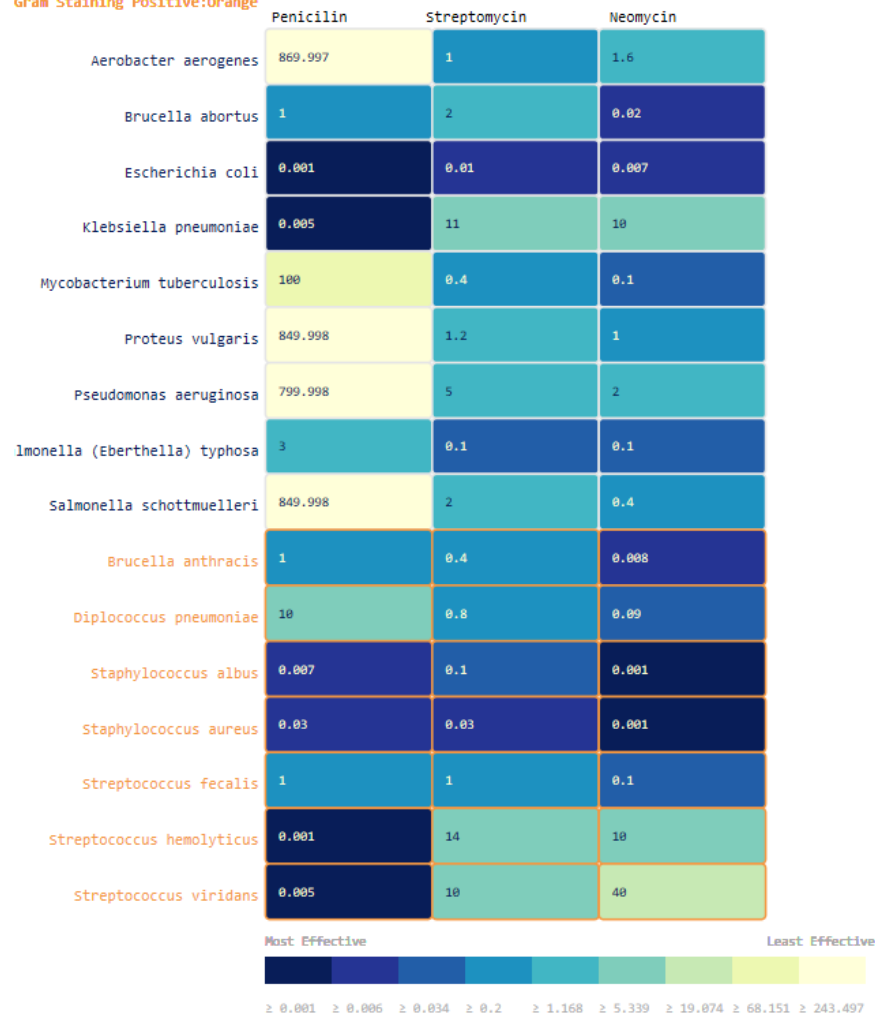


Assignment 1 Description: Visualization Design

By Anthony Wang

Gram Staining Negative:Blue

Gram Staining Positive:Orange



Summary: I used D3.js to draw a heatmap for the dataset. The horizontal and vertical axis are each medicine and bacteria. The value showed in each block are the actual value of the dataset. Then I did a log transform for the data and color code it. So the color scale of each blocks are using a log transformed dataset. Basically the blue blocks are the more effective one, and the light green one is the least effective.

Justification for my visual encoding:

1. **Why heatmap:** Since the absolute difference in value and in scale between data points are huge, I decided to give up showing actual value using bar chart/coordinate – which is usually a straight forward way. Since I couldn't find an effective way to show the true value, I did a log transformation. Heatmap basically encoded transformed data value to color scale. It "avoid distorting what the data have to say" (2001, Tufte). And according to Mackinlay's principle of

importance ordering, I am encoding my most important information, effectiveness of medicine, which has now become an ordered data after transformation, with hue. Then I added the true value in each block, so I can “present many numbers in a small space”(2001, Tufte), so that no information is lost I used both number and color to “reveal the data at several levels of details” (2001, Tufte) to show this quantitative (ratio) data.

2. Sort and color code bacteria: I sorted bacteria by positive and negative to make it easier for audience to tell the two groups. I used two different colors for this categorical/nominal data to “encourage the eye to compare different pieces of data” (2001, Tufte). I also changed the border color of blocks with positive gram staining test. To make it easier for audience to tell the differences.

Story: The story I am telling is quite simple: showing the result of medical test (description) and then find the most effective medicine (exploration) in an intuitive way. As you can see from the chart, the dark blue blocks are very eye appealing and they are exact what people should be focusing on first, then to the less blue...The orange border and text remind people there is a difference in gram staining test results.

Reference

Chapter 1, "Graphical Excellence," View in a new window in *The Visual Display of Quantitative Information*. Tufte. 2001.