**Cancer Study Visualization**

The first and most overwhelming conclusion that I can draw from this data is that at least the data for the tumor volume size is most likely fake or very likely incredibly cherry-picked. I will put that conclusion aside for the moment and focus on what the data shows, assuming it was real.

First, the data reveals that the cancer that they are studying has an extraordinarily predictable and virulent progression that rapidly increases in total tumor volume.

The progression in the number of metastatic sites is somewhat less predictable, but it still shows high levels of correlation with the standard error increasing over time.

The number of metastatic sites has more significant variation and standard error levels both between the drugs being studied and within the data for each drug.

The drug survival rate for all of the drugs shows the most significant variability in outcomes with one drug resulting in close to zero percent survival and two others Ramicane and Capomulin, resulting in 80% and 84% survival respectively, a substantial improvement compared to the other drugs.

The final bar graph of the percentage change in the tumor volume size shows the most unambiguous indication of the usefulness of two of the drugs in treating the cancer. These two drugs, Remicane and Capomulin, clearly reverse the progression of the disease and vastly reduce tumor volume size over the period. These two drugs also clearly reduce the death rate over the course of 45 days.

**Why the Volume Data is Faked or Cherry-Picked**

The first graph of the average tumor volume sizes over time reveals data that is likely more well-correlated than any data set in medical history. One extremely good correlation would be very unlikely. For the sake of argument, say this has an extremely conservative 1 in 20 possibility. However, ten super-correlated lines in one dataset would be exponentially less unlikely. If you go by the conservative estimate of 1 in 20 of one such linear correlation happening by chance, the likelihood of ten such correlations happening by chance would by 1 over 20 to the power of 10. So, 1 over 1024 with eleven zeros after it. Therefore, the conclusion that I can draw for this plot at least of the tumor volume size is that at least the volume data is very likely fake or cherry-picked.