

## Tri-County (Brewster, Jeff Davis, and Presidio Counties) and the rest of the World, CV19

Please refer to accompanying two pdf files of graphs. The estimated number, and the related incidence relative to population, is based on maximums estimated from curve fits. They are subject to change of course, and should not be taken as precise projections, since there is no such thing. Another way to interpret them is as relative indices, that show a locale's progress relative to the others.<sup>1</sup>

US or Texas projections for confirmed cases scaled to Tri-County population:

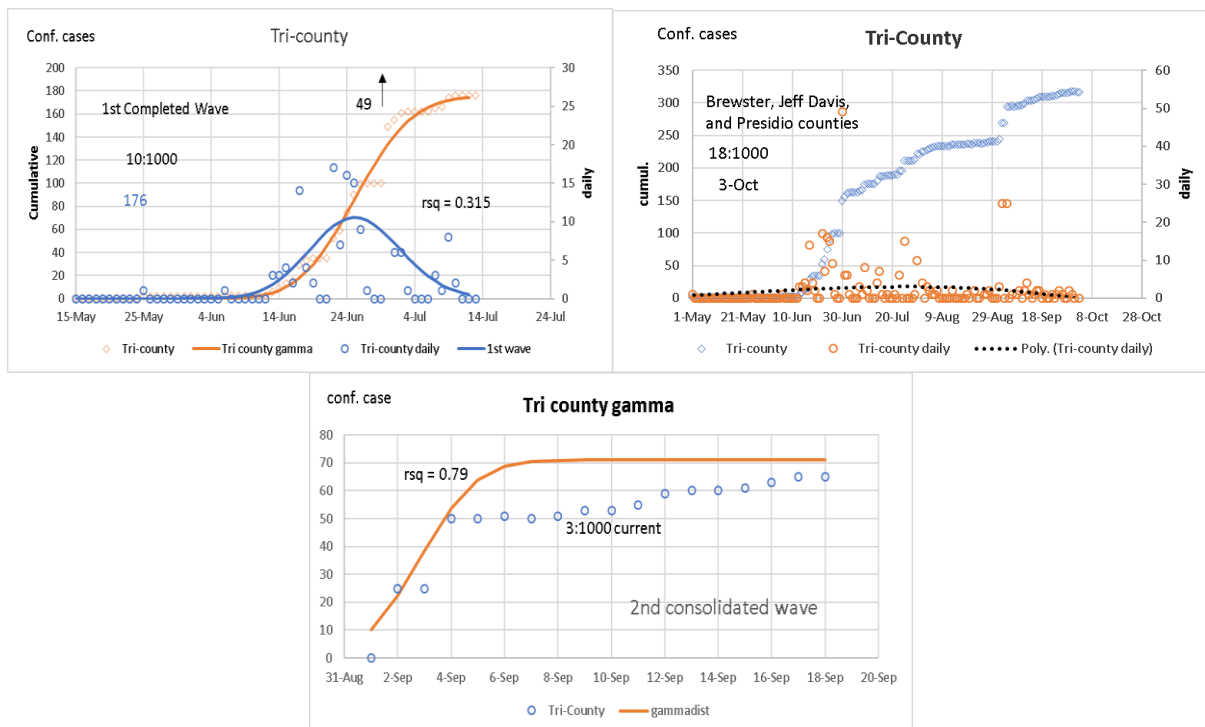
max US daily	64,769	persons
equiv. max Tri-County	3.5	persons

max TX daily	10,837	persons
scaled to Tri-County	7.0	persons

max US cumulative	11,144,959	persons
equiv. max Tri-County	608	persons
incidence	34:1000	

max TX cumulative	578,335	persons
scaled to Tri-County	372	persons
incidence	21:1000	

