# **Transcript: Confidence Intervals for One-Sample *t* Tests**

In this video, we will go over how to interpret 95% confidence intervals produced for one-sample *t* tests in R Commander. This is the same analysis that we conducted in the lab on one-sample *t* tests, so I won't go over the variables or hypotheses in detail. But just to refresh your memory, we are testing whether performance IQ scores from a sample of patients who have recovered from a coma are significantly less than the population mean of 100.

We can find our 95% confidence interval here, approximately in the middle of the output produced by R Commander. The lower bound is minus [−]infinity and the upper bound is 88.9. The reason we have a −infinity for the lower bound is because we used a one-sided hypothesis, that the true mean is less than 100. If we had used a two-sided hypothesis, we would have gotten real numbers for both bounds of our confidence interval. Our upper bound is 88.9, which is substantially less than the population mean of 100.

As you may recall from the lecture, the interpretation of a 95% confidence interval is somewhat counterintuitive. Some people want to interpret this as “we can be 95% sure that the true mean lies within this range of −infinity to 88.9”, but that is **not** correct. Instead, what we would say is that if we took a whole bunch of samples from this population of coma patients and measured their performance IQ, and then we calculated 95% confidence intervals for each sample, the true mean would lie within 95% of those confidence intervals.

One other thing I want to point out is that our confidence interval does not overlap with the population mean of 100. This lines up with our significant *p* value, which indicates that there's a significant difference between performance IQ scores in this population of coma survivors and the population mean about 100. So, we're seeing the same conclusions come out of both our significance test and our confidence interval.