

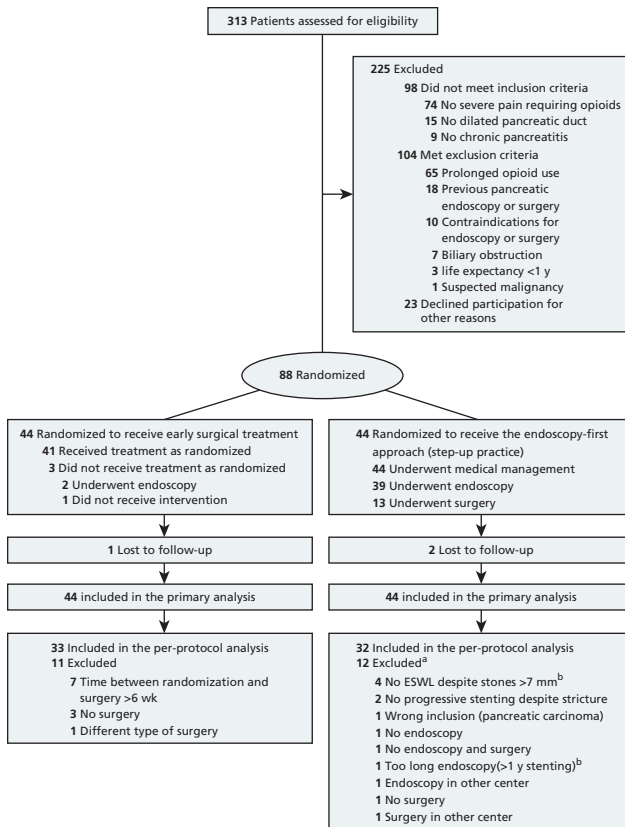
Figure Types Quiz

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ANSWER KEY

Directions: Select the proper figure type for the following examples.

1.



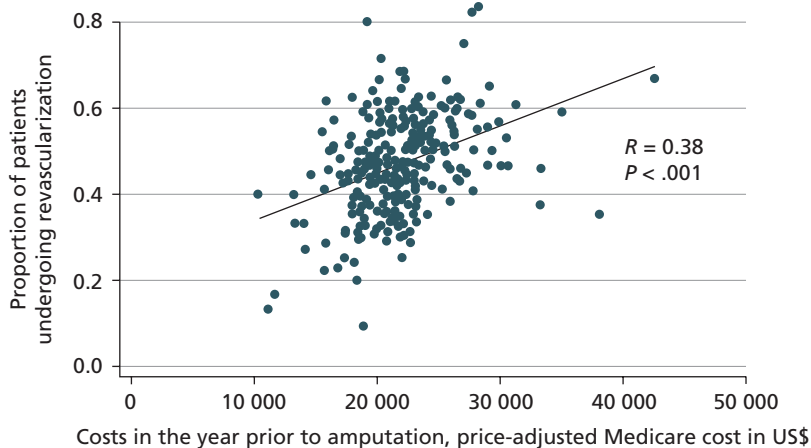
- a. Pedigree
- b. CONSORT flowchart
- c. Algorithm
- d. Decision tree

ANSWER: b. CONSORT flowchart

Editor’s Note: CONSORT flowcharts are used to demonstrate participant recruitment and follow-up in randomized clinical trials (§4.2.2.1, Flowcharts).



2.

