

## **1997 ADDENDUM TO "TECHNICAL APPENDIX" OF VITAL STATISTICS OF THE UNITED STATES: MORTALITY, 1995**

To assist the users of the mortality public-use data tapes and CD-ROMs, attached is a copy of the "Technical Appendix" of the *Vital Statistics of the United States: Mortality, 1995*. This technical appendix provides certain qualifications that are essential to using, analyzing, and interpreting the data on those tapes and CD-ROMs. Certain modifications to the technical appendix are essential to make it applicable to the mortality file for the 1997 data year. Those modifications include the following:

### **I. Sources of data**

#### **State-coded medical data**

1996  
Utah

For 1997, of the States in the VSCP, 42 States submitted precoded medical data for all death certificates in the form of electronic data files. Of these 42 States, Maine, Montana, and North Dakota contracted with a private company to provide NCHS with precoded medical data. The remaining eight VSCP States, New York City, and the District of Columbia submitted copies of the original certificates from which NCHS coded the medical data.

For 1997, approximately 29 percent of the Nation's death records were multiple-cause coded using SuperMICAR and 71 percent using MICAR. This represents data from 22 States which was coded by SuperMICAR and data from 28 States, the District of Columbia, and New York City which was coded by MICAR.

All States submitted precoded demographic data for all death certificates in the form of electronic data files in 1997.

Data for Puerto Rico, the Virgin Islands, and Guam have been included on the mortality public-use data tapes since 1994. Data for American Samoa are included for the first time for 1997.

### **II. Classification of data**

#### **A. Race**

Death certificates for some States have a checkbox for “multi-racial”. Some States are mandated by law to code “multi-racial” as a separate category. For these States, death records with an entry of “multi-racial” but without a specified racial entry or entries were assigned to the specified race of the previous record. States not mandated to code “multi-racial” may code “multi-racial” in the same way as mandated States or may code “multi-racial” to "Other entries." For death records where race is coded to "Other entries", if origin is Hispanic and the place of birth is Puerto Rico, Cuba or Mexico, the race is assigned as White. Otherwise, except for Puerto Rico, death records with race coded to "Other entries" were assigned to the specified race of the previous record with known race. For Puerto Rico, if race is coded to "Other entries", race is assigned to "Other races."

## **B. Hispanic origin**

For 1997, data by Hispanic origin include, for the first time, all 50 States and the District of Columbia .

*Infant mortality*--Infant mortality data by Hispanic origin are based on deaths to residents of the entire United States.

Infant mortality rates by Hispanic origin are biased because of inconsistencies in reporting Hispanic or ethnic origin between the birth and death certificates for the same infant. Estimates of reporting bias may be made by comparing rates based on the linked file of infant deaths and live births<sup>1</sup> with those where the Hispanic or ethnic origin of infant death is based on information from the death certificate<sup>2</sup>. Infant mortality rates by Hispanic origin are less subject to reporting bias when based on linked files of infant deaths and live births<sup>1</sup>.

## **C. Educational attainment**

Deaths by educational attainment have been included on the public-use data tapes since 1989. It is recommended for 1997 that analyses of educational attainment data include deaths to residents of 46 States and the District of Columbia whose data were approximately 80 percent or more complete on a place-of-occurrence basis. Although data for Kentucky are included on the data tape, they would be excluded from analyses because more than 20 percent of their death certificates were classified to “unknown educational attainment.” Data for Georgia, Rhode Island, and South Dakota were excluded from the data tape because their death certificates did not include an educational attainment item.

Death rates for educational attainment are based on population estimates derived from the U.S. Bureau of the Census’ Current Population Survey (CPS) and adjusted to resident

population control totals. As a result, the rates are subject to the variability of the denominator as well as the numerator. Computation of the relative standard errors, 95-percent confidence intervals, and statistical tests are discussed in the Technical notes of the National Vital Statistics Reports <sup>2</sup>.

Death rates for educational attainment may be biased for the following three reasons: 1) because of inconsistencies in reporting between the death certificates and the CPS for decedents; 2) because of a change in the basic item used to collect data about education in the CPS; and 3) because of possible under-enumeration of the population estimates (there have been no studies evaluating this potential bias).

In the National Longitudinal Mortality Survey (NLMS) a total of 9,257 death certificates were compared with responses to educational attainment questions from a total of 12 CPS's conducted by the U.S. Bureau of the Census for data year 1989 <sup>3</sup>. Based on the results of this study and after proportionally allocating the "unknown education" on the death certificate, the ratio of CPS deaths having reported less than a high school education (grades 0-11) to death certificate deaths having reported less than high school education was about 1.37. This indicates that the number of deaths and death rates for decedents having less than high school education are biased downward in the vital statistics data by about 37 percent. Similarly, the corresponding ratios for having completed high school (grade 12) and having completed more than high school (grades 13 and more) are 0.70 and 0.87 respectively.

