

The time to think about your margin of error, to see whether it's small enough to be useful, is	when you design your study or experiment and decide on $n$ .
To get a narrower interval (decrease the $ME$ ) without giving up confidence,	You need to have less variability in your sample proportion, $\hat{p}$ , by choosing a larger sample, $n$ .
Law of Diminishing Returns	The larger the sample size, $n$ , we have the narrower our confidence interval can be (at the rate of $\frac{1}{\sqrt{n}}$ )
To calculate the sample size, $n$ , necessary to reach conclusions that have a desired margin of error (degree of precision) and level of confidence:	<p>Solve for <math>n</math> in:</p> $ME = z^* \sqrt{\frac{\hat{p}\hat{q}}{n}}$ <p>by substituting:</p> <p><math>ME</math> = desired margin of error (as a decimal)  <math>z^*</math> = critical value for desired level of confidence  <math>\hat{p}</math> = estimate based on experience or 0.5 (most cautious)  <math>\hat{q} = 1 - \hat{p}</math></p>