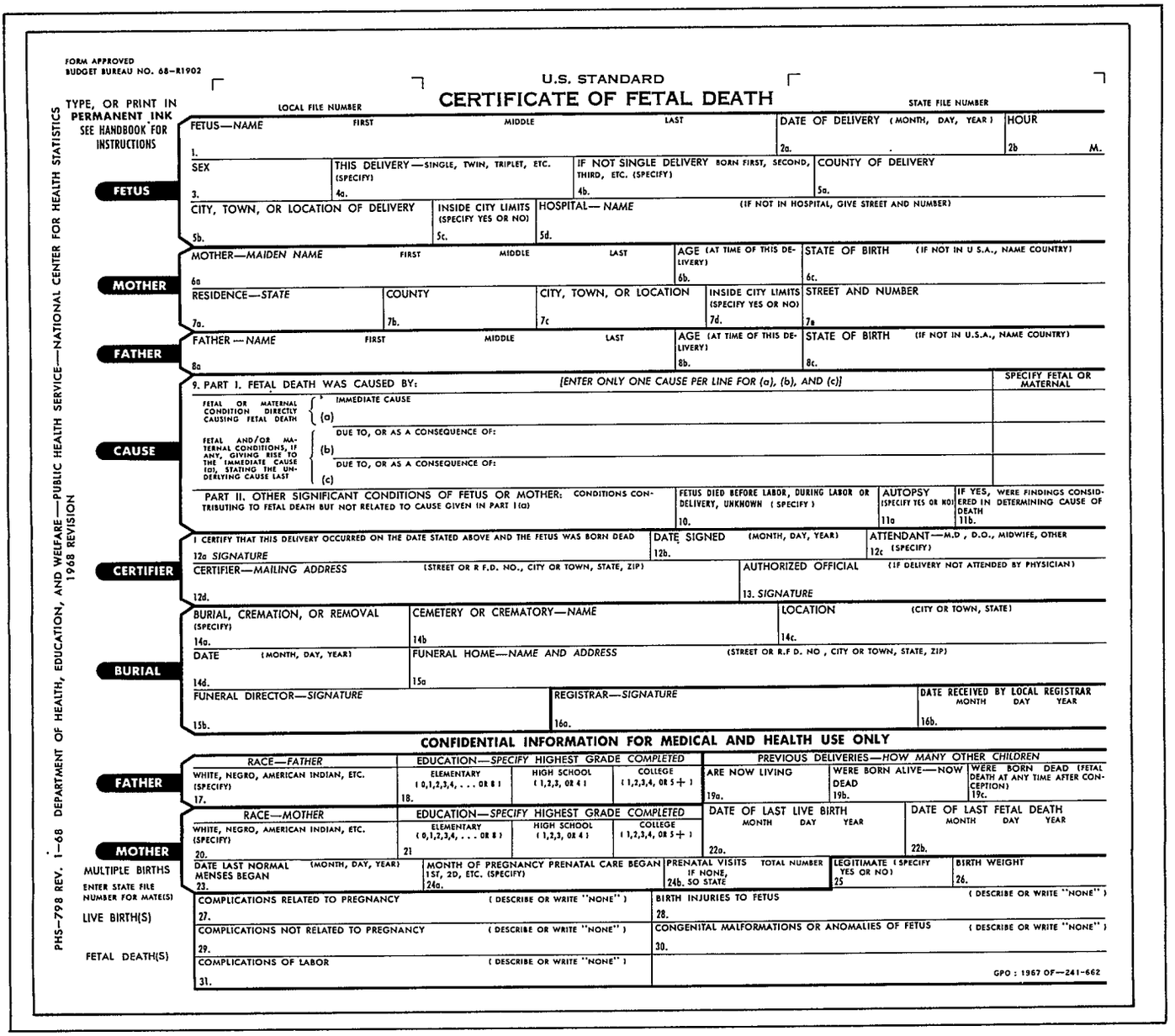
24a. BURIAL, CREMATION, REMOVAL (SPECIFY)
24b. CEMETERY OR CREMATORY—*NAME*
24c. LOCATION (CITY OR TOWN, STATE)
24d. DATE (MONTH, DAY, YEAR)
25a. FUNERAL HOME—*NAME AND ADDRESS* (STREET OR R.F.D. NO., CITY OR TOWN, STATE, ZIP)
25b. FUNERAL DIRECTOR—*SIGNATURE*
26a. REGISTRAR—*SIGNATURE*
26b. DATE RECEIVED BY LOCAL REGISTRAR

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

New revisions of the standard certificates of death and fetal death were recommended for State use beginning January 1, 1968. These standard certificates are shown in figures 6-A and 6-B. The certificate of death shown in figure 6-A is for use by either a physician or a medical examiner or a coroner.

Two other forms of the Standard Certificate of Death are available; they are similar to the one shown except that the section on certification is designed for the physician's signature on one while the other is

Figure 6-B



FORM APPROVED
BUDGET BUREAU NO. 68-R1902

U.S. STANDARD
CERTIFICATE OF FETAL DEATH

TYPE, OR PRINT IN PERMANENT INK
SEE HANDBOOK FOR INSTRUCTIONS

LOCAL FILE NUMBER — STATE FILE NUMBER

FETUS
1. FETUS—NAME (FIRST, MIDDLE, LAST)
2a. DATE OF DELIVERY (MONTH, DAY, YEAR)
2b. HOUR
3. SEX
4a. THIS DELIVERY—SINGLE, TWIN, TRIPLET, ETC. (SPECIFY)
4b. IF NOT SINGLE DELIVERY BORN FIRST, SECOND, THIRD, ETC. (SPECIFY)
5a. COUNTY OF DELIVERY
5b. CITY, TOWN, OR LOCATION OF DELIVERY
5c. INSIDE CITY LIMITS (SPECIFY YES OR NO)
5d. HOSPITAL—NAME (IF NOT IN HOSPITAL, GIVE STREET AND NUMBER)

MOTHER
6a. MOTHER—MAIDEN NAME (FIRST, MIDDLE, LAST)
6b. AGE (AT TIME OF THIS DELIVERY)
6c. STATE OF BIRTH (IF NOT IN U.S.A., NAME COUNTRY)
7a. RESIDENCE—STATE
7b. COUNTY
7c. CITY, TOWN, OR LOCATION
7d. INSIDE CITY LIMITS (SPECIFY YES OR NO)
7e. STREET AND NUMBER

FATHER
8a. FATHER—NAME (FIRST, MIDDLE, LAST)
8b. AGE (AT TIME OF THIS DELIVERY)
8c. STATE OF BIRTH (IF NOT IN U.S.A., NAME COUNTRY)

CAUSE
9. PART I. FETAL DEATH WAS CAUSED BY: [ENTER ONLY ONE CAUSE PER LINE FOR (a), (b), AND (c)] — SPECIFY FETAL OR MATERNAL
FETAL OR MATERNAL CONDITION DIRECTLY CAUSING FETAL DEATH: IMMEDIATE CAUSE (a)
FETAL AND/OR MATERNAL CONDITIONS, IF ANY, GIVING RISE TO THE IMMEDIATE CAUSE (a), STATING THE UNDERLYING CAUSE LAST: DUE TO, OR AS A CONSEQUENCE OF: (b); DUE TO, OR AS A CONSEQUENCE OF: (c)
PART II. OTHER SIGNIFICANT CONDITIONS OF FETUS OR MOTHER: CONDITIONS CONTRIBUTING TO FETAL DEATH BUT NOT RELATED TO CAUSE GIVEN IN PART I(a)
10. FETUS DIED BEFORE LABOR, DURING LABOR OR DELIVERY, UNKNOWN (SPECIFY)
11a. AUTOPSY (SPECIFY YES OR NO)
11b. IF YES, WERE FINDINGS CONSIDERED IN DETERMINING CAUSE OF DEATH

CERTIFIER
12a. I CERTIFY THAT THIS DELIVERY OCCURRED ON THE DATE STATED ABOVE AND THE FETUS WAS BORN DEAD SIGNATURE
12b. DATE SIGNED (MONTH, DAY, YEAR)
12c. ATTENDANT—M.D., D.O., MIDWIFE, OTHER (SPECIFY)
12d. CERTIFIER—MAILING ADDRESS (STREET OR R.F.D. NO., CITY OR TOWN, STATE, ZIP)
13. AUTHORIZED OFFICIAL (IF DELIVERY NOT ATTENDED BY PHYSICIAN) SIGNATURE

BURIAL
14a. BURIAL, CREMATION, OR REMOVAL (SPECIFY)
14b. CEMETERY OR CREMATORY—NAME
14c. LOCATION (CITY OR TOWN, STATE)
14d. DATE (MONTH, DAY, YEAR)
15a. FUNERAL HOME—NAME AND ADDRESS (STREET OR R.F.D. NO., CITY OR TOWN, STATE, ZIP)
15b. FUNERAL DIRECTOR—SIGNATURE
16a. REGISTRAR—SIGNATURE
16b. DATE RECEIVED BY LOCAL REGISTRAR (MONTH, DAY, YEAR)

CONFIDENTIAL INFORMATION FOR MEDICAL AND HEALTH USE ONLY

FATHER
17. RACE—FATHER (WHITE, NEGRO, AMERICAN INDIAN, ETC. (SPECIFY))
18. EDUCATION—SPECIFY HIGHEST GRADE COMPLETED (ELEMENTARY (0,1,2,3,4, . . . OR 8); HIGH SCHOOL (1,2,3, OR 4); COLLEGE (1,2,3,4, OR 5+))

MOTHER
19a. PREVIOUS DELIVERIES—HOW MANY OTHER CHILDREN ARE NOW LIVING
19b. WERE BORN ALIVE—NOW DEAD
19c. WERE BORN DEAD (FETAL DEATH AT ANY TIME AFTER CONCEPTION)
20. RACE—MOTHER (WHITE, NEGRO, AMERICAN INDIAN, ETC. (SPECIFY))
21. EDUCATION—SPECIFY HIGHEST GRADE COMPLETED (ELEMENTARY (0,1,2,3,4, . . . OR 8); HIGH SCHOOL (1,2,3, OR 4); COLLEGE (1,2,3,4, OR 5+))
22a. DATE OF LAST LIVE BIRTH (MONTH, DAY, YEAR)
22b. DATE OF LAST FETAL DEATH (MONTH, DAY, YEAR)
23. DATE LAST NORMAL MENSES BEGAN (MONTH, DAY, YEAR)
24a. MONTH OF PREGNANCY PRENATAL CARE BEGAN (1ST, 2D, ETC. (SPECIFY))
24b. PRENATAL VISITS TOTAL NUMBER (IF NONE, SO STATE)
25. LEGITIMATE (SPECIFY YES OR NO)
26. BIRTH WEIGHT

MULTIPLE BIRTHS ENTER STATE FILE NUMBER FOR MATE(S)
LIVE BIRTH(S)
FETAL DEATH(S)

27. COMPLICATIONS RELATED TO PREGNANCY (DESCRIBE OR WRITE "NONE")
28. BIRTH INJURIES TO FETUS (DESCRIBE OR WRITE "NONE")
29. COMPLICATIONS NOT RELATED TO PREGNANCY (DESCRIBE OR WRITE "NONE")
30. CONGENITAL MALFORMATIONS OR ANOMALIES OF FETUS (DESCRIBE OR WRITE "NONE")
31. COMPLICATIONS OF LABOR (DESCRIBE OR WRITE "NONE")

PHS-798 REV. 1-68 DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE—PUBLIC HEALTH SERVICE—NATIONAL CENTER FOR HEALTH STATISTICS
1968 REVISION

GPO : 1967 OF—241-662

designed for the medical examiner's or coroner's signature.