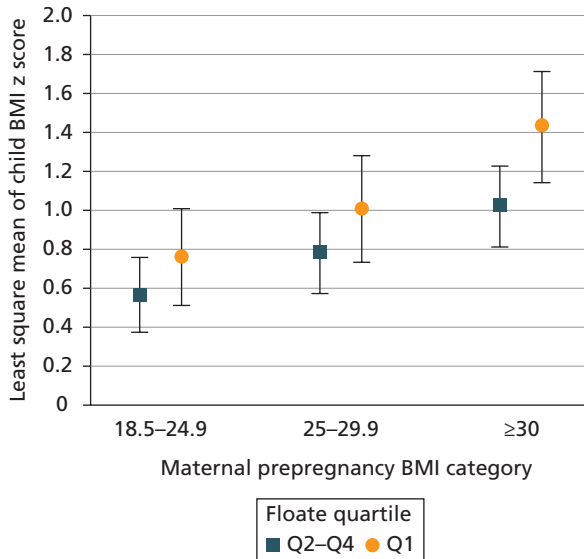


- Line graph
- Frequency polygon
- Scatterplot
- Dot graph

ANSWER: c. Scatterplot

Editor's Note: Scatterplots, graphs that represent bivariate data as points on a 2-dimensional cartesian plane, are useful to convey an overall impression of the relationship between 2 variables. In scatterplots, individual data points are plotted according to coordinate values with continuous x- and y-axis scales. By convention, independent variables are plotted on the x-axis and dependent variables on the y-axis. Data markers are not connected by a curve, but a curve that is generated mathematically may be fitted to the data (not connecting any points but drawn through "the center") to summarize the relationship among the variables. The statistical method used to generate the curve and the statistic that summarizes the relationship or association between the dependent and independent variables, such as a correlation or regression coefficient, should be provided in the figure or legend along with the sample size, the P value for the slope of the line, and some indication of how the P value was derived (§4.2.1.3, Scatterplots).

3.

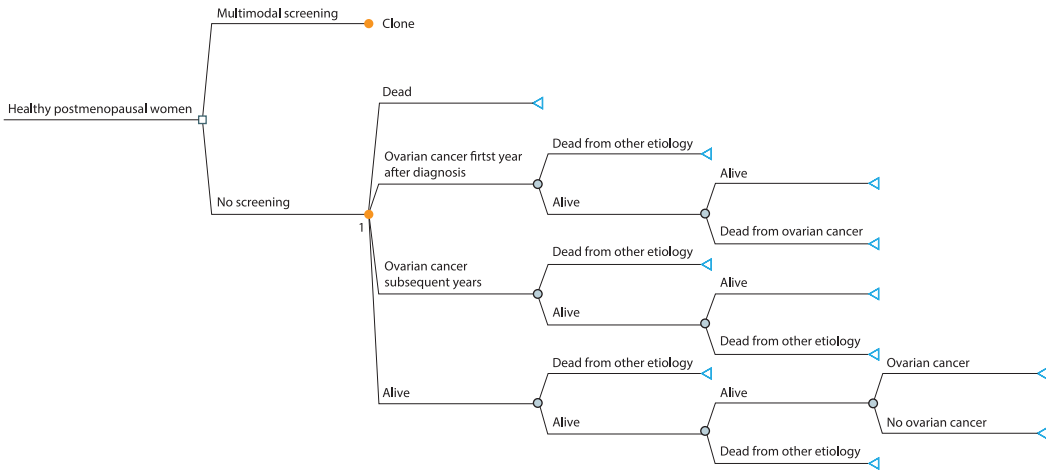


- a. Line graph
- b. Frequency polygon
- c. Scatterplot
- d. Dot plot

ANSWER: d. Dot plot

Editor's Note: Dot or point graphs display quantitative data other than counts or frequencies on a single scaled axis according to categories on a baseline (the scaled axis may be horizontal or vertical). Point estimates are represented by discrete data markers, preferably with error bars (in both directions) to designate variability. Note that error bars are drawn in both directions (§4.2.1.7, Dot [Point] Graphs).

4.

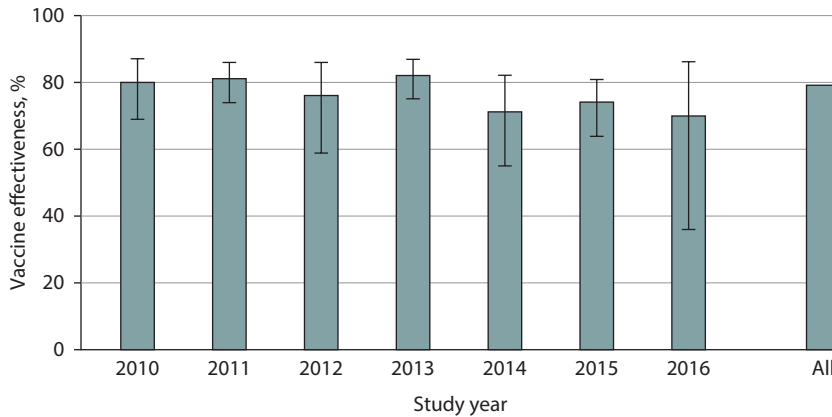


- a. Pedigree
- b. CONSORT flowchart
- c. Algorithm
- d. Decision tree

ANSWER: d. Decision tree

Editor’s Note: Decision trees are analytical tools used in cost-effectiveness and decision analyses. The decision tree displays the logical and temporal sequence in clinical decision-making and usually progresses from left to right. A decision node is a point in the decision tree at which several alternatives can be selected and, by convention, is designated by a square. A chance node (probability node) is a point in the decision tree at which several events, determined by chance, may occur and, by convention, is designated by a circle (§4.2.2.2, Decision Trees).