In the CPS, the item used to collect education information was changed in 1992 from:

23a) What is the highest grade or year of regular school ... has ever attended?;

23b) Did ... complete that grade (year?); Yes, No

to:

23) What is the highest level of school ... has completed or the highest degree ... has received?

Based on a Bureau of the Census study <sup>4</sup>, the ratio of population estimates derived from the "old" educational attainment definition for less than a high school education (grades 0-11) to population estimates derived from the "new" definition for less than high school education was about 0.99. This indicates that the death rates for decedents having less than high school education are biased upward in the vital statistics data by about 1 percent. Similarly, the corresponding ratios for having completed high school (grade 12) and having completed more than high school (grades 13 and more) were 1.15 and 0.93 respectively.

Accounting for both the inconsistency in reporting between the death certificates and the CPS for decedents and the change in the definition of education population estimates may be accomplished simultaneously by combining the above ratios. The combined ratio for less than high school is about 1.36 (1.37 x .99), for high school about 0.81 (0.70 x 1.15), and for more than high school about 0.81 (0.87 x .93). These ratios may vary by age, sex, race/Hispanic origin, cause of death, and geographic area.

#### **D. Occupation and industry**

For 1997, the occupation and industry mortality data were included for the following 16 reporting States:

Colorado	North Carolina
Georgia	Ohio
Idaho	Rhode Island
Kansas	South Carolina
Kentucky	Utah
Nevada	Vermont
New Jersey	West Virginia
New Mexico	Wisconsin

#### **E. Quality of data**

*California death confirmations*--Selected causes of death considered to be of public health concern are routinely confirmed by the States according to agreed upon procedures between the State vital statistics programs and the National Center for Health Statistics<sup>5,6,7</sup>. For 1997, the State of California did not confirm deaths from the following causes (number of deaths shown in parentheses after cause):

Giardiasis (1); Brucellosis (1); Leprosy (1); Whooping cough (1); Tetanus (1); Schistosomiasis (1); Other cestode infection (8); Congenital rubella (1).

### **III. Population bases for computing rates**

The population used for computing death rates (furnished by the U.S. Bureau of the Census) represents the population residing in the specified area. Population estimates used for computing rates by age, sex, race, Hispanic origin, and non-Hispanic origin for the United States for 1997 are based on population estimates as of July 1, 1997<sup>8</sup> (available upon

request). The estimates are based on demographic analysis and, therefore, are not subject to sampling variability.

Population estimates used for computing death rates by specified Hispanic origin, race for non-Hispanic origin, age, and sex for the United States are as of July 1, 1997<sup>9</sup> (available upon request). The estimates for Mexicans, Puerto Ricans, Cubans, and Other Hispanics are based on the CPS adjusted to resident population control totals and, therefore, are subject to sampling error (see Technical Appendix from *Vital Statistics of the United States: Mortality, 1995*).

Population estimates used for computing death rates by marital status, age, race, and sex for the United States<sup>9</sup> are as of July 1, 1997 and are available upon request. Population estimates used for computing death rates by marital status, age, Hispanic origin, race for non-Hispanic origin, and sex for the United States<sup>9</sup> are as of July 1, 1997 and are also available upon request. The population estimates for never married, married, widowed, and divorced and for Mexicans, Puerto Ricans, Cubans, and Other Hispanics are based on the CPS adjusted to resident population control totals and, therefore, are subject to sampling error (see Technical Appendix from *Vital Statistics of the United States: Mortality, 1995*).

Population estimates used for computing death rates by educational attainment, age, and sex for the total of 46 States and the District of Columbia are presented in table IV of the Technical notes of the “Report of Final Mortality Statistics”<sup>2</sup>. These estimates are based on the CPS adjusted to resident population control for the 46 States and the District of Columbia.

Population estimates for each State, Puerto Rico, Virgin Islands, Guam, and American Samoa<sup>10-14</sup> are presented in table V of the Technical notes of the “Report of Final Mortality Statistics”<sup>2</sup>. These estimates are based on demographic analysis, and therefore, are not subject to sampling variability.

All population estimates for 1997 are based on the 1990 census level counts that were modified by age, race, and sex to be consistent with the U.S. Office of Management and Budget categories and historical categories for death data<sup>15</sup>.

## References

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8. U.S. Bureau of the Census. U.S. population estimates, by age, sex, race, and Hispanic origin: 1990 to 1997. PPL-91R. Washington, DC. 1998.
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13. U.S. Bureau of the Census. Unpublished Census file GUAM.WK4.
14. U.S. Bureau of the Census. Unpublished Census file ASAMOA.WK4.
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