



<https://github.com/leepolla/474/blob/master/antibiotics.pdf>

The purpose of my visualization was to give communicate just the relative effectiveness of each drug on each bacteria. If a person is in a survival situation and is trying to use antibiotics to treat an infection, the exact concentration will be hard to determine if the infection size is also unknown, but users can still get an approximate value within magnitudes of ten for treatment. So a person could look at this plot and see that if they are infected with a certain bacteria, then they would need to take use a relative amount of treatment that is indicated by the size of the respective segment in the grouped bars for that bacteria. Users can compare the relative effectiveness of drugs for a single bacteria, or compare the relative effectiveness of a single drug across many bacteria. These relative comparisons can help people create effective treatments in survival situations where the exact amount of infection is unknown.

There is a nominal encoding for the bacteria specie that is represented by horizontal position; each bar is horizontally positioned to correspond with a different bacteria. There is a nominal encoding for the different treatments that is represented mostly by color and is also somewhat represented by vertical position; each grouped bar contains a segment for each of the possible treatments for that bacteria, and the color of the segment indicates that it corresponds to a particular drug. The horizontal ordering of each segment can also indicate the represented treatment in each group because the order that the bars are in is always consistent across groups. The relative effectiveness of drugs in terms of minimum required concentration is encoded by both the y positioning and the size of each bar segment; bars that are taller indicate that the bacteria requires larger treatment sizes to be effective and segments that are bigger indicate that the particular drug needs to be applied in relatively larger amounts.

To create this visualization, I used ggplot in R to generate a grouped bar plot. I omitted the gram staining data as well, because it was not relevant to comparing relative effectiveness.