Public Health 241
Assignment 1

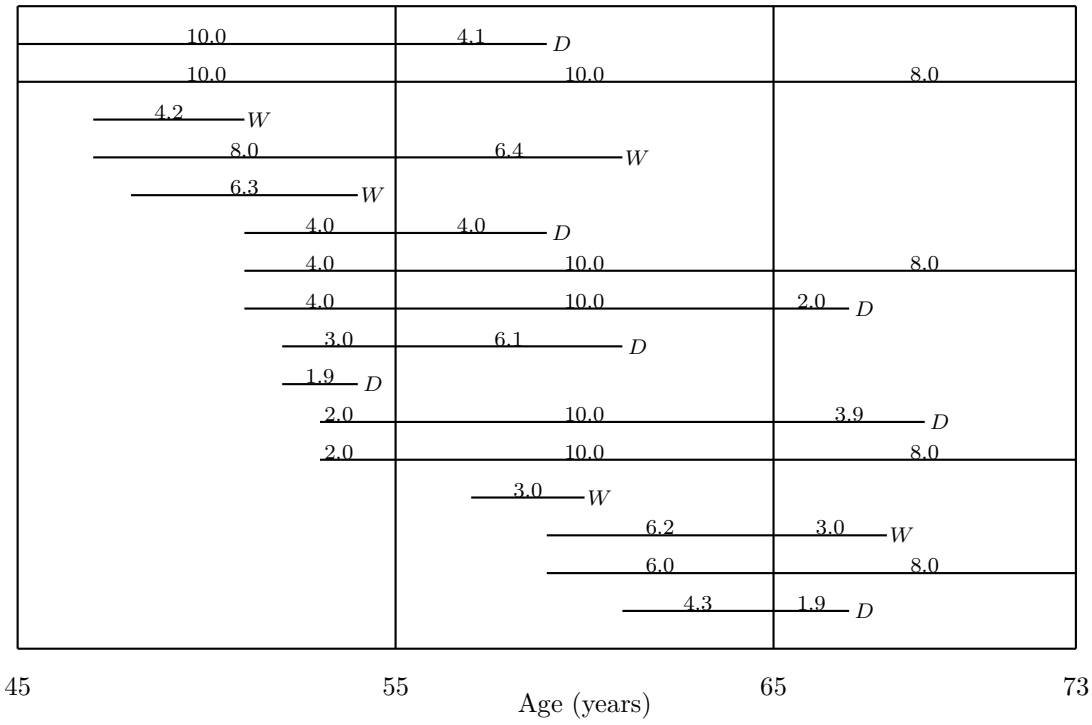
1. The figure below illustrates observations on 16 individuals in a study of a particular chronic disease that one can only contract once (i.e. assume that those with the disease are no longer at risk of developing it). The horizontal axis represents time on an age scale. Subjects are arranged according to their age at entry to the study. D denotes incidence of the disease, and W denotes withdrawal for a variety of reasons (e.g. death from another cause). For example, the first subject entered the study at age 45 and then developed the disease at age 59.1. For this population, calculate the following quantities:

   (a) The incidence proportion for the disease between the ages of 45 and 55.

   (b) The incidence proportion between (i) the ages of 55 and 65 and (ii) the ages of 65 and 73.

   (c) The incidence rate for the interval (i) ages 45 to 55, (ii) ages 55 to 65, and (iii) ages 65 to 73.

   Comment on your findings.



2. Indicate whether each of the following computed indices should be considered a point prevalence, an incidence proportion, or an incidence rate:

   (a) The number of children under the age of 10 in the US who were deaf on July 1, 2000, divided by the number of children in the US under the age of ten on July 1, 2000.

   (b) The number of males in California who were between the ages of 40 and 49 on January 1, 2007, and who developed coronary heart disease (CHD) between January 1, 2007, and December 31, 2007, divided by the number of males in California who were between the ages of 40 and 49 and free of CHD on January 1, 2007.

   (c) The number of couples who got married in California in 2007 and had more than $10,000 in combined credit card debt at the time of the wedding divided by the number of couples who got married in California in 2007.

3. The table below summarizes the vital status of all births in the United States in 1991 one year after the date of birth, categorized by whether or not the infant had low or normal birthweight. Suppose an infant is selected randomly from this population. Compute the probability that the infant

   (a) had low birthweight;

   (b) died within one year of the date of birth;

   (c) died within one year of the date of birth given that the infant had normal birthweight.

   (d) died within one year of the date of birth given that the infant had low birthweight;

   Comment on the possibility of an association between low birthweight and the risk of mortality within the first year of life.

	Birthweight		
Infant Mortality	Low Birthweight	Normal Birthweight	Total
Dead at Year 1	21,054	14,442	35,496
Alive at Year 1	271,269	3,804,294	4,075,563
Total	292,323	3,818,736	4,111,059

4. In a sample of 500 infants drawn from the population above, 32 infants had low birthweight. Construct an approximate 95% confidence interval for the proportion of infants born in the United States in 1991 who had low birthweight (use the simpler method discussed in section 3.3). Would it be correct to say that there is a 95% chance that the true proportion is contained in this interval?