

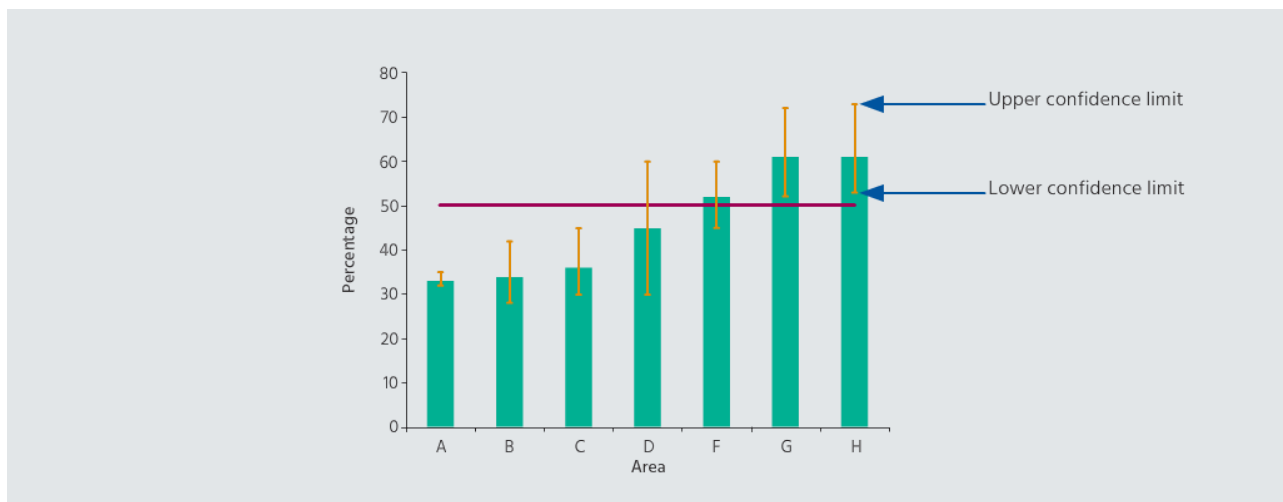
APPENDIX 2

Confidence Intervals:

Confidence intervals help tell us how precise our findings are. The narrower the confidence interval the more precise the findings are.

Confidence intervals are represented on a bar chart by the lines at the top of each bar. The upper confidence limit is the maximum value of confidence interval range while the lower confidence limit is the minimum value of the range. This means that the true value could lie anywhere within this range.

Every confidence interval has a 'confidence level' associated with it. In public health we commonly use 95% as the confidence level for confidence intervals. This means, we are 95% certain that the true figure lies within the maximum and minimum confidence intervals:



Complete

When comparing figures, if the confidence interval for one estimate **overlaps** with the confidence interval around another estimate, we conclude that the difference between both estimates is due to chance as the true number could exist anywhere within that range and therefore **not** statistically significantly different.

Conversely, if the confidence intervals **do not overlap**, we conclude that the difference is unlikely to have occurred by chance and therefore the difference **is** statistically significant.

The width of the confidence interval depends on three things:

1. The size of the sample population (also known as the denominator). Larger sample sizes give more precise estimates, meaning that the confidence intervals are relatively narrow, and the estimates are more reliable;
2. The degree of variation in what we are measuring, as we have discovered most observed phenomenon follow a 'normal' distribution pattern. This therefore allows us to express the amount of variation mathematically and build it in to the confidence interval formulae;
3. The required level of confidence, this is assigned by the analyst. In public health the conventional practice is to use 95% confidence as the confidence levels.