# IHP 525 Module Four Problem Set

1. **Pediatric asthma survey, *n* = 50.** Suppose that asthma affects 1 in 20 children in a population. You take an SRS of 50 children from this population. Can the normal approximation to the binomial be applied under these conditions? If not, what probability model can be used to describe the sampling variability of the number of asthmatics?
2. **Misconceived hypotheses.** What is wrong with each of the following hypothesis statements?
3. H0: μ = 100 vs. Ha: μ ≠ 110
4. H0: x̄ = 100 vs. Ha: x̄ < 100 or could write as H0: x̄ >= 100 vs. Ha: x̄ < 100
5. H0: p^ = 0.50 vs. Ha: p^ ≠ 0.50
6. **Patient satisfaction.** Scores derived from a patient satisfaction survey are Normally distributed with μ = 50 and σ = 7.5, with high scores indicating high satisfaction. An SRS of *n* = 36 is taken from this population.
7. What is the standard error (SE) of x for these data?
8. We seek to discover if a particular group of patients comes from this population in which μ = 50. Sketch the curve that describes the sampling distribution of the sample meanunder the null hypothesis. Mark the horizontal axis with values that are ±1, ±2, and ±3 standard errors above and below the mean.
9. Suppose in a sample of *n* = 36 from this particular group of patients the mean value of x is 48.8. Mark this finding on the horizontal axis of your sketch. Then compute a z statistic for this scenario and make sure it matches your sketch.
10. What is the two-sided alternative hypothesis for this scenario?
11. Find the corresponding p-value for your z-statistic using Table B.
12. Draw a conclusion for this study scenario based on your results.