DATA VISUALIZATION
Assignment 1

ANTIBIOTICS
BURTIN'S DATA

Harisaipravin SV - 17PW13

CHART

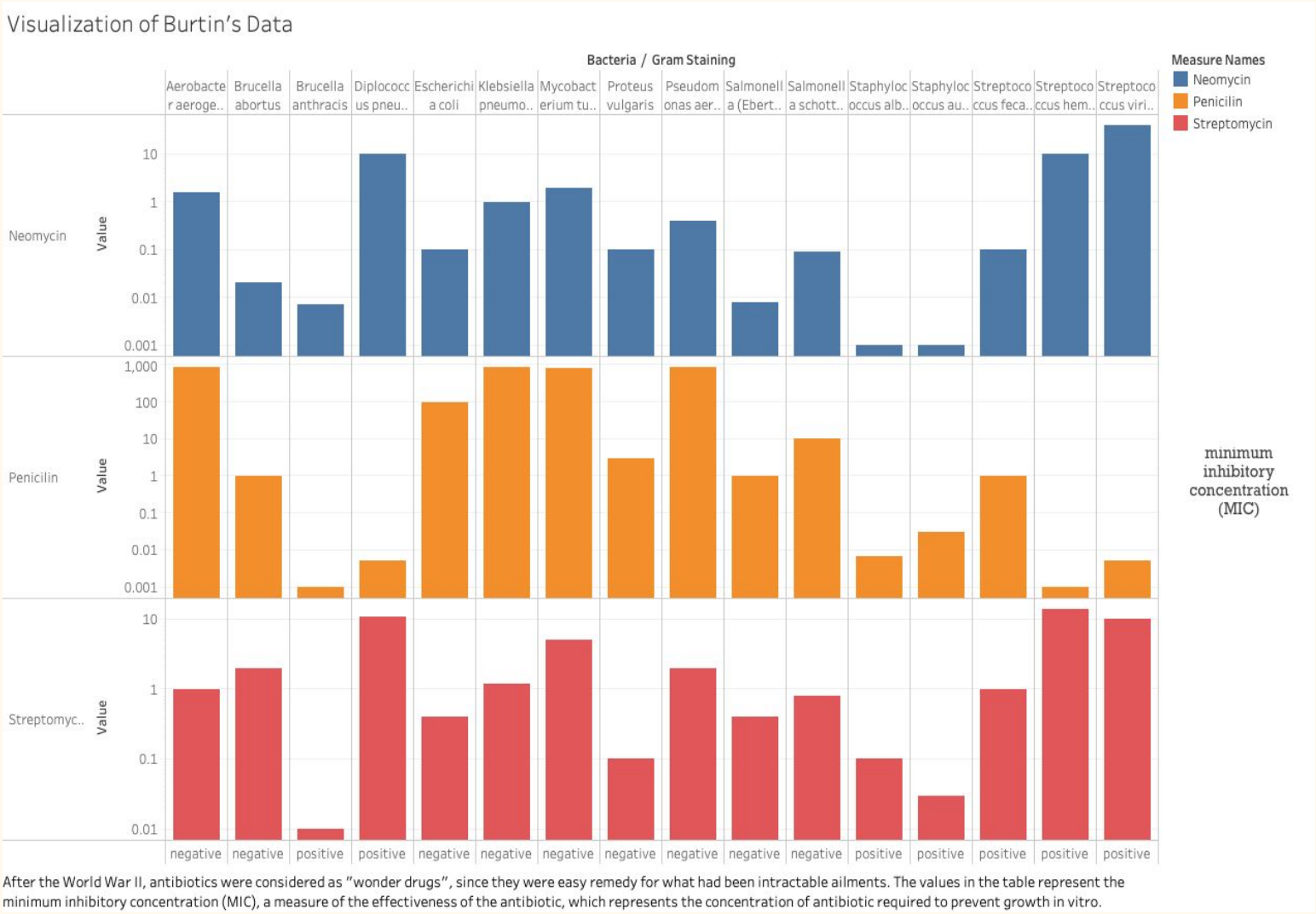


Figure 1.0 (Burtin's data)

DESCRIPTION

After the World War II, antibiotics were considered as "wonder drugs", since they were easy remedy for what had been intractable ailments. To learn which drug worked most effectively for which bacterial infection, performance of the three most popular antibiotics on 16 bacteria were gathered.

The values in the table represent the minimum inhibitory concentration (MIC), a measure of the effectiveness of the antibiotic, which represents the concentration of antibiotic required to prevent growth in vitro. The reaction of the bacteria to Gram staining is described by the covariate “gram staining”.

