

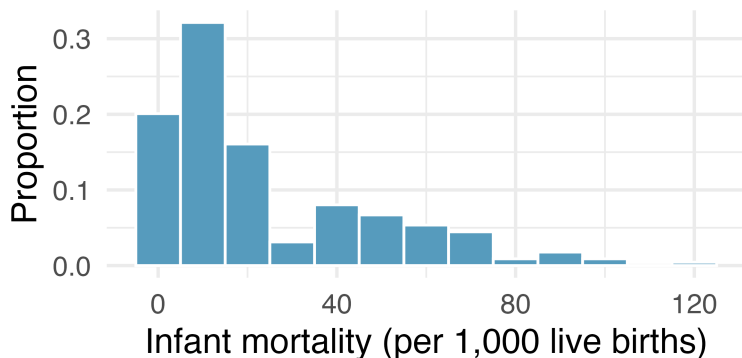
Numerical data (part 2)

Practice problems

9/18/24

Please work on the practice problems in your group. At least one of the following problems will be assigned to the weekly problem set.

1. The statistic $\frac{\bar{x}}{m}$ can be used as a measure of skewness. Suppose we have a distribution where all observations are greater than 0 (i.e. $x_i > 0$ for all observations $i = 1, \dots, n$). What is the expected shape of the distribution under the following conditions? Explain your reasoning.
 - a. $\frac{\bar{x}}{m} = 1$
 - b. $\frac{\bar{x}}{m} > 1$
 - c. $\frac{\bar{x}}{m} < 1$
2. The infant mortality rate is defined as the number of infant deaths per 1,000 live births. This rate is often used as an indicator of the level of health in a country. The relative frequency histogram below shows the distribution of estimated infant death rates for 224 countries for which such data were available in 2014:



- a. Estimate Q_1 , the median m , and Q_3 from the histogram.

- b. Would you expect the mean of this dataset to be smaller or larger than the median?
Explain your reasoning.