5.



a. Bar graph

b. Histogram

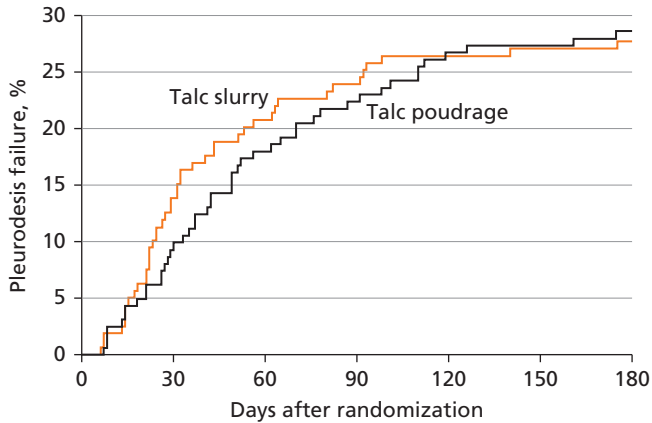
c. Component bar graph

d. Box plot

ANSWER: a. Bar graph

Editor's Note: Bar graphs are used to display frequencies (counts or percentages) according to categories shown on a baseline or x-axis. Bar graphs also allow subcategories, making it easy to compare within and between categories. Bar graphs are less ideal for showing trends over time because readers must visually connect the tops of the bars. Bar graphs are not appropriate for representing summary statistics (eg, means with SDs or odds ratios with 95% CIs). A bar graph is often vertical, with frequencies shown on a vertical axis. A horizontal arrangement has advantages when the categories have long titles or when there are a large number of categories and there is insufficient space to fit all the columns required for a vertical bar chart. Data in each category are represented by a bar. Bars should have the same width, be separated by a space, and be wider than the space between them. Bar lengths are proportional to frequency, the scale on the frequency axis should begin at 0, and the axis should not be broken. All bars must have a common baseline to facilitate comparison. Categories of data should be presented in logical order and be consistent with other figures and tables in the article. The baseline of a bar graph is not a coordinate axis and therefore should not have tick marks. If the data plotted are percentages or rates, use error bars to show statistical variability. Because variability (error) is not always symmetrical around the values plotted, error bars should be plotted in both directions (not just above the values) (§4.2.1.5, Bar Graphs).

6.



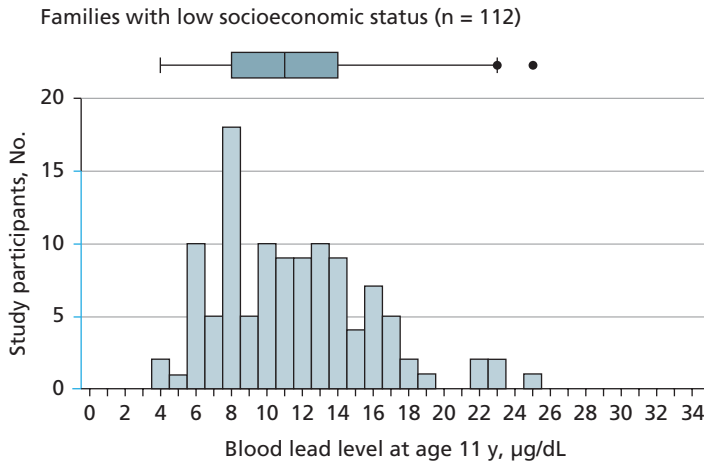
No. at risk							
Talc slurry	159	137	126	121	117	116	115
Talc poudrage	161	146	132	125	118	117	115