EXPLANATION

- Figure 1.0 gives the visual overview of the performance of the antibiotics.
- Here, bar chart is preferred over other visual structures due to it’s grouping capability.
- Y axis range increases in the scale of log base 10 thereby saving the chart from redundancy due to single high value.
- Different colours are added across the antibiotic compounds to provide ease in readability.
- The graph is split into 3 equal parts to signify how each bacteria is reacting to 3 different antibiotics.
- X axis on the other hand depicts the bacterial name and shows it’s gram staining at the bottom for effortless understanding.
- The Chart is further provided with legends to support the colour given to antibiotics.
- The Description at the low bottom deals with the brief explanation of the need and use of the chart.
- Since the behaviour of bacteria with all the 3 antibiotics is all stacked up, It is believed to provide easy comparisons across antibiotics and also across the Antibiotics too.
- Thus this chart satisfies all the basic criteria and also goes beyond to provide best in class readability.

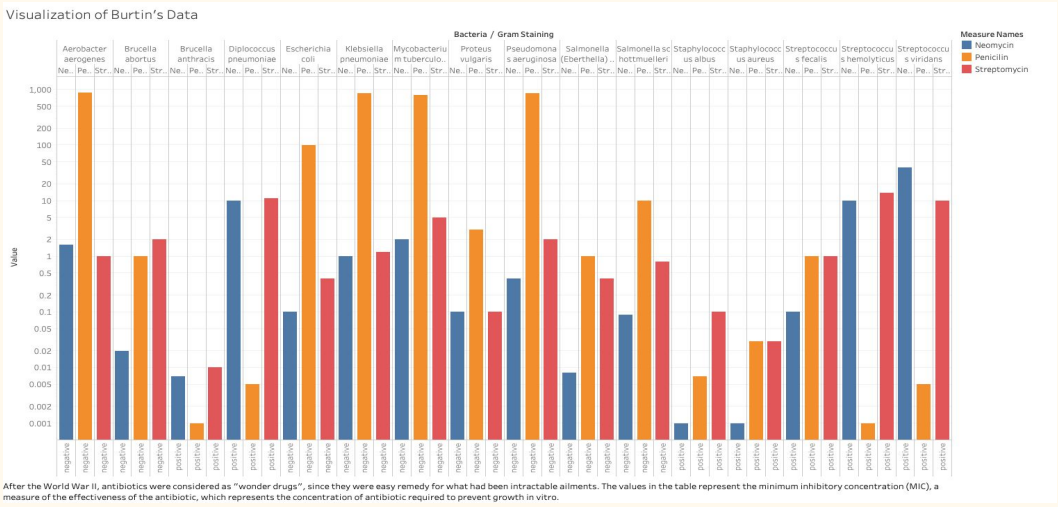
Bar Graph

A bar graph is a visual tool that uses bars to compare data among categories. A bar graph may run horizontally or vertically. The important thing to know is that the longer the bar, the greater its value.

Since we have a group of antibiotics and several bacteria to compare to, the Bar graph is the one which can justify its position more than any other graphs.

In this case, a stacked individual bar chart is preferred over grouped bar charts. The reason being, numerous data points which all need to be perfectly depicted without looking clumsy.

An example of grouped bar graph that looks clumsy is shown below :-



Y Axis Scale

The next essential feature of this graph is to increment the y axis range logarithmically instead of linear scales. This acts as a catalyst to keep the entire chart occupied instead of a single spike here and there due to the exponential behaviour of values in the Burtin's data.

Now, since it may sometimes mis-interrupted by audience, actions are taken to highlight the y axis range and beam it to the audience. Thus reducing the confound risk.

X Axis

This graph emphasises on bateria and it’s gram staining though the X axis.

The +ve and -ve staining of the bacteria are shown at the bottom of the stack to help the audience with it’s stain as and when it is needed.

Sorting

Although the chart can be sorted using positive and negative values of staining, doing so would make the search and retrieval process time consuming. Hence, the data is sorted alphabetically using the bacteria names.

Partitioning

This graph emphasises on the reaction of bacteria with the available antibiotic components and hence it is given more importance. Thereby resulting in a graph with 3 partitions for the antibiotic bodies.

The adopted method makes the readability across the effects of antibodies much straightforward and catchy.

Colour

Colours are used to differentiate between the available antibiotics. The colours are chosen in such a way that they do not belong to the same family and are easier to differentiate with a single view.

Legend

Legend focuses on providing the users with needed information for the colours used for antibiotics.