Session Three Follow up Exercises

1. b
2. d
3. c
4. a
5. d
6. depends, a 5 mm difference might not be a clinically meaningful difference between the two treatments. If there were data showing that a 5 mm reduction improved mortality then you might be more inclined to use Drug A
7. b
8. b
9. c
10. Be very careful here. The data are ordinal and not normally distributed. A mean might be easily skewed by outliers.
11. So, the Relative Risk Reduction = 45%

   the Absolute Risk Reduction = 1%
   and Number Needed to Treat = 1/ 1% = 100

   In Fact Drug A, B and C are the same! Aspirin has been shown to reduce 5 year mortality from 2.1% to 1.1%.

   \[
   \text{RRR} = \frac{0.021 - 0.011}{0.021} = 0.45 = 45\%
   \]

   \[
   \text{ARR} = 0.021 - 0.011 = 0.01 = 1\%
   \]

   \[
   \text{NNT} = \frac{1}{0.01} = 100
   \]

12. These are ordinal data that are not normally distributed. The Students t test is used to compare two means of parametric data and is an inappropriate test here. I would seriously question the results.
13. a
   b
   c
   d
   e
   f
14. c
15. c
16. The 20% ARR sounds impressive, but the wide confidence intervals imply too small a study. The confidence intervals include 0, so the true difference has a 95% chance of being between -5% and 35% and no real difference may exist between the treatment compared to placebo. However, since mortality is a critical endpoint and the data seem to favor a trend toward improvement, I would look for or perform a larger study.

17. There is a 95% chance the real difference lies between 15 and 28%. There is clear evidence that this treatment reduces mortality.

18. The tight confidence intervals imply a reasonably robust study that shows no improvement. There is no difference.

19. a, tight confidence intervals but meaningless difference. Statistically different, not clinically

20. Recall intent to treat. This study flunks the test. If we include the subjects not completing the protocol, “A” effectiveness is 50% while “B” is only 25%

21. The same RRR (50%) but huge difference in ARR (1% verses 25%)

22. c

23. b

24. “Both drugs show a 50% reduction in mortality, so you can use either one and if you use mine (Drug A), I will bring you cookies and donuts to conference!” (I have heard this type quote for drugs like this)