HISTORY

The first death statistics published by the Federal Government concerned events in 1850 and included the entire United States. These statistics were based on information collected during the decennial census of that year. Similar decennial collections were made by census enumerators at each census up to and including the census of 1900, but because of the time interval between the occurrence of a death and census enumeration, these reports were inaccurate and incomplete.

In 1880 the U.S. Bureau of the Census established a national "registration area" for deaths. This original area consisted of two States—Massachusetts and New Jersey—the District of Columbia, and several large cities having efficient systems for the registration of deaths; by 1900 eight other States had been admitted. For the years 1880, 1890, and 1900, mortality data were received from the States and cities

included in this expanding area, but the figures for the entire country were still compiled from the reports of census enumerators.

The annual collection of mortality statistics for the registration area began with the year 1900. In 1902 the Bureau of the Census, which had previously functioned only in census years, was made a permanent agency by an act of Congress. This act authorized the Director of the Bureau of the Census to obtain annually copies of records filed in the vital statistics offices of States and cities having adequate death-registration systems. At that time not all States had enacted laws requiring the registration of deaths, and in many States the existing laws were poorly enforced. The growth of the registration area is indicated in table 6-1.

The death-registration area for 1900 consisted of 10 States, the District of Columbia, and a number of cities located in nonregistration States. In 1900 the registration area included 40.5 percent of the population of the continental United States. The original registration area was predominantly urban and was characterized by a high proportion of white persons. If the reporting cities located in nonregistration States are excluded, the population coverage of the death-registration States is much lower, only 26.2 percent of the total population of the United States.

Statistics of fetal deaths (the term "stillbirth" was used for many years) were first published for the birth-registration area in 1918. However, they were not included in the reports issued for the succeeding 3 years. Beginning with 1922, statistics of fetal deaths have been published each year for the birth-registration area.

Table 6-1 presents for each year through 1932 the estimated midyear population of the United States and the estimated midyear population of the States included in the registration system. Both registration areas included the entire United States for the first time in 1933.

Prior to 1940 most of the national mortality tabulations published by the Bureau of the Census were based on data collected from the registration areas. However, beginning with 1940 all published material given in statistical series for the United States prior to the completion of the death-registration area omits data for registration cities located in nonregistration States and includes only statistics for the registration States. This change decreases the mortality statistics coverage of the United States by the exclusion of cities in nonregistration States, but it has advantages in that more reliable population estimates are available for the registration States than for smaller registration areas.

Rates for the expanding group of death-registration States are approximations of rates for the entire Nation, and general comparisons over a long period of time can be made. More exact trends for parts of the United States can be secured through the use of some constant area such as the original registration States or the registration States in 1920.

CLASSIFICATION OF DATA

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

The general rules used in the classification of geographic and personal items for deaths and fetal deaths are set forth in two NCHS instruction manuals.[1,2]

The classification of certain important items is discussed below.

Classification by occurrence and residence

Tabulations for the United States and specified geographic areas in this report are by place of residence unless stated as by place of occurrence. Before 1970 resident mortality statistics for the United States included all deaths occurring in the 50 States and the District of Columbia, with deaths of "nonresidents of the United States" assigned to place of death. "Deaths of nonresidents of the United States" refers to deaths that occur in the United States of nonresident aliens, nationals residing abroad, and residents of Puerto Rico, the Virgin Islands, and other possessions of the United States.

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[1]National Center for Health Statistics: Vital statistics, classification and coding instructions for live-birth and fetal-death records, 1975. *NCHS Instruction Manual,* Part 3. Health Resources Administration. Rockville, Md., July 1974.

[2]National Center for Health Statistics: Vital statistics, demographic classification and coding instructions for death records, 1975. *NCHS Instruction Manual,* Part 4. Health Resources Administration. Rockville, Md., July 1974.

Beginning with 1970 deaths of nonresidents of the United States are not included in tables by place of residence.

Tables by place of occurrence, on the other hand, include both deaths of residents and nonresidents of the United States. Consequently, for each year during 1970-75, the total number of deaths in the United States by place of occurrence is somewhat greater than the total by place of residence. For 1975 this difference amounts to 2,256 deaths.

Mortality statistics by place of occurrence are shown in tables 1-10, 1-19, 1-20, 1-30, 3-1, 3-8, 7-1, and 7-7.

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

Residence error.—Results of a 1960 study show that the classification of residence information on the death certificates corresponded closely to the residence classification of the census records for the decedents whose records were matched.[3]

A comparison of the results of this study of deaths with those for a previous matched record study of births[4] shows that considerable improvement in the quality of residence data had taken place since 1950. The results were the same—an overstatement of events in urban areas by NCHS compared with the U.S. Bureau of the Census classification. The magnitude of the difference was substantially less for deaths in 1960 than it was for births in 1950. Two factors contribute to this difference in magnitude. First, addition in 1956 of an item asking if residence is inside or outside city limits on the standard certificate aided in properly allocating the residence of persons living near cities but outside the corporate limits. The second factor is that there is more likelihood of movement for hospital utilization for births than for deaths.

Geographic classification

The rules followed in the classification of geographic areas for deaths and fetal deaths are contained in the two instruction manuals referred to previously.

The geographic codes assigned by the National Center for Health Statistics during data reduction of source information on birth, death, and fetal-death records are given in an NCHS instruction manual.[5]

For 1975 there is an unpublished computer listing of the geographic codes contained in the computer tapes. The 13-digit codes in this listing are not the same codes as the 5-digit codes for the State-city or State-balance of county.[6] Instead each of these 13-digit codes is a conversion of the two 5-digit codes into a combination code for the State-county-city (7 digits), together with codes for "population size," SMSA's and MSEA's, and metropolitan and nonmetropolitan counties. This listing for 1975 is the same as that used for 1970-74. It is planned that it will also be used for each of the remaining years in this decade.

Standard metropolitan statistical areas.—Except in the New England States, a standard metropolitan statistical area (SMSA) is a county or a group of contiguous counties containing at least one city of 50,000 inhabitants or more or "twin cities" with a combined population of at least 50,000 in the 1970 census. In addition to the county or counties containing such a city or cities, contiguous counties are included in an SMSA if, according to specified criteria, they are essentially metropolitan in character and are socially and economically integrated with the central city or cities.[7]

In New England the U.S. Office of Management and Budget uses towns and cities rather than counties as geographic components of SMSA's. The National Center for Health Statistics cannot use the SMSA classification for these States because its data are not coded to identify all towns. Instead the metropolitan State economic area (MSEA) established by the U.S.

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[3]National Center for Health Statistics: Comparison of the classification of place of residence on death certificates and matching census records, United States, May-August 1960. *Vital and Health Statistics.* PHS Pub. No. 1000-Series 2-No. 30. Public Health Service, Washington. U.S. Government Printing Office, Jan. 1969.

[4]National Vital Statistics Division: Matched record comparison of birth certificate and census information, United States, 1950, *Vital Statistics—Special Reports,* Vol. 47, No. 12. Public Health Service. Washington, D.C., Mar. 1962.

[5]National Center for Health Statistics: Vital statistics, vital records geographic classification, 1970. *NCHS Instruction Manual,* Part 8. Health Resources Administration. Rockville, Md., 1975.

[6]Ibid.

[7]For a more complete discussion, see U.S. Bureau of the Census, *U.S. Census of Population, 1970, Number of Inhabitants,* Final Report, PC(1)-A1, United States Summary, Washington, U.S. Government Printing Office, 1971, and U.S. Bureau of the Budget, *Standard Metropolitan Statistical Areas,* Washington, U.S. Government Printing Office, 1967.

Bureau of the Census, which is made up of county units, is used.[8]

For tables in this report numbered 7-4 and 7-8 the SMSA's and their component counties are those established by the U.S. Office of Management and Budget as of 1970 (except in the New England States) and used by the U.S. Bureau of the Census.

Tables numbered 1-18 and 2-8, however, are limited to the 50 largest SMSA's and MSEA's (in the New England States) established by the Office of Management and Budget for 1975. These 50 largest units and their component counties for 1975 are different from those for 1970-74.

The lists of 50 largest units for 1971-74 and for 1975 also differed from the list for 1970. Moreover, the county components for some of the SMSA's and MSEA's that appear on both lists are different for 1975 from the components for 1970.

As a result, sometimes the number of deaths shown for the same-named SMSA or MSEA in tables 7-4 and 7-8 based on units established for 1970 will differ from the number of deaths shown in tables 1-18 and 2-8 based on units established for 1975.

Standard consolidated areas.—For the metropolitan complexes around New York and Chicago, several contiguous SMSA's and additional counties that do not appear to meet the formal integration criteria for SMSA's but do have strong interrelationships of other kinds have been combined into the New York-Northeastern New Jersey and the Chicago-Northwestern Indiana Standard Consolidated Areas.[9]

Metropolitan and nonmetropolitan counties.—Counties included in SMSA's or in New England MSEA's are called metropolitan counties; all other counties are classified as nonmetropolitan.

Population-size groups (formerly "urban" and "rural" areas).—Vital statistics data for cities and certain other urban places in 1975 are classified according to the population enumerated in the 1970 Census of Population. In this report "Population-size groups" refers to two groups, "Urban places" and "Balance of area." "Urban places" consists of the following places:

1. Each incorporated city and other urban places of 10,000 inhabitants or more.
2. Each town in New England and each township in New Jersey and Pennsylvania that had no incorporated municipality as a subdivision and had either 25,000 inhabitants or more or a population of 10,000 to 25,000 and a density of 1,500 persons or more per square mile.
3. Each county in States other than the New England States, New Jersey, and Pennsylvania that had no incorporated municipality within its boundary and had a density of 1,500 persons or more per square mile. (Arlington County, Virginia, is the only county classified as urban under this rule.)

"Balance of area" consists of all other places.

Before 1964 places were classified as "urban" or "rural." The Technical Appendixes for earlier years discuss the previous classification system.

Age

The age recorded on the death record is the age at last birthday. With respect to the computation of death rates, the age classification used by the U.S. Bureau of the Census is also based on the age of the person in completed years.

Race and color

Deaths in the United States in 1975 are classified by race for vital statistics into white, Negro, Indian, Chinese, Japanese, and other races.

