

## The Risks of Gastric-bypass Surgery at Iowa Methodist Medical Center, Des Moines

Name:

A couple of years ago gastric bypass surgery at Iowa Methodist Medical Center in Des Moines was under scrutiny. There were 6 deaths in 225 surgeries performed at the center in a year. We want to test Iowa Methodist's claim that their death rate is consistent with the national death rate, which is 1%.

1. What is the parameter of interest,  $p$ ? *Proportion of people that die from/during gastric bypass surgery.*

2. What is  $p_0$ ? *0.01*

3.  $H_o : p = 0.01$

$H_a : p > 0.01$

4. Check the assumptions.

*np Condition:  $np = 225 \times 0.01 = 22.5$*

*10% Condition: There are a LOT of these surgeries being done, so 225 is less than 10% of all surgeries.*

*This is not a random sample, which may invalidate the probability calculations.*

5.  $\hat{p} = 0.027$

6. Sketch the sampling distribution. Mark the observed  $\hat{p}$ .

7. Compute the test statistic.

$$z = \frac{.027 - 0.01}{\sqrt{.01 \times .99 / 225}} = 2.56$$

8. Look up the P-value. *0.005*

9. Decision: *Reject the null hypothesis.*

10. Conclusion: *The risk of death at Iowa Methodist is higher than the national average.*