

Data Interpretation Guide

Some Data Definitions

Mean (also called the average) is equal to the sum of all measurements, divided by the number of measurements contained in a data set. For example, to calculate the mean of 50, 35, 41, and 68, first determine the sum of $50+35+41+68$, which is 194. Then divide by 4. The mean is 48.5.

Median is the middle of a data set. It is determined by arranging the data set in numeric order.

- With an odd number of data measurements, the median is the middle number. For example, the median of 6, 6, 7, 8, and 100 is 7, the middle data point.
- With an even number of measurements, the median is an average of the middle two data points. For example, the median of 6, 6, 7, 8, 8, and 100 is 7.5.

Median is often used with income data since very unusual numbers at one end of the data set can skew the measure of a typical income. For example, assume the wages per hour of several workers were

\$6 \$6 \$7 \$8 \$100

The median income of this group would be \$7.00.

The mean income of this group is \$25.40 and is heavily influenced by the presence of the one highly paid worker.

Rates indicate how common an event is in the population being studied. For example, consider a birth rate. If there were 203 births last year in your county to females ages 15-44 and 5,775 females ages 15-44, then you would calculate the birth rate as follows:

$$\frac{203 \text{ births to females ages 15-44}}{5,775 \text{ females ages 15-44}} = .0351515 \times 1,000 = 35 \text{ births per 1,000 females 15-44}$$

Percent is a rate per 100. To calculate a percent, divide the number of occurrences in a group by the population you are examining and multiply by 100. For example, if you wanted to know the percent of your county's 997 children enrolled in an educational program and there were 512 children enrolled,

$$\frac{512}{997} = .5135 \times 100 = 51.35\%$$

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A Caution about Drawing Conclusions

Small Numbers. Use caution when dealing with small numbers. Small changes in a small number of events from year to year will produce large percentage or rate changes, making the differences appear more important than they are in reality. In addition, depending on the size of a population, a small number of events can produce large percentages or rates. Thus, rates and percentages may vary considerably from county to county without reflecting significant differences.

Small percentages or rates also may appear in subareas of large populations. In these cases, hundreds of children could be represented by a low percentage or rate. It is important to consider raw numbers as well as rates to avoid overlooking large numbers of at-risk children.

Comparisons. When comparing trends over time or data from various locations make certain the data you are looking at are comparable. Here are some things to consider when making comparisons:

- What is the age of the group studied?
- Am I looking at a raw number, an average, or a rate?
- Are the data collected in the same way in each location?
- What is the time period of the data?
 - Annual year? Fiscal year? Calendar year?
- Are the variables defined the same way in each location?
- Has there been a change in the definitions over time?

A final note. All data are tools that should be used in combination with other resources. We encourage you to examine all data, charts, and tables carefully and to be informed about their origin and sources of information.