The category "white" includes in addition to persons reported as "white," those reported as Mexican, Puerto Rico, Cuban, and all other Caucasians. The category Indian includes "American," "Alaskan," "Canadian," "Eskimo," and "Aleut." If the racial entry on the death certificate indicates a mixture of Hawaiian and any other race, the entry is coded to Hawaiian. If the race is given as a mixture of white and any other race, the entry is coded to the appropriate other race. If a mixture of races other than white is given (except Hawaiian), the entry is coded to the first race listed. This procedure for coding the first race listed has been in use for each year of the period 1969-75. Prior to 1969, if the entry for race was a mixture of Negro and any other race, except Hawaiian, the entry was coded to Negro.

Most of the tables in this report, however, do not show data for this extended classification by race. In some tables the divisions are "white," "Negro," and "other." In other tables where the main purpose is to isolate the major group, the classifications are simply "white" and "all other."

Race not stated.—For 1975 the number of death records for which the race was not stated was 5,255 or 0.3 percent of the total deaths. Of the 5,255 records, 4,435 come from New York. Death records

[8]For discussion of MSEA's, see U.S. Bureau of the Census, *State Economic Areas,* Washington, U.S. Government Printing Office, 1951, and the first reference cited in footnote 7.

[9]See footnote 7.

with race entry not stated were assigned to a racial designation as follows: If the preceding record was coded white, the code assignment is made to white; if the code is other than white, the assignment is made to Negro. For years prior to 1964 all records with race not stated were assigned to white except records of residents of New Jersey for 1962-64.

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

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

Fetal deaths

In May 1950 the World Health Organization recommended for adoption for international use the definition of fetal death as "death prior to the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy; the death is indicated by the fact that after such separation, the fetus does not breathe or show any other evidence of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles."[10] The term "fetal death" was defined on an all-inclusive basis to end confusion arising from usage of such terms as stillbirth, abortion, and miscarriage.

Shortly thereafter this definition of fetal death was adopted by the National Center for Health Statistics as the nationally recommended standard for registration purposes. Previously the nationally recommended definition had been "A fetus showing no evidence of life after complete birth (no action of heart, breathing, or movement of voluntary muscle), if the 20th week of gestation has been reached, should be registered as a stillbirth." The new definition has been adopted by about half the States. In most other States, a fetal death is defined as a birth of a minimum gestation period which is not a live birth, and live births are defined in varying detail.[11]

As another step toward increasing the comparability of data on fetal deaths for different countries, the World Health Organization recommended that in classifying fetal deaths for statistical purposes they be grouped as early, intermediate, and late. These groups are defined as follows:

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

Until 1939 the nationally recommended procedure for registration of fetal death required the filing of both a live-birth and a death certificate. In 1939 a separate Standard Certificate of Stillbirth (fetal death) was created to replace the former procedure. This was revised in 1949, 1955, 1956, and 1968 (see figure 6-B). Separate certificates of fetal death are now in use in all States.

Comparability and completeness of data.—State requirements for registration of fetal deaths vary. The majority of States require registration of fetal deaths of gestations of 20 weeks or more. Table 3-1 in Section 3 shows the minimum period of gestation required by each State for death registration. There is substantial evidence that not all fetal deaths for which registration is required are reported.[12]

Underregistration is more of a problem near the lower limit for States having a minimum gestation period requirement. Failure to register fetal deaths near the lower limit results to a large degree from underestimating the gestation period. This is illustrated by the fact that for areas requiring registration of all fetal deaths, the total number reported for 20-23 weeks is higher than the numbers reported for 24-27 and 28-31 weeks. For most of the other areas, however, the opposite is true.

In order to maximize the comparability of data by year and by State, most of the tables in Section 3

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[10] National Office of Vital Statistics: *International Recommendations on Definitions of Live Birth and Fetal Death.* PHS Pub. No. 39. Public Health Service. Washington. U.S. Goverment Printing Office, Oct. 1950.

[11] For definitions used by the States, see National Center for Health Statistics, *State Definitions of Live Births, Fetal Deaths, and Gestation Periods at Which Fetal Deaths are Registered,* Public Health Service, Washington, D.C., May 1966.

[12] Unpublished fetal mortality data contained in a thesis for Harvard School of Public Health, Apr. 1962, by Carl L. Erhardt, Sc.D., Director, Bureau of Records and Statistics, Department of Health, New York, N.Y.

are based on fetal deaths occurring at gestations of 20 weeks or more. These tables also include fetal deaths of not stated or unknown gestation for those States requiring registration at 20 weeks or more only. Before 1969 all fetal deaths of unknown gestation were included. Beginning with 1969 fetal deaths of not stated gestation were excluded for States requiring registration of all products of conception, unless there was evidence, such as high birth weight, that those fetuses were of 20 weeks or more gestation.

The data in table 3-3 include only fetal deaths to residents of those areas in the United States which report all periods of gestation. The areas are Arkansas, Colorado, Georgia, Hawaii, Maine, Mississippi, New York, and Virginia. However, Arkansas is excluded from this table.

Arkansas has had a form for confidential reporting of abortions beginning with data year 1971. The abortions reported on this form are not limited by legislation to those described as "induced." It is believed, therefore, that most spontaneous abortions occurring in this State are also reported on this form rather than on fetal-death certificates. The introduction of this confidential form resulted in more complete reporting of all terminations of pregnancies.

Although fetal deaths for all periods of gestation continue to be required for Colorado, only five fetal deaths under 20 weeks gestation were reported for 1974. This undercount is attributable to the fact that Colorado did not intend to forward any copies of fetal-death certificates for periods of gestation under 20 weeks to the National Center for Health Statistics for data years 1973-74. As a result the percentage of all fetal deaths under 20 weeks gestation decreased from 65 percent for 1972, to 2 percent for 1973, and to 1 percent for 1974. For 1975, however, Colorado did send in copies of fetal-death certificates for periods of gestation under 20 weeks. These early fetal deaths accounted for 68 percent of all fetal deaths reported for Colorado for 1975.

The large increase in the number of fetal deaths reported for Hawaii for 1974 and 1975 over the number reported for 1973 results from the fact that to obtain the total number of fetal deaths for 1974 and 1975, the cause of death section of both the short and long forms of the fetal-death certificates used by this State was examined. Hawaii adopted liberalized abortion laws in 1970. For the years 1970-73, NCHS accepted the short form as an "Abortion form" without examining the cause of death. When the short forms for 1974 and 1975 were examined, it was found that they were used to report other fetal deaths as well as abortion.

For Maine the increase in the number of fetal deaths under 20 weeks gestation from 17 for 1973 to 257 for 1974 results from NCHS erroneously classifying some induced abortions as fetal deaths. Inasmuch as most of these abortions probably occurred before 20 weeks gestation, their erroneous inclusion should not affect appreciably the data for fetal deaths of 20 weeks or more gestation. With the correction of this error the number of fetal deaths under 20 weeks gestation reported for 1975 for Maine was 58.

Some liveborn infants who die shortly after birth, particularly those born prematurely who die before the umbilical cord is severed or while the placenta is still attached, may be erroneously reported as fetal deaths. This type of error may be more of a problem in States lacking a precise definition of fetal deaths.

Georgia.—Beginning with data year 1975 fetal deaths occurring in Georgia are reported only to the State and County level. Fetal deaths assigned to urban places in table 7-1 are those occurring outside of Georgia to residents of Georgia.

Massachusetts.—Figures for 1967 exclude approximately 100 fetal deaths recorded in Worcester County, Massachusetts, primarily to residents of the city of Worcester. Figures for 1966 and those for 1963 exclude approximately 300 fetal deaths that were recorded in Boston, to residents of Suffolk County, for the most part. Microfilm copies of these records were not received by NCHS, and as a result numbers of fetal deaths for these cities and counties and for the State are understated. The fetal-death ratio for the State is understated by about 8 percent for 1967, and by about 23 percent for 1966.

Period of gestation.—The period of gestation is the number of completed weeks elapsed between the first day of the last menstrual period and the date of delivery, irrespective of whether the product of conception was liveborn or born without evidence of life. The first day of the last normal menstrual period (LMP) is used as the initial date since it can be more accurately determined than the date of conception, which usually occurs 2 weeks after LMP. When the period of gestation is reported in months on the certificate, it is allocated to gestation intervals in weeks as follows:

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

With the adoption of the 1968 revision of the fetal-death certificate and the increased use of the

first day of LMP by the reporting areas, the errors in reporting length of gestation have been minimized. The proportion of fetal deaths assigned to gestation of 36 and 40 weeks has diminished, while the proportion of gestations of 37-39 weeks and 41 weeks and gestation length not stated has increased. In 1975 the areas using LMP were as follows:

Alaska	Louisiana	North Carolina
Arizona	Maine	North Dakota
California	Maryland	Ohio
Colorado	Massachusetts	Oklahoma
District of Columbia	Michigan	Oregon
	Minnesota	Rhode Island
Florida	Mississippi	South Carolina
Georgia	Missouri	South Dakota
Hawaii	Montana	Tennessee
Illinois	Nebraska	Utah
Indiana	Nevada	Vermont
Iowa	New Hampshire	Washington
Kansas	New Jersey	West Virginia
Kentucky	New York	Wyoming

Birth weight.—In practically all registration areas birth weight is reported in terms of pounds and ounces rather than in grams. However, the metric system has been used in tabulating and presenting the statistics to facilitate comparison with other data published in the United States. The equivalent of the gram intervals in pounds and ounces are as follows:

500 grams or less	=	1 lb 1 oz or less
501-1,000 grams	=	1 lb 2 oz - 2 lb 3 oz
1,001-1,500 grams	=	2 lb 4 oz - 3 lb 4 oz
1,501-2,000 grams	=	3 lb 5 oz - 4 lb 6 oz
2,001-2,500 grams	=	4 lb 7 oz - 5 lb 8 oz
2,501-3,000 grams	=	5 lb 9 oz - 6 lb 9 oz
3,001-3,500 grams	=	6 lb 10 oz - 7 lb 11 oz
3,501-4,000 grams	=	7 lb 12 oz - 8 lb 13 oz
4,001-4,500 grams	=	8 lb 14 oz - 9 lb 14 oz
4,501-5,000 grams	=	9 lb 15 oz - 11 lb 0 oz
5,001 grams or more	=	11 lb 1 oz or more

Race and color.—The race of the fetus is ordinarily classified to the race of the parents. If the parents are of different races, the following rules apply: (1) When only one parent is white, the fetus is assigned the other parent's race. (2) When neither parent is white, the fetus is assigned the father's race with one exception: If the mother is Hawaiian or Part-Hawaiian, the fetus is classified as Hawaiian.

When the race of one parent is missing or ill-defined, the race of the other determines that of the fetus. When race of both parents is missing, the race of the fetus is allocated to the specific race of the fetus on preceding record.

Total-birth order.—The number of a birth or a fetal death in the total birth order is the sum of the births and fetal deaths which a mother has had including the birth being recorded. For example, if a mother has previously given birth to two live babies and to one born dead, the next event to occur, whether a live birth or fetal death, is counted as number four in the total-birth order.

