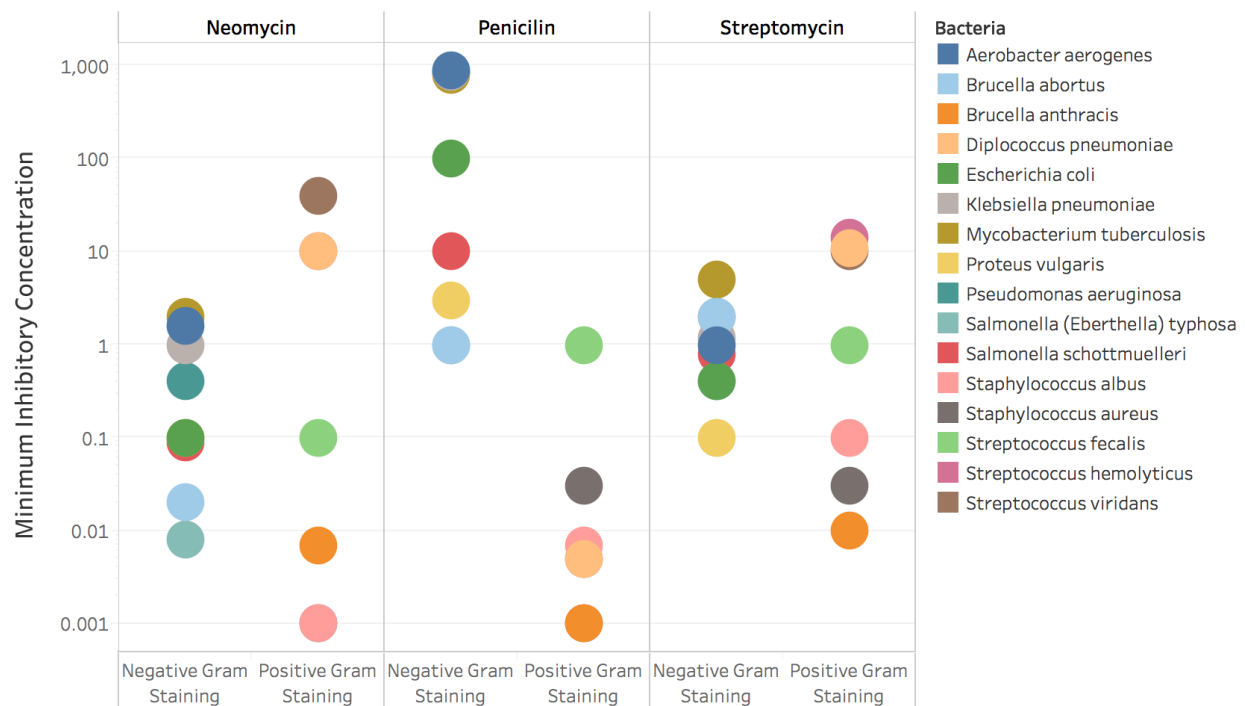


## Info 474: Assignment 1

### Comparing Effectiveness: Minimum Antibiotic Concentrations to Inhibit Common Bacteria



Minimum Inhibitory Concentrations of Neomycin, Penicillin and Streptomycin for each Gram Staining. Color shows details about Bacteria. The view is filtered on Gram Staining.

For this assignment I decided to produce a visualization in Tableau. I framed the data in a side-by-side circle plot format. I liked this format because it did a good job of representing all the different types of bacteria at one point on the x axis, which meant I wouldn't have to spread the bacteria across the x-axis. This meant I could keep the visualization more contained and focused on the antibiotics. Comparing the antibiotics was the main point of the visualization.

To start, I prioritized the different variables of the data. I decided the most important variable was the antibiotics. Then second the measured concentration required to kill each bacterium. Third, the bacteria. Fourth, the gram staining. I then identified each variable type: nominal for antibiotics, quantitative ratio for concentration, nominal for bacteria, and nominal for gram staining. From here, I used Mackinlay's encoding ranking chart to decide what type of encoding I should map to for each variable. I chose position for antibiotics, position for concentration, color for bacteria, and since texture and connection weren't available in tableau, I chose containment for gram straining.

There were a few issues I ran into along the way that I think are worth mentioning. The concentration data was dense around the <1 mark but there were outliers near 1000. I decided

to change the y-axis to a logarithmic scale to better fit the data. This might be tricky for the viewers to understand at first, but I think it was the best option. Another issue was that there were many different bacteria and so when using colors, I ran into the issue of having a few that looked identical. I had to rearrange some of the colors in order to mitigate this issue. I think that with any more colors mapping to a bacterium is too difficult and I would probably opt for a different encoding. I also chose to contain the stainings in individual columns for each antibiotic. I think this decision is questionable. I chose it mostly due to constraints in Tableau. I wasn't able to find a way to change texture or connect the different stainings, and I actually think aligning them this way gives more emphasis than need be. Would love to get some feedback on this.