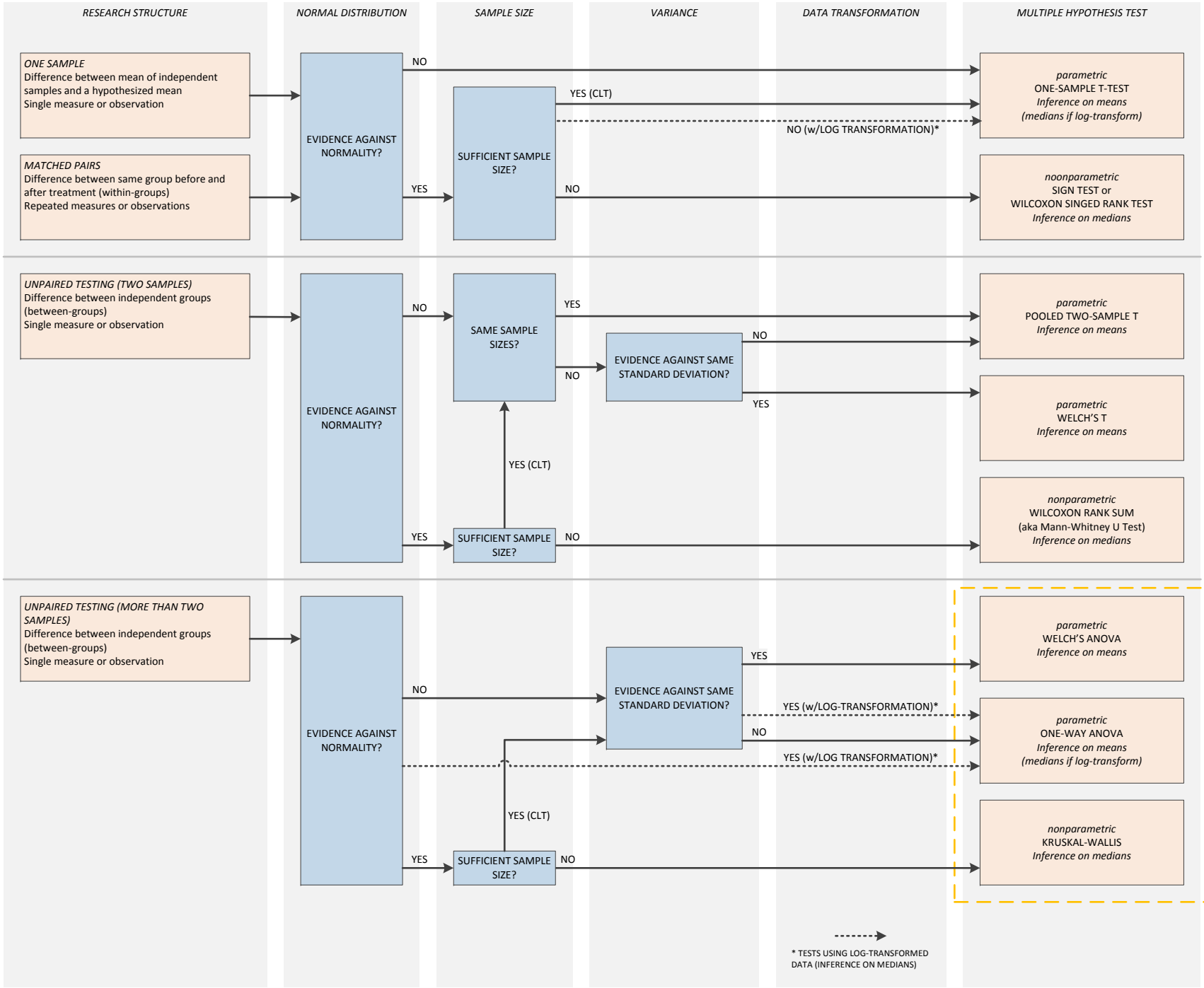
CHOOSING A HYPOTHESIS TEST



HYPOTHESIS TESTING STEP-BY-STEP

1. Read the problem carefully. Is it a randomized experiment or an observational study?
2. Plot the data using histograms, box plots, or QQ plots.
3. Determine which test to use. Do the data satisfy the test's assumptions?
4. State the null and alternative hypotheses. Is this a one-sided or two-sided test?
5. Select a test statistic and confidence level ($1-\alpha$). Find the critical value.
6. Sketch the distribution, including the critical value and the acceptance and/or rejection region(s).
7. Compute the test statistic and the probability (p-value) of obtaining the observed results if the null hypothesis is true.
8. Reject or *fail to reject* the null hypothesis. (Never *accept* the null hypothesis.)
9. Perform post hoc testing, if applicable, to determine which groups are different.
10. State the statistical conclusion in the context of the original problem.

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