In the 1956 and 1968 revisions of the Standard Certificate of Fetal Death, the item on previous fetal loss included all fetal deaths regardless of gestation period. The majority of States have adopted this change on their certificates of birth and of fetal death. In these States the proportion of mothers of first liveborn children reported as having had a previous fetal loss has increased because of this change. For this reason, the data in tables 3-10 and 3-12 are not completely comparable with similar data published for years before 1956.

The following registration States requested information on all previous fetal deaths (fetuses born dead at any time after conception) on certificates of live birth and fetal death in use during 1975:

Alaska	Maine	Ohio
Arizona	Maryland	Oklahoma
Arkansas	Massachusetts	Oregon
Colorado	Michigan	Pennsylvania
Connecticut	Minnesota	Rhode Island
Delaware	Mississippi	South Carolina
Florida	Missouri	South Dakota
Georgia	Montana	Utah
Hawaii	Nebraska	Vermont
Illinois	Nevada	Virginia
Indiana	New Hampshire	Washington
Iowa	New Jersey	West Virginia
Kansas	New York	Wyoming
Kentucky	North Carolina	
Louisiana	North Dakota	

The total number of fetal deaths shown in tables 3-10 and 3-12 is limited to those with stated or presumed period of gestation of 20 weeks or more. The determination, however, of the total-birth order for these fetal deaths is based on the number of previous live births and fetal deaths for all periods of gestation, except for those live births and fetal deaths occurring to residents of the District of Columbia and the following seven States: Alabama, California, Idaho, New Mexico, Tennessee, Texas, and Wisconsin. The fetal-death certificates of these States provide total-birth order information only for previous live births and fetal deaths of 20 weeks or more gestation.

Thus the total-birth order for the District of Columbia and these seven States is based on fewer fetal deaths than would be the case if their fetal-death certificates had requested the number of previous fetal deaths for all periods of gestation, as do the certificates used by the other 43 States. It follows, therefore, that the total-birth order given in table 3-12 for these 43 States is not strictly comparable with that given for the District of Columbia and the remaining 7 States.

Legitimacy status.—Tabulations with legitimacy as a characteristic include only States which provided for reporting this item on their certificates of live birth and fetal death in 1975. These States are as follows:

Alabama	Kentucky	Oregon
Alaska	Louisiana	Pennsylvania
Arizona	Maine	Rhode Island
Colorado	Michigan	South Carolina
Delaware	Minnesota	South Dakota
District of Columbia	Mississippi	Tennessee
Florida	Missouri	Texas
Hawaii	Nebraska	Utah
Illinois	New Hampshire	Virginia
Indiana	New Jersey	Washington
Iowa	North Carolina	West Virginia
Kansas	North Dakota	Wisconsin
	Oklahoma	Wyoming

There are no quantitative data on the characteristics of unwed mothers who may misreport legitimacy status of the fetus or who fail to register fetal deaths. Underregistration may be greater in the illegitimate group than in the legitimate.

Age of mother.—The fetal-death certificate asks for the mother's "age (at time of delivery)," and the ages are edited in NCHS for upper and lower limits. When mothers are reported to be below 10 years of age or age 50 years and above, the age of the mother is considered not stated and is assigned as follows: Age on all fetal-death records with age of mother not stated is allocated according to the age appearing on the record previously processed for a mother of identical color and having the same total-birth order (total of fetal deaths and live births).

Cause of death

Beginning with data year 1968 the cause-of-death statistics published by the National Center for Health Statistics have been classified in accordance with the *Eighth Revision International Classification of Diseases, Adapted for Use in the United States* (ICDA),[13] which is based on the 1965 Revision of the International Classification of Diseases (ICD).[14] The ICDA gives greater detail and specificity in some categories than is provided by the Eighth Revision of the ICD. Complete correspondence between these two classifications was maintained at the three-digit level, but new four-digit subdivisions were created in various parts of the ICDA. Where necessary, existing four-digit subdivisions are renumbered to accommodate the additional subcategories in logical sequence. In the ICDA, subdivisions which do not correspond exactly with the ICD are identified by asterisks. In this report the four-digit subcategory numbers which differ from those in the ICD are also shown with asterisks.

In addition to specifying that the Classification be used, the World Health Organization recommended special lists for mortality tabulations—the Detailed List, consisting of all three-digit categories; List A, the List of 150 Causes for Tabulation of Morbidity and Mortality; List B, the List of 50 Causes for Tabulation of Mortality; and List P, the list of 100 Causes for Tabulation of Perinatal Morbidity and Mortality. The recommended tabulation lists have been modified for use in the National Center for Health Statistics.

The Each-Cause List is made up of each three-digit category of the Detailed List to which deaths may be assigned and each four-digit subcategory of the ICDA to which deaths may be assigned. For category 412 the fourth digits .1, .2, .3, and .4 are used instead of the fourth digits .0 and .9 which appear in the ICDA. The each-cause table (1-23) does not show the fourth-digit subcategories provided for Motor vehicle accidents (E810-E823). However, these subcategories, which identify persons injured, are shown in the accident tables (Section 4). Special fifth-digit subcategories are also used in the accident tables to identify place of accident when deaths from nontransport accidents are shown.

The List of 281 Selected Causes of Death is an extension of List A designed so that with one exception the original groups can be obtained by combining titles. The individual titles in List A for

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[13] National Center for Health Statistics: *Eighth Revision International Classification of Diseases, Adapted for Use in the United States.* PHS Pub. No. 1693. Public Health Service. Washington. U.S. Government Printing Office, 1967.

[14] World Health Organization: *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death,* Based on the Recommendations of the Eighth Revision Conference, 1965. Geneva. World Health Organization, 1967.

Certain causes of mortality in early infancy are shown as one group title in tables using the List of 281 Selected Causes. The individual categories are shown in the tables using the List of 65 Selected Causes of Infant Death, which was created by extending some titles in List P and by combining others. Titles in List P not shown in this list may be found in the each-cause table with the exception of causes of death in List P that are applicable only to fetal deaths.

The List of 69 Selected Causes of Death is an extension of List B; however, certain causes of low frequency in the United States are not shown separately. These causes are Cholera, Typhoid fever, Plague, Diphtheria, Smallpox, Typhus and other rickettsioses, and Malaria.

The List of 34 Selected Causes of Death for Detailed Geographic Areas was created by combining titles in the List of 69 Selected Causes.

These lists were designed to be as comparable as possible to the NCHS lists most recently in use under the Seventh Revision. In several instances this could not be done. No attempt will be made here to enumerate these changes. However, the following changes are especially worth noting. The group title Major cardiovascular diseases (ICDA Nos. 390-448) includes all of the titles in "Section VII. Diseases of the circulatory system" of the Eighth Revision except the following one: Diseases of veins and lymphatics and other diseases of circulatory system (ICDA Nos. 450-458).

The most nearly comparable group title in the Seventh Revision is Diseases of cardiovascular system (ICD Nos. 330-334, 400-468).

Both of these group titles include the first and third leading causes of death—Diseases of heart (ICDA Nos. 390-398, 402, 404, 410-429) and Cerebrovascular diseases (ICDA Nos. 430-438). They also both include Diseases of arteries, arterioles, and capillaries (ICDA Nos. 440-448). The comparable title in the Seventh Revision for these latter diseases is Diseases of arteries (ICD Nos. 450-456). But the group title Diseases of Cardiovascular system (ICD Nos. 330-334, 400-468) in the Seventh Revision includes also the title Diseases of veins and other diseases of circulatory system (ICD Nos. 460-468). These diseases of veins and other diseases of circulatory system (assigned by the Eighth Revision of ICDA Nos. 450-458) are not included, however, under the Eighth Revision group title Major cardiovascular diseases (ICDA Nos. 390-448).

Effect of decennial list revisions.—The International Lists, in use in this country since 1900, have been revised decennially in order that the disease classification may be consistent with advances in medical science and changes in diagnostic practice. Each decennial revision of the International Lists has produced some break in comparability of cause-of-death statistics. For the first five revisions, the continuity in the mortality trends is not considered a problem of great concern. Van Buren described some of the major shifts in the cause-of-death statistics up to the Fifth Revision (1938) due to changes in the Classification of causes of death.[15] Dunn and Shackley measured the change in mortality statistics by cause due to the Fifth Revision.[16]

This was done by coding mortality records for 1940 by the 1929 and 1938 revisions. The results of the study have been useful in evaluating the effects of the Fifth Revision and changes in the joint-cause selection procedure.

Sixth Revision.—The Sixth Revison of the International Lists of Diseases and Causes of Death was adopted by the World Health Organization in July 1948 and used for mortality data in the United States from 1949 through 1957. This revision represented a more sweeping change than any previous revision. The classification scheme was expanded considerably to provide specific categories for nonfatal diseases and injuries in order to provide a classification which could be used for coding morbidity as well as mortality records.

In addition to the expanded scope of the Sixth Revision of the International Classification, there was a major change in the method of selection of the cause of death for primary tabulation. A large proportion of death certificates filed annually in the United States report two or more diseases or conditions as causes of death. General statistical practice requires that cases involving more than one cause of death be assigned to a single cause, making it necessary to select the one cause to which the death will be assigned. The method of selection has an important effect upon the resulting statistics.

In 1948 the World Health Assembly adopted, along with the Sixth Revision of the International Lists, a form of medical certification and rules for classification of the underlying cause of death for international use. The form of medical certification in the Standard Certificate of Death is shown in figure 6-A. It is designed to facilitate the selection of the

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[15]U.S. Bureau of the Census: Some things you can't prove by mortality statistics, by G. H. Van Buren. *Vital Statistics—Special Reports,* Vol. 12, No. 13. Washington, D.C., Jan. 1940.

[16]U.S. Bureau of the Census: Comparison of cause-of-death assignments by the 1929 and 1938 Revisions of the International Lists, deaths in the United States, 1940, by H. L. Dunn and W. Shackley. *Vital Statistics—Special Reports,* Vol. 19, No. 14. Washington, D.C., June 1944.

underlying cause of death when two or more causes are recorded. In general if the certification is completed properly, the underlying cause of death entered by the physician is the cause to be tabulated. This procedure, used in the United States beginning with deaths in 1949, differs markedly from that used in previous years. Formerly, definite priority relationships were set up for combinations of causes reported on the death certificate. The single cause to be tabulated was chosen according to these fixed rules.

Comparability between the Sixth and Fifth Revisions.—In order to maintain a time series of mortality rates for comparable causes, the International Conference for the Sixth Revision of the International Lists recommended that deaths for a country as a whole in the year 1949 and 1950 be coded according to both the Sixth and Fifth Revisions. In the United States, 1950 mortality data were used for the dual coding. The differences resulting from the use of the two revisions are expressed by a factor termed the comparability ratio. This is the number of deaths assigned to a particular cause under the Sixth Revision divided by the number of deaths assigned to that cause using the Fifth Revision.[17,18]

Seventh Revision.—Beginning with 1955 the decennial conferences for revision of the International Lists are held in years ending in 5 rather than later in the decade as had been done previously. This is to make possible the use of revised classification for mortality data beginning with years ending in 8. The new cycle provides time to assess the effect of new provisions and variations in interpretation before the next census. Thus stable mortality data will be available for use in the population figures from the decennial census.

