CRUDE DEATH RATE

1. Definition:
CRUDE DEATH RATE is the total number of deaths to residents in a specified geographic area (country, state, county, etc.) divided by the total population for the same geographic area (for a specified time period, usually a calendar year) and multiplied by 100,000.

2. Calculation:

$$\frac{\text{Total Resident Deaths}}{\text{Total Population}} \quad X \quad 100{,}000$$

3. Examples:

15,231 total deaths in New Mexico during calendar year 2006.
2,010,787 = estimated 2006 mid-year population for New Mexico.

(15,231 / 2,010,787) x 100,000 = 757.5 resident deaths per 100,000 population in 2006 in New Mexico

119,110 total resident deaths in Kentucky during calendar years 2003, 2004, 2005.
12,427,524 = sum of estimated 2003, 2004, 2005 mid-year populations.
958.4 deaths per 100,000 population (person-years at risk) during calendar years 2003, 2004, 2005 in Kentucky.

5,364 average annual all-cause deaths in Salt Lake County, Utah during calendar years 2006 & 2007. 1,007,639 – average annual estimated 2006, 2007 mid-year populations. 532.3 deaths per 100,000 population (person-years at risk) in Salt Lake County, Utah during calendar years 2006 & 2007.

4. Technical Notes:

- The crude mortality rate is a very general indicator/index of the health status of a geographic area or population.
- This type of crude rate is not appropriate for comparison of different populations or areas due to the significant impact of age in mortality data and different age-distributions in different populations. Age-adjusted mortality rates should be used for comparative analysis.
- The term in the denominator is labeled “total population,” but is technically known as the “person-years at risk.” If the numerator uses the sum of the number of deaths across multiple years, the denominator should use the sum of the population over the same years. Alternatively, one could use the average annual deaths in the numerator and either the average annual population to represent person-years at risk, or the population in a single year in the middle of the time period.
- More detailed information on crude death rates is available at *Statistical Notes for Health Planners. No. 3. Mortality*. Kleinman, J. C. February 1977. 16 pp. (HRA) 77-1237.

- The Division of Vital Statistics (DVS) at NCHS follows standards for use of the terms “death rate” and “mortality rate” in naming and reporting common vital statistics rates for deaths. The NAPHSIS standard measures shown here follow the DVS standards, primarily to maintain consistency with DVS for naming conventions. Please note that states/registration areas and other federal government organizations within and outside NCHS/CDC may not follow the DVS standards when naming and reporting death/mortality rates.
    - According to DVS standards, the following naming conventions are used for the common vital statistics rates for deaths:

Mortality Rates	Death Rates
Infant Mortality Rate	Crude Death Rate
Neonatal Mortality Rate	Age-Specific Death Rate
Postneonatal Mortality rate	Cause-Specific Death Rate
Perinatal Mortality Rate	Age-Adjusted Death Rate
Fetal Mortality Rate	
Maternal Mortality Rate	

- A crude death rate has four components:
    1. A specified measurement period.
    2. The numerator, the number of deaths that occurred in a specified geographic area during a given period of time, and
    3. The denominator, the total number of people in the population at risk in the same geographic area for the same period of time ("person-years at risk"). The population estimate used is typically the mid-year (July 1) population count estimate for the same year(s) included in the numerator.
    4. A constant. The result of the fraction is usually multiplied by some factor of 10 (such as 100,000), so that the rate may be expressed as a whole number.