

Local newspaper front headline had a big gory graphic, showing Presidio County as going "exponential." This statement has several issues:

- 1) You need to plot it semi-log to show it exponential (vertical axis logarithmic, horizontal axis arithmetic). It is the straight line section. See Figure 1 and Figure 2
- 2) In the entire Tri-County COVID 19 history, there is only one clear exponential example, and that was in Brewster County at the very beginning. See Figure 2
- 3) There are only 18,000 people in the entire Tri-County, and only 6,000 in Presidio County, which is too small a sample to draw any conclusion like that. What happens with small samples is much higher variability. That is obvious on the daily chart of Tri-County confirmed cases (Figure 3), but still visible on the cumulative chart. It is very noisy, so big changes in any direction on the daily chart can be due simply to variability. This also is visible on the cumulative chart as variable jumps upwards. The US cumulative data is also shown (Figure 4), a much larger sample (330m people). It is easy to see the exponential part of growth, which, like Brewster County, only happened at the very beginning. The exponential part of the growth curve is the part that is used to get the characteristic basic reproduction number (R_0). Figure 5 shows the arithmetic progression of the US confirmed case count, which shows a lot less noise than the Tri-County examples.