Changes in the Seventh Revision were held to a minimum because of the relatively short experience with the Sixth Revision. In compliance with a recommendation of the Expert Committee on Health Statistics, the changes were limited to essential ones and amendments of errors and inconsistencies. Provisions previously contained in an addendum[19] were integrated into the manual.[20] Since these provisions had been used with the Sixth Revision, they did not represent classification changes. The only change made in three-digit categories consisted of rewording a few titles. In a few cases the rewording included redefining morbid conditions classifiable to these categories and transferring certain terms from one category to another. The three-digit categories which were affected are listed in Section 1, Volume I, of *Vital Statistics of the United States, 1958.* There were also a number of changes in four-digit subcategories, consisting mostly of the addition of subdivisions to provide more detailed classification of malignant neoplasms of specified sites. The three-digit categories for which there were additions, deletions, or changes in the four-digit subcategories are also listed in Section 1 of the 1958 report.

The international rules for selecting the cause of death for primary mortality classification were recast for use with the Seventh Revision to simplify them and to organize them from the viewpoint of the coder making the cause-of-death assignment. The intent of the rules remains the same, that is, to code the cause which the medical certifier judged to be the underlying cause starting the train of events leading directly to death. In recasting the rules, some interpretations were modified—mainly those involving selection of the underlying cause for improperly completed certifications. In adapting coding procedures to reporting practices in the United States, some additional changes in interpretations were made.

In the majority of cases, application of the rules for the Sixth Revision and those for the Seventh resulted in the same code assignment. There were some differences in individual assignments affecting a number of categories. Many of these individual assignments were compensatory and resulted in no detectable discontinuity of trends for various causes of death; the comparability of a number of categories was affected to a limited extent.

Comparability between the Seventh and Sixth Revisions.—In order to estimate the magnitude of the effect of the Seventh Revision upon the comparability of mortality trends for various causes, a 10-percent sample of deaths in 1958 was classified using both the Sixth and Seventh Revisions. The comparability ratios for selected causes and a discussion of the results of this study are published in "Comparability

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[17]National Center for Health Statistics: Comparability of mortality Statistics for the Fifth and Sixth Revisions, United States, 1950, by M. M. Faust and A. B. Dolman. *Vital Statistics—Special Reports,* Vol. 51, No. 2. Public Health Service. Washington, D.C., Dec. 1963.

[18]National Center for Health Statistics: Comparability ratios based on mortality statistics for the Fifth and Sixth Revisions, United States, 1959, by M. M. Faust and A. B. Dolman. *Vital Statistics—Special Reports,* Vol. 51, No. 3. Public Health Service. Washington, D.C., Feb. 1964.

[19]World Health Organization: *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death,* Addendum 1, *Supplementary Interpretations and Instructions for Coding Causes of Death.* Geneva. World Health Organization, 1953.

[20]World Health Organization:*Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death,* Based on the Recommendations of the Seventh Revision Conference, 1955. Geneva. World Health Organization, 1957.

of Mortality Statistics for the Sixth and Seventh Revisions, United States, 1958."[21]

Eighth Revision.—The Eighth Revision contains major modifications in several sections of the lists. Also, the international rules for selecting the underlying cause have been simplified. In addition, changes have been introduced in the special rules and decisions which adapt the coding procedures to reporting practices in the United States.

The Detailed List of the Eighth Revision consists of 671 categories of diseases and morbid conditions, 182 categories for classification of the external cause of injury, and 187 categories for characterization of injuries according to the nature of the lesion. These detailed categories are designated by three-digit numbers. There are also four-digit subcategories in the ICDA that provide further specificity or more information regarding etiology or manifestations of the disease. The classification is arranged in 17 main sections, or chapters. The important changes are summarized for each of these sections in the introduction to the ICDA, pages xxiv-xxviii. Following are some of the many changes made:

Infective and parasitic diseases.—In the Seventh Revision, list titles for diarrheal conditions were scattered over several sections of the Classification. In the Eighth Revision all the Seventh Revision subdivisions for these conditions, including those for infants, are brought together under one category, Diarrheal diseases (009).

Diseases of the nervous system and sense organs.—Vascular lesions affecting central nervous system (330-334) in the Seventh Revision has been transferred in the Eighth Revision to Section VII, Diseases of the circulatory system, where they appear as Cerebrovascular diseases (430-438).

Certain causes of perinatal morbidity and mortality.—This section represents an integration of Section XV (Certain diseases of early infancy) and Classification of causes of stillbirth (Y30-Y39) in the Seventh Revision. The age qualifications used in previous revisions to classify the same conditions in or outside this section have been deleted. For example, Pneumonia of newborn (763) of the Seventh Revision is no longer in this section. Instead, it is included in the Eighth Revision with Pneumonia (480-486), to which pneumonias are assigned without regard to age.

Accidents, poisonings, and violence.—A new subsection (E980-E989) has been introduced for the classification of deaths where it was not possible for the certifier to determine whether the injuries were accidentally or purposely inflicted.

Comparability between the Eighth and Seventh Revisions.—In order to measure the degree of discontinuity in cause-of-death statistics resulting from the introduction of the Eighth Revision, provisional estimates of selected comparability ratios based on dual coding of a stratified sample of 1966 death certificates by the Seventh and Eighth Revisions of the International Classification of Diseases were computed. These ratios appear in the *Monthly Vital Statistics Report* of the National Center for Health Statistics, Volume 17, Number 8, Supplement; and in Comparability of Mortality Statistics for the Seventh and Eighth Revisions of the International Classification of Diseases, United States, *Vital and Health Statistics,* Series 2, No. 66, DHEW Pub. No. (HRA) 76-1340.

Coding in 1975.—The National Center for Health Statistics usually prepares for its cause-of-death coding clerks an instruction manual which contains decisions and interpretations that apply each year. These manuals are revised annually chiefly to bring coding procedures into alignment with new developments in reporting practices and in medical opinions as to the etiology and casual relationship of diseases and to eliminate inconsistencies in coding procedures.[22] No significant coding changes occurred for 1975.

Significant coding changes during the Eighth Revision.—Beginning with 1969 a special four-digit subcategory Chronic obstructive lung disease (*519.3) has been added to obtain the number of certificates on which medical certifiers have entered this more general term rather than a more specific diagnosis of chronic bronchitis, emphysema, or asthma. The number of certificates assigned to (*519.3) increased from 2,704 for 1969 to 17,593 for 1975. It is necessary to add together the number of deaths assigned to this new four-digit category and

[21] National Center for Health Statistics: Comparability of mortality statistics for the Sixth and Seventh Revisions, United States, 1958, by M. M. Faust and A. B. Dolman. *Vital Statistics—Special Reports,* Vol. 51, No. 4. Public Health Service. Washington, D.C., Mar. 1965.

[22] National Center for Health Statistics: Vital statistics, instructions for classifying the underlying cause of death, 1975. *NCHS Instruction Manual,* Part 2a. Health Resources Administration. Rockville, Md., Sept. 1974.

the number of deaths assigned to Bronchitis, emphysema, and asthma (ICDA Nos. 490-493) to obtain a measure of mortality from all chronic obstructive lung diseases.

To provide that deaths would not be assigned to Chronic obstructive lung disease (*519.3) if a more specific diagnosis such as chronic bronchitis, emphysema, or asthma also appeared on the death certificate, the coding procedures were updated for 1971 and 1972 data years in accordance with the linkages below:

*519.3 Chronic obstructive lung disease without mention of asthma, bronchitis, or emphysema

Excludes conditions in *519.3 *with* conditions in:

490 Bronchitis (491) (Chronic bronchitis)
491 (Chronic bronchitis) (491)
492 (Emphysema)(492)
493 (Asthma)(493)

But the limitation imposed by these linkage provisions did not alter the upward trend in the number of deaths assigned to Chronic obstructive lung disease without mention of asthma, bronchitis, or emphysema (*519.3). The number of deaths assigned to (*519.3) increased from 6,321 for 1971 to 8,210 for 1972.

Under the Eighth Revision of the ICDA, deaths assigned to "chronic obstructive lung disease," or "chronic obstructive pulmonary disease," were assigned to Other diseases of lung (ICDA No. 519.2). Despite the transfer to these deaths from this category to the new category Chronic obstructive lung disease (*No. 519.3), the number of deaths assigned to Other diseases of lung (ICDA No. 519.2) also continued to increase—from 1,306 deaths for 1969 to 2,007 for 1975.

Also beginning with 1971, a special four-digit subcategory (*E854.8) has been added to identify "acute narcotism, not otherwise specified," whether or not the circumstances were undetermined. Also, a preference will be given to Drug dependence (ICDA No. 304) when a statement of drug dependence or a synonymous term appears on the certificate with mention of poisoning by certain addictive drugs.

In addition, beginning with 1971, the term cerebral sclerosis (general) is classified to Generalized ischemic cerebrovascular disease (ICDA No. 437) rather than to Other demyelinating diseases of central nervous system (ICDA No. 341). As a result of this transfer the number of deaths assigned to this latter category decreased from 569 for 1970 to 96 for 1971.

For 1973 the significant coding changes were concerned with the "sudden infant death syndrome" (SIDS).

SIDS, frequently called "crib death" or "cot death," has been defined as the sudden and unexpected death of a previously healthy infant (usually between 1 and 6 months of age) which remains unexplained after careful post mortem studies. SIDS almost always occurs during sleep periods. This phenomenon seldom occurs in an infant under 1 month or over 1 year of age. There are no specific symptoms identifiable with SIDS. Therefore, SIDS cannot be predicted, even by a physician, and in the light of present knowledge SIDS cannot be prevented. An autopsy usually reveals congestion and edema of the lungs and minor inflammatory changes in the respiratory system. In about 85 percent of the cases intrathoracic petechial hemorrhages are found. However, evidence of a conventionally accepted lethal lesion(s) is lacking. Because of these characteristic features, experts and researchers in the field consider SIDS a clearly identifiable distinctive entity even though the cause and mechanism of death remain unknown.

Estimates of the number of SIDS deaths vary, but the figure most commonly quoted by researchers for 1975 is about 7,500. Efforts to obtain accurate data on the incidence of SIDS have been hampered by a number of factors. Among these are

1. The failure of a number of physicians, coroners, and medical examiners to diagnose and/or report SIDS as the cause of death.
2. The lack of uniformity in the terminology used to describe SIDS.
3. The absence of a category in the *Eighth Revision International Classification of Diseases, Adapted for Use in the United States* (ICDA), which identifies SIDS.
4. The reluctance on the part of certifiers to report conditions that they feel may be regarded as unacceptable by vital statistics offices, and
5. The reporting of conditions, including incidental autopsy findings, that were in fact unrelated to death on the certificates of death for infants who actually died from SIDS.

NCHS has modified the ICDA and the procedures for classifying information recorded on the death certificate to facilitate the identification and analysis of data related to known and suspected cases of SIDS.

