Week 7 Qs

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Q1 (1 pt.): The population mean does not affect the CIs because the confidence interval is a range of plausible values for the population average. What the actual mean of the population would show us where the center of the data is but does not tell us the width of the CIs.

Q2 (1 pt.): The standard deviation of the population is the measurement of variance or dispersion of values. The standard deviation is directly related to the width of the CIs because as the standard deviation is bigger the CIs will also be larger.

Q3 (1 pt.): The population size does not affect the CIs because the population is assumed to be infinite. The CIs are not affected by how big a population is.

Q4 (1 pt.): In contrast to the population size, the sample size is the number of individuals sampled from an infinite population to estimate population parameters and determines the size of CIs. As the sample size increases the CIs decrease, making the interval of values estimating the population mean more narrow and therefore more precise.

Q5 (4 pts.): When using a Frequentist framework it assumes that hypothetical repetition of sampling that can effectively estimate population parameters, or the characteristics, of an infinite population size.

> Say I have a group of bumble bees infected with a gut pathogen, *Crithidia*, and I was interested how is different diet treatments decrease the pathogen load.

> If I were to calculate the CI of how many parasitic *Crithidia* cells are found in a group of bumble bees after experiencing different nutritional conditions, I would be able to describe my findings as "If I repeat the feeding experiments of different floral diets to *Crithidia* infected bees many times, I expect that the true mean of how many *Crithidia* cells are present after each diet treatment would fall within my 95% confidence intervals approximately 95% of the time."