- Line graph
- Dot graph
- Frequency polygon
- Survival plot

ANSWER: d. Survival plot

Editor's Note: Survival plots of time-to-event outcomes, such as those from Kaplan-Meier survival analyses, display the proportion or percentage of individuals, represented on the y-axis, remaining free of or experiencing a specific outcome over time, represented on the x-axis. When the outcome of interest is relatively frequent (eg, occurs in approximately $\geq 70\%$ of the study population), event-free survival may be plotted on the y-axis from 1.0 (100%) to 0.0 (0%), with the curve starting at 1.0 (100%). When the outcome is relatively infrequent (eg, occurs in $< 30\%$ of the study population), it may be preferable to plot upward starting at 0 so that the curves, which plot cumulative incidence, can be seen without breaking or truncating the y-axis scale. The curve should be drawn as a step function (not smoothed), and the y-axis label should specify the outcome plotted (eg, survival or disease recurrence). The number of individuals included in the analysis at each interval (number at risk) should be shown underneath the x-axis (§4.2.1.2, Survival Plots).

7.

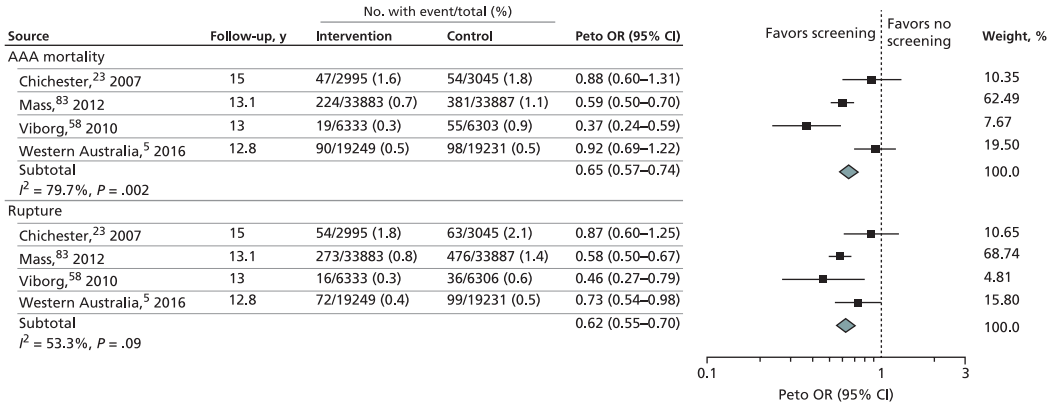


- Bar graph
- Histogram**
- Component bar graph
- Box plot

ANSWER: b. Histogram

Editor's Note: Histograms and frequency polygons display the distribution of data in a data set by plotting the frequency (count or percentages) of observations (on the y-axis) for each interval represented on the x-axis. In both histograms and frequency polygons, the y-axis must begin at 0 and should not be broken, and the x-axis is a continuous, quantitative scale. Histograms are plotted with continuous bars of equal width determined by the x-axis intervals, in which bar height represents frequency (counts or percentages) so long as the bars are of equal width. No spacing is used between bars—they are either closed up or separated with a very thin white line (§4.2.1.4, Histograms and Frequency Polygons).

8.