Three fourth-digit subdivisions have been created under ICDA category 795 (Sudden death). These

subdivisions together with the inclusion terms are as follows:

*795.0 Sudden infant death syndrome, under 1 year of age
Acute fatal infant syndrome
Cause unknown
Cot or crib death
Died without sign of disease, so stated
Found dead (in bed, cot, cradle, crib, etc.) (infant)
Infant found in bed
Other unknown and unspecified causes, so stated
SDII, SID, SIDS, SUDI, SUID
Sudden death (in infancy) (infant) syndrome) (unattended) (unexpected) (unexplained)
Undetermined (cause) (in infancy) (infant)
Unexpected death (in infancy) (infant)
Unexplained death (in infancy) (infant)
Unknown (cause)

*795.1 Sudden death syndrome, 1 year of age
The same terms under *795.0 when age is 1 year

*795.2 All other sudden deaths, age 2 years and over

Died suddenly	Fell dead
Dropped dead	Sudden death

It should be noted that two of the above subdivisions (i.e., *795.0 and *795.1) include several terms that were previously included under ICDA categories 796.2, Found dead (cause unknown), 796.3, Died without sign of disease, and 796.9, Other unknown and specified causes. The decision to include these terms in the categories that have been created for Sudden infant death syndrome, under 1 year of age, and Sudden death syndrome, 1 year of age, was made after consultation with experts in the field. This decision was based on conclusions drawn from a recent study that relatively few infant deaths that were not sudden and unexpected are certified as found dead, "died without sign of disease," or other unknown and unspecified causes.

The third subdivision (i.e., *795.2) does not include terms previously classifiable to ICDA categories 796.2, 796.3, or 796.9. Coders should continue to classify these terms to categories 796.2, 796.3, and 796.9 if the decedent was 2 years of age or over.

A distinction has been made between Sudden infant death syndrome, under 1 year of age, and Sudden death syndrome, 1 year of age (but less than 2), because there is some difference of opinion about whether SIDS does in fact occur at ages 1 year and above. National data for 1973, the first year NCHS used the new coding rules show 3,264 and 75 deaths coded to categories *795.0 and *795.1, respectively.

Apparently, some vital statistics offices have, perhaps unintentionally, created the impression that SIDS is not an acceptable cause of death. This is unfortunate since it is important that SIDS be cited officially as the cause of death when the certifier believes this to be the case. This diagnosis as well as other terms that are being used to describe SIDS should be accepted as a valid cause of death without querying the certifier. Past experience has shown that some certifiers are reluctant to use terminology that they have reason to believe will be queried by vital statistics offices.

Since 1968 the use of an automated system for obtaining the underlying cause requires special coding procedures in NCHS. (See Quality Control Procedures under Quality of Data.) The automated system was designed to assign the underlying cause according to the international rules just as if a manual process were to be used.

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

The quality of the basic data reported on the death certificate is of fundamental importance in the interpretation of cause-of-death statistics. A pilot study was based on a sample of deaths occurring in Pennsylvania during 3 months in 1956. A representative sample of certificates was selected for particular causes of death. Questionnaires were sent to the physicians who had signed the certificates asking for the diagnostic methods and pertinent findings on which the medical certification of death was based. The returns were reviewed along with the original cause-of-death statement and rated for quality (type and amount) of supporting diagnostic information. For 39 percent of the cases the diagnostic data given were sketchy, and for 58 percent the information was considered good or very good. The quality of the

diagnostic information varied considerably with the cause of death. It was concluded that in Pennsylvania the diagnostic data for many disease categories provided an adequate base for medical certification of the cause of death.[23]

In a later followback study conducted by NCHS, a national sample of deaths occurring in July and August 1960 was selected from the 10-percent Current Mortality Sample. A questionnaire was sent to the physician, coroner, or medical examiner signing the death certificate and to the hospitals and others suggested by the medical examiner as possible added sources of diagnostic information. Eighty-seven percent of the medical certifiers returned a questionnaire with some kind of response. Of those returned, 14 percent contained no useful information. The forms were reviewed by two cardiologists to determine whether or not the cause of death assigned was supported by the diagnostic information provided by the certifier. The results showed that "for cardiovascular-renal diseases as a whole, it is estimated that 70 to 75 percent of the deaths so classified may be considered as a reasonable inference or better.[24]

One index of the quality of reporting causes of death is the proportion of death certificates coded to the Eighth Revision category numbers 780-792, 795, and 796, which are the rubrics for symptoms and ill-defined conditions. While there are cases for which it is not possible to determine the causes of death, this proportion indicates the care and consideration given to the certification by attending physicians. It may also be used as a rough measure of the specificity of the medical diagnosis made by the physicians in various areas and to a small degree the extent to which autopsies are performed and their findings used in determining the underlying cause of death entered on the death certificate. In 1975, 1.6 percent of all reported deaths in the United States were assigned to ill-defined or unknown causes. However, this percentage varied among the States from 0.3 to 7.4 percent.

Ranking causes of death.—The causes included in the List of 69 Selected Causes of Death have been ranked on the basis of the number of deaths assigned to each cause. Two group titles, Major cardiovascular diseases and Symptoms and ill-defined conditions, are not ranked. In addition, category titles that begin with the words "Other" or "All other" are not ranked. The remaining titles are ranked to determine the leading causes of death. When one of the titles that represents a subtotal is ranked, as in the case of Tuberculosis, all forms, its component parts (in this case, Tuberculosis of respiratory system and Tuberculosis, other forms) are not ranked.

Maternal deaths

Maternal deaths are those for which the certifying physician has designated a maternal condition as the underlying cause of death. The maternal conditions are those assigned to Complications of pregnancy, childbirth, and puerperium (630-678).

Report of autopsy

Prior to 1972 the last year for which autopsy data were tabulated was 1958. For 1972-75 all registration areas requested information on the death certificate as to whether autopsies were performed. For 1975 autopsies were reported, however, on only 333,068 death certificates (17.6 percent of the total, table 1-28). All but eight registration areas (New York City, Delaware, Georgia, Idaho, Massachusetts, Pennsylvania, Texas, and Virginia) also requested for 1975 information on nearly all their certificates as to whether the autopsy findings were used in determining the causes of deaths.

The distribution of deaths for which autopsies were performed according to the entry for the item "autopsy findings used" was as shown in the table below.

Entry for item "autopsy findings used"	Number	Percent
All autopsies	333,068	100.0
Autopsy findings used	188,647	56.6
Autopsy findings not used	14,160	4.2
Item not checked	55,934	16.7
Item not on certificate	74,237	22.3

Data presented in table 1-29 on "findings used" refer not to deaths for which autopsies were performed (333,068) but only to those for which information on "findings used" was also requested on the certificates (258,741 deaths for which autopsies were performed).

For only seven of the cause-of-death categories shown in table 1-29 were autopsies reported as performed for 50 percent or more of all deaths: Meningococcal infections; Measles; Abortions; Other complications of pregnancy, childbirth, and the puer-

[23]For a more complete report, see "Inquiry Into Diagnostic Evidence Supporting Medical Certifications of Death," by I. M. Moriyama and others, *Am. J. Pub. Health,* Vol. 48, No. 10, pp. 1376-1387.

[24]Moriyama, I. M., and others: Evaluations of Diagnostic Information Supporting Medical Certification of Cardiovascular Disease Deaths. Paper presented at a meeting of the American Public Health Association, Kansas City, Mo., Nov. 13, 1963.

perium; Congenital anomalies; Homicide; and Other external causes.

There were eight other categories for which 40 percent or more death certificates reported autopsies. Autopsies were reported for only 10.7 percent of the major cardiovascular diseases. Among all causes other than the major cardiovascular group, autopsies were reported for 24.9 percent of all deaths.

Mortality by month and date of death

Deaths by month have been regularly tabulated and published in the annual report for each year beginning with data year 1900. For 1975 deaths by month are shown in this report in tables 1-20, 1-21, 1-24, 1-30, 2-10, 2-12, and 3-9.

Death rates by month reflect most clearly the influence of the respiratory diseases. Again for 1975, as for each year since the early 1920's, when the summer peak of mortality was eliminated, the curve of mortality falls to a low during the summer months, and reaches a peak during the winter months. The curve by month for the number of deaths from influenza and pneumonia for 1975 parallels quite closely that for the curve for the number of deaths from all causes. The greatest number of deaths from influenza and pneumonia occurred in January for 1975 (table 1-24).

The year 1972 was the first data year for which date of death was published (table 1-30). Unpublished data for selected causes by date of death for 1962 are available in NCHS.

Number of deaths by date of death in this report are shown for 1975 for the total number of deaths and for the number of deaths for the following three causes, for which the greatest general interest in date of occurrence of death has been expressed: Motor vehicle accidents, Suicide, and Homicide.

These data in table 1-30 show the frequency distribution of deaths for the selected causes by day of week. They also make it possible to identify holidays with peak numbers of deaths from specified causes.

QUALITY OF DATA

Completeness of registration

Although every State has adopted a law requiring the registration of births, deaths, and fetal deaths, these laws are not uniformly observed. In most areas practically all births and deaths are registered. For some areas, however, there is enough underregistration to affect the use of the statistics for certain purposes.

Quantitative information on completeness of death registration is not available. One condition for admission to the national registration areas was a demonstrated registration completeness of at least 90 percent although the method used in testing completeness was subject to considerable error. It is believed that in the past death registration for the United States has been more complete than birth registration, but the difference now may be rather small. There is evidence, however, that in certain isolated areas, incomplete registration is still a problem. For example, a study made in a few selected counties of Tennessee, where the death rates for 1949 to 1951 were unusually low, served to locate a number of unregistered deaths.[25] A similar situation may exist in other States.

As stated above, reporting requirements for fetal deaths vary from State to State, and registration is probably incomplete in all areas.

Massachusetts data

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

Quality control procedures

Demographic items on the death certificates.—As indicated above, for 1975 the mortality data for these items were obtained from two sources: (1) microfilm images of the original certificates furnished by 27 States, the District of Columbia, and New York City; and (2) records on data tape furnished by the remaining 23 States. For the 27 States, the District of Columbia, and New York City, that send only microfilm images of the original certificates, the demographic items on a 10-percent sample of the certificates were dependently verified. For the 16 States that furnished records on data tape prior to 1975 the demographic items on about 200 records per State per month were independently verified. For the seven States (Maryland, North Carolina, Oklahoma, Louisiana, Tennessee, Virginia, and Wisconsin) that furnished records on data tape for the first time for 1975, the demographic items were independently verified for a 50-percent sample for the first 3 months, and for about 200 records per State for each of the last 9 months of 1975.

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[25] Tennessee Department of Public Health: Results of survey of death-registration completeness. *The Spotlight,* Jan. 1954.

Except for cause-of-death coding discussed below, the above-mentioned verification procedures involve controlling two types of error (coding and entering into the data record tape) at the same time, and the error rates are a combined measure of both types. While it may be assumed that the entering errors are randomly distributed across all items on the record, this assumption cannot be made as readily for coding errors. Systematic errors in coding infrequent events may escape detection during sample verification. This type of error is partially controlled by reverifying randomly selected lots from each operator's work.

