* **Hypothesis testing** = a kind of statistical inference that involves asking a question, collecting data, + then examining what the data tells us about how to proceed.
* In a *formal* hypothesis test, hypotheses *are always statements about the POPULATION*.
* In statistical hypothesis testing, there are always 2 hypotheses.
* The hypothesis to be tested is = **null hypothesis**, **H0**, which states that there is no difference between a hypothesized population mean + a sample mean.
* Test the null hypothesis against an **alternative hypothesis, Ha**, often the hypothesis you believe yourself + includes the outcomes not covered by the null hypothesis.
* We have a medicine being manufactured + each pill is supposed to have 14 mg of active ingredient 🡪 H0 : µ = 14 Ha : µ != 14
* Alternative hypothesis can be supported only by **rejecting the null =** finding a large enough difference between your sample mean + the hypothesized (null) mean that it raises real doubt that the true population mean is what we said.
* **In each hypothesis test, must decide in advance what the magnitude of that difference must be to allow us to reject the null hypothesis.**