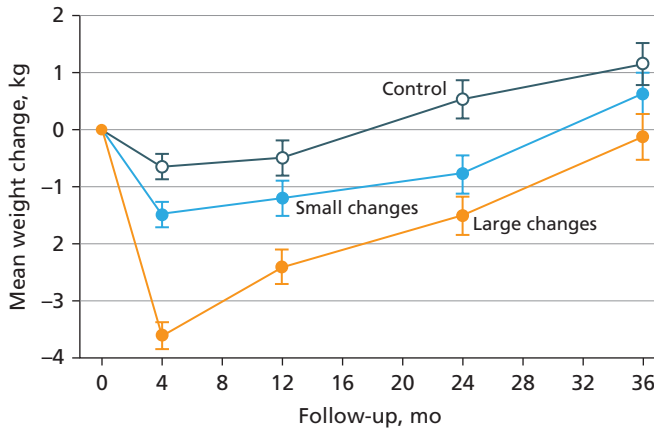
a. Forest plot

- b. Dot graph
- c. Box and whisker plot
- d. Survival plot

ANSWER: a. Forest plot

Editor’s Note: The results of meta-analyses and systematic reviews are often presented in summary figures known as forest plots. Forest plots—the graphical display of individual study results and, usually, the weighted mean of studies included in a meta-analysis—are one way of summarizing the review’s results for a specific outcome. In these figures, the estimated effects (and 95% CIs) are presented both tabularly and graphically. The first column typically lists the sources of the data, most often published studies along with their publication years and citations (which should appear in the reference list of the meta-analysis with links to the originals). The sources should be listed in a meaningful order, such as by date or duration of follow-up. The plot portion allows readers to see the information from the individual studies at a glance. It provides a simple visual representation of the amount of variation among the results of the studies, as well as an estimate of the overall result of all the studies together. Various conventions are used in forest plots, including proportionally sized boxes to represent the weight of each study in the meta-analysis and the use of a diamond to show the overall effect at the bottom of the plot. It is important to include headers at the top of the plot to the left and right of the effect size or point estimate line to indicate which variables, interventions, or outcomes are favored. Values plotted are also provided in the odds ratio (OR) column. The dotted line at 1.0 represents no effect and allows for quick visualization of the effect of each study listed. In most cases, forest plots should be plotted on a log scale, which are useful for presenting rates of change and are presented such that 2 equal distances represent the same percentage change. For example, the distance on the x-axis between the ticks labeled 1 and 2 would be the same length as between the ticks labeled 2 and 4. Log scales begin at 1 (or a proportion thereof), not 0, and do not plot negative values (§4.2.1.11, Forest Plots).

9.



a. Line graph

b. Frequency polygon

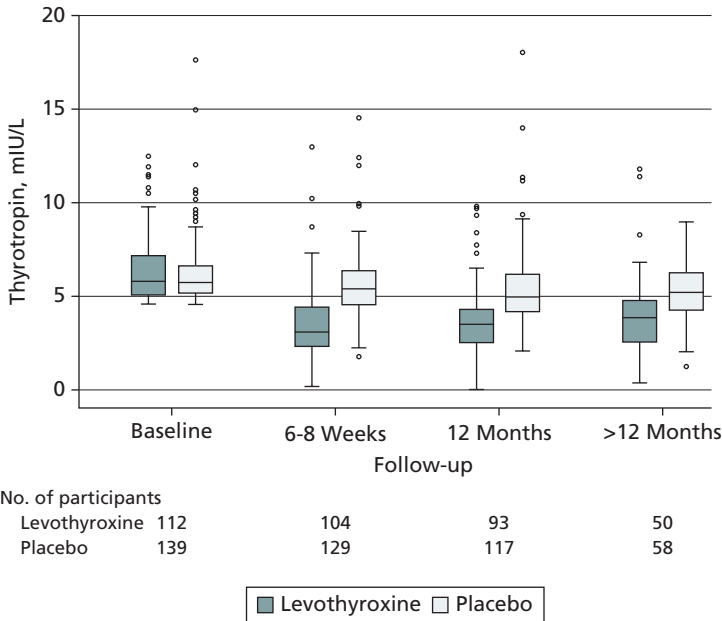
c. Scatterplot

d. Dot graph

ANSWER: a. Line graph

Editor's Note: Line graphs have 2 or 3 axes with continuous scales on which data points connected by curves show the association or relationship between 2 or more variables, such as changes over time. In general, line graphs are not ideal for displaying values where connection between points would imply continuity that may not be in evidence. Line graphs usually are designed with the dependent variable on the vertical axis (y-axis) and the independent variable on the horizontal axis (x-axis). If justified, a secondary vertical axis may be used to display an additional set of data. Axes should be continuous; broken axes disrupt any correlation between the large and small values, and the data are not easy to compare. Tick marks provide reference for points on a scale (§4.2.1.1, Line Graphs).

10.



- a. Bar graph
- b. Histogram
- c. Component bar graph
- d. Box and whisker plot

ANSWER: d. Box and whisker plot

Editor’s Note: Box and whisker plots (also known as box plots) are useful for displaying data based on their quartiles. In general, summary data presentation is best reserved for larger sample sizes; there is little point in showing data from fewer than 10 contributing sources. Typically, the ends of the “boxes” represent the 25th and 75th percentiles. Usually a horizontal line inside the box indicates the median or mean, and the “whiskers” represent the upper and lower adjacent values. Outlier data are typically shown as circles plotted beyond the whiskers. What each element represents should be clearly indicated in the figure legend (§4.2.1.8, Box and Whisker Plots).