Medical items on the death certificate.—The "Automated Classification of Medical Entities" (ACME), a computer system for assigning the underlying cause of death which was introduced in 1968, was used for assigning the 1975 underlying causes of death.[26] The ACME rules for coding conditions are very specific, fewer in number, and far less complicated than the international rules for selecting the underlying cause of death.[27]

The coder produces condition codes which the ACME computer program matches against decision tables to select the underlying cause of death for each record according to the international rules. These decision tables serve two primary purposes. They provide a comprehensive guide for the relationship between conditions classifiable to different categories in ICDA when applying rules of selection and modification, and they also provide decisions used when the underlying cause is assigned by the ACME system. The tables were developed from the decisions and conclusions employed by NCHS in arriving at the underlying causes of death. Relationships between medical conditions involve varying or contradictory opinions. Therefore further refinements of the decision tables will be required periodically.

The decision table instruction manual for 1970-71[28] was again used for 1972, 1973, 1974, and 1975.

For the States that did not furnish State-coded medical data, the medical items were coded for 100 percent of death records. Then the medical items on a 10-percent sample of the records were independently verified. For the five States (Louisiana, Nebraska, North Carolina, Virginia, and Wisconsin) that furnished State-coded medical data, for the first time in 1975, the medical items were independently verified on a 100-percent basis for the first 3 months, and for about 200 records per State for each of the last 9 months of 1975. For the other States (Iowa and Michigan) the medical items were independently verified for about 200 records per State.

For cause-of-death coding systematic errors in coding infrequent events is controlled by listing the rare and impossible codes from the computer and reverifying the cause-of-death assignment.

Demographic items on fetal death certificates.—As stated above, fetal-death certificates for 1975 are based on all fetal-death records received. Moreover the coding and entering on data tape of fetal-death records was verified completely because of their relatively small number. (Again for 1975, as for prior years, medical items on the fetal-death certificates were not coded.)

Other control procedures.—After completing coding and entering on data tape, record counts are balanced against control totals for each shipment of records from a registration area. Impossible codes are selected out during the editing processes on the computer and are either corrected by reference to the source record or adjusted by arbitrary code assignment. All subsequent operations in tabulating and in table preparation are verified either during the computer processing or by statistical clerks.

Estimates of errors arising from 50-percent sample for 1972

Death statistics for 1972 in this report (excluding fetal-death statistics) are based on a 50-percent sample of all deaths occurring in the 50 States and the District of Columbia.

A description of the sample design and a table of the percent errors of the estimated numbers of deaths by size of estimate and total deaths in the area are shown in the Technical Appendix of *Vital Statistics of the United States,* Volume II, Part A, 1972.

COMPUTATION OF RATES AND OTHER MEASURES

Population bases

The death rates shown in this report were computed on the basis of population statistics published or made available by the U.S. Bureau of the Census. Rates for 1940, 1950, 1960, and 1970 are based on the populations enumerated as of April 1 in the censuses of those years. Rates for all other years

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[26] Automated Classification of Medical Entities (ACME) for Selection of Causes of Death. Unpublished paper presented at the annual meeting of the American Public Health Association, Houston, Tex., Oct. 1970.

[27] See footnote 22.

[28] National Center for Health Statistics: Vital statistics, ICDA Eighth Revision decision tables for classifying underlying causes of death, 1970-1971. *NCHS Instruction Manual,* Part 2a. Public Health Service. Rockville, Md., 1972.

are based on the estimated midyear (July 1) population for the respective years.

Population estimates for 1975.—Estimates of the total resident population of the United States by age, race, and sex in 1975 are published by the Bureau of the Census in *Current Population Reports,* Series P-25, Number 643, and are shown in table 6-2. Total estimated populations for States shown in table 6-3 are published in Series P-25, Number 619; populations by broad age groups were prepared by the Bureau of the Census for NCHS and do not appear in the P-25 Series.

The populations of the 50 largest SMSA's and their component counties were obtained from the Bureau of the Census for July 1, 1975, as shown in selected reports from Series P-26.

Population estimates for 1971.—The rates by age, color, and sex in Section 1 of *Vital Statistics of the United States, 1971,* were based on provisional estimates of the 1971 population; but the life table values for 1971 in Section 5 were based on revised estimates of the 1971 population. These revised estimates are shown in *Current Population Reports,* Series P-25, No. 519, Washington, D.C., 1974. These revised estimates differed considerably from the provisional estimates for a number of age-color-sex groups. Table 6-4 of the report for 1971 shows, for example, that the revised estimates are 7 to 25 percent lower than the provisional estimates for persons other than white in the youngest (under 10 years) and oldest (80 years and over) age groups. The limited number of statistics for 1971 shown in this report are based on the revised populations. Also available in NCHS is a set of unpublished trend tables for which the rates for 1971 are based on the revised population. These tables include age-color-sex-cause specific death rates for both the List of 69 Selected Causes of Death and the List of 281 Selected Causes of Death.

Population estimates for 1961-69.—Comparison of revised populations for 1969 (and several earlier years since 1960) with the provisional populations which were used to calculate annual death rates for these same age, color, and sex groups indicated a similar problem. Caution should be exercised in utilizing death rates published in Section 1 and life expectancy values in Section 5 of the 1969 and other volumes until the publication of the annual volume for 1976 that will contain rates based on revised populations for each year of the period 1961-69, as shown in *Current Population Reports,* Series P-25, No. 519.

Rates and ratios based on live births.—Infant, neonatal, and maternal mortality rates, and fetal death rates and ratios are computed on the basis of the estimated number of live births instead of the estimated population under 1 year of age.

New Jersey.—As indicated previously, data by race or color are not available for New Jersey for 1962 and 1963. Therefore for 1962 and 1963 the National Center for Health Statistics estimated a population by age, color, and sex excluding New Jersey for rates shown by color. The methodology used to estimate the revised population excluding New Jersey is discussed in the technical appendixes of the 1962 and 1963 reports.

Age-adjusted death rates

Age-adjusted death rates shown in this report are computed by using the distribution in 10-year age intervals of the enumerated population of the United States in 1940 as the standard population. Each figure represents the rate that would have existed if the age-specific rates of the particular year prevailed in a population whose age distribution was like that of the United States in 1940. The rates for the total population and for each color-sex group were adjusted separately, using the same standard population. It is important not to compare age-adjusted death rates directly with crude rates shown in other tables.

SYMBOLS USED IN TABLES

Data not available	- - -
Category not applicable	. . .
Quantity zero	-
Quantity more than 0 but less than 0.05	0.0
Figure does not meet standards of reliability or precision	*

Table 6-1. Population of Birth- and Death-Registration States, 1900-1932, and United States, 1900-1975

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

Year	United States[1]		Year	United States[1]		Birth-registration States		Death-registration States	
	Population including Armed Forces abroad	Population residing in area		Population including Armed Forces abroad	Population residing in area	Number of States[2]	Population residing in area	Number of States[2]	Population residing in area
1975	213,540,000	213,032,000	1937	128,961,000	128,824,829	...	...	...	...
1974	211,909,000	211,390,000	1936	128,181,000	128,053,180	...	...	...	...
1973	210,404,000	209,851,000	1935	127,362,000	127,250,232	...	...	...	...
1972	208,842,000	208,230,000	1934	126,485,000	126,373,773	...	...	...	...
1971	207,045,000	206,212,000	1933	125,690,000	125,578,763	...	...	...	...
1970	204,270,000	203,211,926	1932	124,949,000	124,840,471	47	118,903,899	47	118,903,899
1969	203,216,000	201,921,000	1931	124,149,000	124,039,648	46	117,455,229	47	118,148,987
1968	201,166,000	199,861,000	1930	123,188,000	123,076,741	46	116,544,946	47	117,238,278
1967	199,118,000	197,863,000	1929	---	121,769,939	46	115,317,450	46	115,317,450
1966	196,842,000	195,857,000	1928	---	120,501,115	44	113,636,160	44	113,636,160
1965	194,583,000	193,818,000	1927	---	119,038,062	40	104,320,830	42	107,084,532
1964	192,119,000	191,371,000	1926	---	117,399,225	35	90,400,590	41	103,822,683
1963	189,417,000	188,658,000	1925	---	115,831,963	33	88,294,564	40	102,031,555
1962	186,656,000	185,890,000	1924	---	114,113,463	33	87,000,295	39	99,318,098
1961	183,756,000	183,057,000	1923	---	111,949,945	30	81,072,123	38	96,788,197
1960	180,007,000	179,323,175	1922	---	110,054,778	30	79,560,746	37	92,702,901
1959	177,264,000	176,513,000	1921	---	108,541,489	27	70,807,090	34	87,814,447
1958	174,141,000	173,320,000	1920	---	106,466,420	23	63,597,307	34	86,079,263
1957	171,274,000	170,371,000	1919	105,063,000	104,512,110	22	61,212,076	33	83,157,982
1956	168,221,000	167,306,000	1918	104,550,000	103,202,801	20	55,153,782	30	79,008,412
1955	165,275,000	164,308,000	1917	103,414,000	103,265,913	20	55,197,952	27	70,234,775
1954	162,391,000	161,164,000	1916	---	101,965,984	11	32,944,013	26	66,971,177
1953	159,565,000	158,242,000	1915	---	100,549,013	10	31,096,697	24	61,894,847
1952	156,954,000	155,687,000	1914	---	99,117,567	...	...	24	60,963,309
1951	154,287,000	153,310,000	1913	---	97,226,814	...	...	23	58,156,740
1950	151,132,000	150,697,361	1912	---	95,331,300	...	...	22	54,847,700
1949	149,188,000	148,665,000	1911	---	93,867,814	...	...	22	53,929,644
1948	146,631,000	146,093,000	1910	---	92,406,536	...	...	20	47,470,437
1947	144,126,000	143,446,000	1909	---	90,491,525	...	...	18	44,223,513
1946	141,389,000	140,054,000	1908	---	88,708,976	...	...	17	38,634,759
1945	139,928,000	132,481,000	1907	---	87,000,271	...	...	15	34,552,837
1944	138,397,000	132,885,000	1906	---	85,436,556	...	...	15	33,782,288
1943	136,739,000	134,245,000	1905	---	83,819,666	...	...	10	21,767,980
1942	134,860,000	133,920,000	1904	---	82,164,974	...	...	10	21,332,076
1941	133,402,000	133,121,000	1903	---	80,632,152	...	...	10	20,943,222
1940	131,820,000	131,669,275	1902	---	79,160,196	...	...	10	20,582,907
1939	131,028,000	130,879,718	1901	---	77,585,128	...	...	10	20,237,453
1938	129,969,000	129,824,939	1900	---	76,094,134	...	...	10	19,965,446

[1]Alaska included beginning 1959 and Hawaii, 1960.
[2]The District of Columbia is not included in "Number of States," but it is represented in all data shown for each year.

