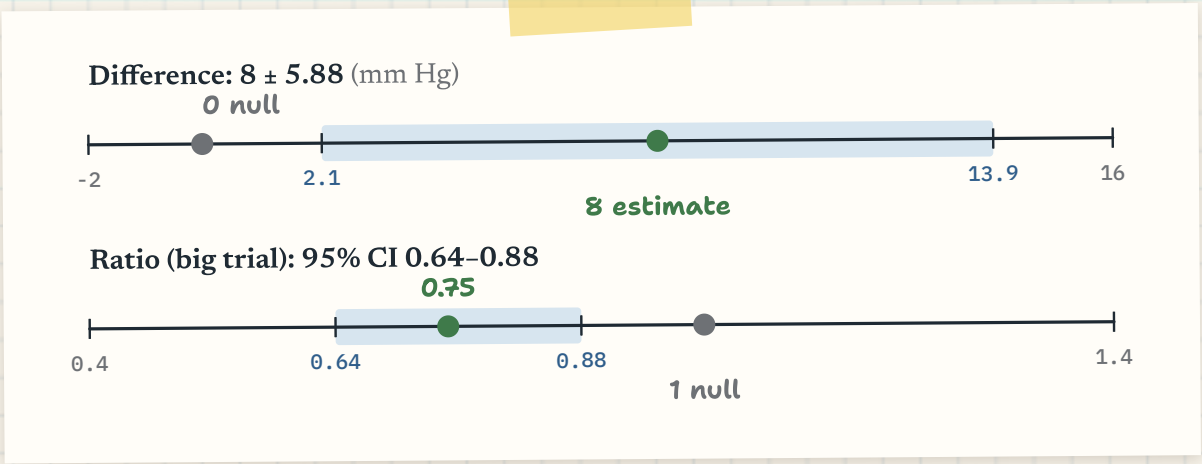
Confidence intervals and significance

Does the interval include the null value?



Step by step

1. Name the measure: difference or ratio
2. Pick the null value: 0 or 1
3. Does the 95% interval include it?
4. Yes: not significant. No: significant
5. Width shows precision

95% CI FOR A MEAN OR A DIFFERENCE

`estimate ± 1.96 × SE`

SE of a mean = SD / √n; ratio intervals are built on the log scale

Measure	Null value	Interval includes it?
Mean difference, risk difference	0	Yes: not significant
Relative risk, odds ratio	1	Yes: not significant
Either type	0 or 1	No: significant

Null value and significance at 0.05

Rule of thumb

Difference: null 0. Ratio: null 1

Interval includes the null: not significant at 0.05

Wide and includes the null: inconclusive, not proof of no effect

Exam traps

- Do not use 0 as the null value for a ratio.
- 95% is not the probability that this one interval holds the true value.
- A wide interval including the null is not proof of no effect.

Confidence intervals and significance: is the null value inside?

Video, written lesson, practice question and sources: medservatory.com/usmle-step-1/biostats-ethics/confidence-intervals-statistical-significance

For exam study only, not medical advice. Follow local guidelines and your lab's ranges.
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