Source: The populations in this table were published by the U.S. Bureau of the Census, unless otherwise specified, in Current Population Reports, Series P-25. The numbers of these reports together with the years for which data were furnished are shown below:

Year for which data were furnished	Series P-25 number	Year for which data were furnished	Series P-25 number	Year for which data were furnished	Series P-25 number
1975	643	1968	416	1940-50	499
1974	529	1967	385	1930-39	499 and VSR[b]
1971-73	519	1966	352	1920-29	VSR[b]
1970	CR[a]	1960-65	321	1917-19	499 and VSR[b]
1969	441	1951-59	310	1900-1916	VSR[b]

[a]U.S. Bureau of the Census, U.S. Census of Population: 1970, Number of Inhabitants, Final Report PC (1)-A1, United States Summary, 1971.
[b]National Office of Vital Statistics, Vital Statistics Rates in the United States, 1900-1940, 1947.

Table 6-2. Estimates of Total Resident Population of the United States, by Age, Race, and Sex: July 1, 1975

[Figures include Armed Forces stationed in the United States and exclude those stationed outside the United States. Due to rounding to the nearest thousand, detailed figures may not add to totals]

Age	Total			White			All other					
							Total			Negro		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
All ages	213,032,000	103,712,000	109,320,000	185,141,000	90,399,000	94,742,000	27,891,000	13,313,000	14,578,000	24,435,000	11,633,000	12,802,000
Under 1 year	3,079,000	1,575,000	1,504,000	2,560,000	1,312,000	1,248,000	519,000	263,000	256,000	446,000	226,000	221,000
1-4 years	12,804,000	6,540,000	6,262,000	10,577,000	5,417,000	5,160,000	2,226,000	1,124,000	1,103,000	1,937,000	978,000	960,000
5-9 years	17,325,000	8,831,000	8,494,000	14,474,000	7,401,000	7,074,000	2,851,000	1,430,000	1,420,000	2,518,000	1,262,000	1,256,000
10-14 years	20,409,000	10,405,000	10,003,000	17,179,000	8,780,000	8,398,000	3,230,000	1,625,000	1,605,000	2,901,000	1,458,000	1,443,000
15-19 years	20,953,000	10,607,000	10,345,000	17,789,000	9,029,000	8,760,000	3,163,000	1,579,000	1,585,000	2,820,000	1,404,000	1,415,000
20-24 years	19,019,000	9,480,000	9,539,000	16,371,000	8,219,000	8,152,000	2,648,000	1,261,000	1,387,000	2,306,000	1,095,000	1,212,000
25-29 years	16,835,000	8,339,000	8,496,000	14,722,000	7,366,000	7,356,000	2,113,000	973,000	1,141,000	1,783,000	825,000	958,000
30-34 years	13,926,000	6,856,000	7,071,000	12,155,000	6,044,000	6,111,000	1,772,000	812,000	960,000	1,481,000	675,000	806,000
35-39 years	11,577,000	5,626,000	5,950,000	10,123,000	4,973,000	5,150,000	1,454,000	653,000	801,000	1,257,000	565,000	693,000
40-44 years	11,169,000	5,453,000	5,716,000	9,776,000	4,820,000	4,956,000	1,393,000	633,000	760,000	1,195,000	544,000	651,000
45-49 years	11,781,000	5,720,000	6,062,000	10,434,000	5,095,000	5,339,000	1,348,000	625,000	723,000	1,168,000	543,000	624,000
50-54 years	11,978,000	5,761,000	6,217,000	10,730,000	5,180,000	5,550,000	1,248,000	582,000	667,000	1,098,000	510,000	588,000
55-59 years	10,535,000	5,024,000	5,511,000	9,521,000	4,553,000	4,968,000	1,014,000	471,000	543,000	908,000	419,000	489,000
60-64 years	9,239,000	4,319,000	4,920,000	8,345,000	3,907,000	4,438,000	894,000	411,000	482,000	812,000	368,000	444,000
65-69 years	8,098,000	3,585,000	4,513,000	7,270,000	3,220,000	4,049,000	829,000	365,000	464,000	765,000	329,000	436,000
70-74 years	5,777,000	2,445,000	3,333,000	5,298,000	2,226,000	3,072,000	480,000	218,000	261,000	420,000	187,000	233,000
75-79 years	4,002,000	1,573,000	2,429,000	3,685,000	1,435,000	2,248,000	319,000	138,000	181,000	273,000	116,000	157,000
80-84 years	2,649,000	960,000	1,689,000	2,432,000	874,000	1,558,000	217,000	86,000	131,000	193,000	75,000	118,000
85 years and over	1,877,000	613,000	1,264,000	1,703,000	549,000	1,154,000	174,000	64,000	110,000	152,000	53,000	99,000

Source: U.S. Bureau of the Census: Estimates of population of the United States, by age, race, and sex, July 1, 1975, Current Population Reports, Series P-25, No. 643.

Table 6-3. Estimates of Total Resident Population, by Age, for the United States, Each Division and State, Guam, Puerto Rico, and Virgin Islands: July 1, 1975

[Figures include Armed Forces stationed in each area, and exclude Armed Forces stationed outside the United States. Due to rounding to the nearest thousand, detailed figures may not add to totals]

Division and State	Total	Under 5 years	5-19 years	20-44 years	45-64 years	65 years and over
United States	213,032,000	15,882,000	58,686,000	72,526,000	43,534,000	22,405,000
Geographic divisions:						
New England	12,198,000	804,000	3,343,000	4,099,000	2,583,000	1,370,000
Middle Atlantic	37,263,000	2,494,000	9,858,000	12,336,000	8,402,000	4,174,000
East North Central	40,979,000	3,109,000	11,601,000	13,922,000	8,270,000	4,077,000
West North Central	16,690,000	1,198,000	4,647,000	5,503,000	3,301,000	2,042,000
South Atlantic	33,715,000	2,553,000	9,167,000	11,594,000	6,803,000	3,594,000
East South Central	13,544,000	1,107,000	3,800,000	4,539,000	2,658,000	1,440,000
West South Central	20,856,000	1,753,000	5,893,000	7,115,000	3,984,000	2,109,000
Mountain	9,645,000	839,000	2,804,000	3,338,000	1,815,000	845,000
Pacific	28,234,000	2,038,000	7,604,000	10,122,000	5,725,000	2,746,000
New England:						
Maine	1,059,000	79,000	298,000	340,000	217,000	125,000
New Hampshire	818,000	60,000	229,000	281,000	160,000	87,000
Vermont	471,000	36,000	136,000	161,000	87,000	52,000
Massachusetts	5,828,000	373,000	1,589,000	1,965,000	1,229,000	672,000
Rhode Island	927,000	62,000	247,000	298,000	207,000	113,000
Connecticut	3,095,000	194,000	844,000	1,054,000	683,000	321,000
Middle Atlantic:						
New York	18,120,000	1,221,000	4,761,000	6,111,000	3,997,000	2,030,000
New Jersey	7,316,000	491,000	1,977,000	2,416,000	1,666,000	767,000
Pennsylvania	11,827,000	782,000	3,120,000	3,809,000	2,739,000	1,377,000
East North Central:						
Ohio	10,759,000	815,000	3,017,000	3,655,000	2,206,000	1,066,000
Indiana	5,311,000	417,000	1,504,000	1,813,000	1,047,000	531,000
Illinois	11,145,000	843,000	3,069,000	3,770,000	2,310,000	1,153,000
Michigan	9,157,000	711,000	2,676,000	3,155,000	1,799,000	815,000
Wisconsin	4,607,000	323,000	1,335,000	1,529,000	908,000	512,000
West North Central:						
Minnesota	3,926,000	279,000	1,142,000	1,332,000	733,000	440,000
Iowa	2,870,000	199,000	803,000	921,000	583,000	364,000
Missouri	4,763,000	344,000	1,282,000	1,575,000	961,000	601,000
North Dakota	635,000	48,000	186,000	202,000	126,000	73,000
South Dakota	683,000	53,000	197,000	210,000	138,000	85,000
Nebraska	1,546,000	115,000	428,000	507,000	302,000	194,000
Kansas	2,267,000	160,000	609,000	756,000	458,000	285,000
South Atlantic:						
Delaware	579,000	43,000	166,000	205,000	115,000	50,000
Maryland	4,098,000	281,000	1,169,000	1,475,000	832,000	340,000
District of Columbia	716,000	52,000	178,000	273,000	141,000	71,000
Virginia	4,967,000	365,000	1,386,000	1,804,000	988,000	424,000
West Virginia	1,803,000	139,000	474,000	576,000	403,000	211,000
North Carolina	5,451,000	433,000	1,508,000	1,939,000	1,079,000	492,000
South Carolina	2,818,000	243,000	823,000	996,000	527,000	229,000
Georgia	4,926,000	423,000	1,407,000	1,752,000	914,000	430,000
Florida	8,357,000	574,000	2,056,000	2,574,000	1,804,000	1,347,000
East South Central:						
Kentucky	3,396,000	270,000	944,000	1,142,000	672,000	369,000
Tennessee	4,188,000	323,000	1,129,000	1,449,000	846,000	441,000
Alabama	3,614,000	295,000	1,023,000	1,203,000	715,000	378,000
Mississippi	2,346,000	219,000	704,000	745,000	425,000	253,000
West South Central:						
Arkansas	2,116,000	170,000	574,000	674,000	427,000	271,000
Louisiana	3,791,000	326,000	1,147,000	1,274,000	697,000	346,000
Oklahoma	2,712,000	208,000	714,000	905,000	551,000	334,000
Texas	12,237,000	1,049,000	3,458,000	4,262,000	2,309,000	1,158,000
Mountain:						
Montana	748,000	58,000	217,000	245,000	153,000	75,000
Idaho	820,000	73,000	239,000	268,000	161,000	79,000
Wyoming	374,000	31,000	106,000	126,000	77,000	33,000
Colorado	2,534,000	196,000	715,000	946,000	466,000	210,000
New Mexico	1,147,000	103,000	357,000	388,000	208,000	90,000
Arizona	2,224,000	197,000	632,000	743,000	428,000	223,000
Utah	1,206,000	135,000	372,000	411,000	197,000	91,000
Nevada	592,000	46,000	166,000	211,000	125,000	44,000
Pacific:						
Washington	3,544,000	249,000	977,000	1,254,000	699,000	365,000
Oregon	2,288,000	162,000	607,000	784,000	477,000	259,000
California	21,185,000	1,517,000	5,659,000	7,619,000	4,334,000	2,056,000
Alaska	352,000	35,000	115,000	143,000	50,000	9,000
Hawaii	865,000	75,000	246,000	322,000	165,000	57,000
Guam	98,500	---	---	---	---	---
Puerto Rico	3,096,000	---	---	---	---	---
Virgin Islands	95,100	---	---	---	---	---

[1]Excludes Guam, Puerto Rico, and Virgin Islands.

Source: U.S. Bureau of the Census: Current Population Reports, Series P-25, Nos. 643 and 619, and official records.

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