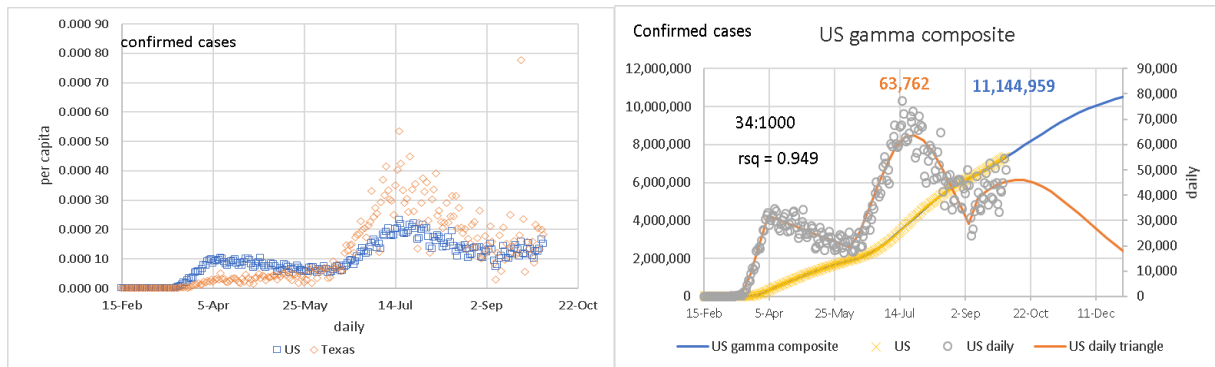
Tri-County (current)	18:1000	10/3/2020
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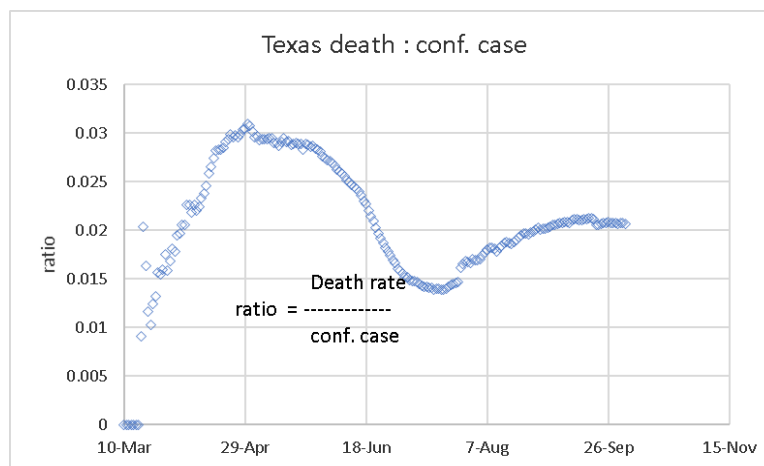
<sup>1</sup> Data all from publicly available Github site: <https://github.com/CSSEGISandData/COVID-19>

## Comments

If Texas and the USA confirmed cases are plotted as daily data concurrently, on a per capita basis, here is what you see, along with the apparent *third* wave in US confirmed cases:



Mortality looks in a good place (in the sense it could have been a lot worse). Arizona has a similar curve, although no doubt they have a higher proportion of retired, elderly people that don't handle CV-19 very well. The third wave will eventually be reflected in more deaths, most likely.



Your mom taught you to cover your mouth when you coughed as a act of consideration for others so you wouldn't spread germs. That is all wearing a mask does, except more effectively, since this virus is stronger than the usual germs. What is so hard to understand about that?

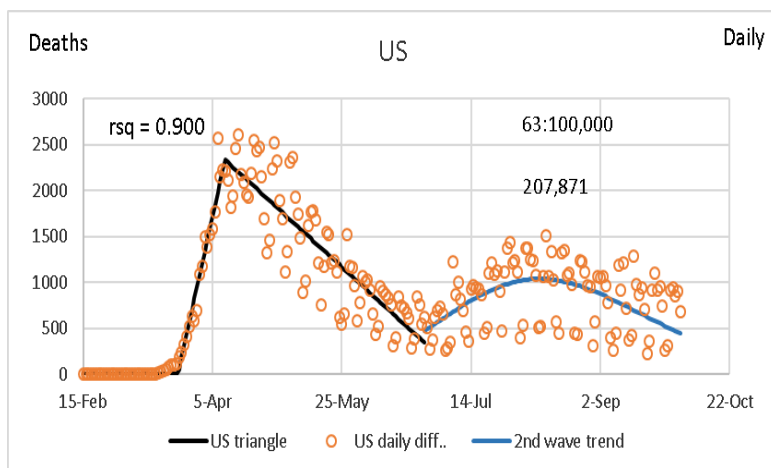
Another good thing to do is avoid enclosed areas with low or no ventilation where there are lots of people. This would include most restaurants and bars, and probably schools, too. Or step up the air changes in such places. But instead, we gripe about the government telling us what to do, or criticize it for not doing anything, not sure which is more irritating.

## COVID-19 deaths

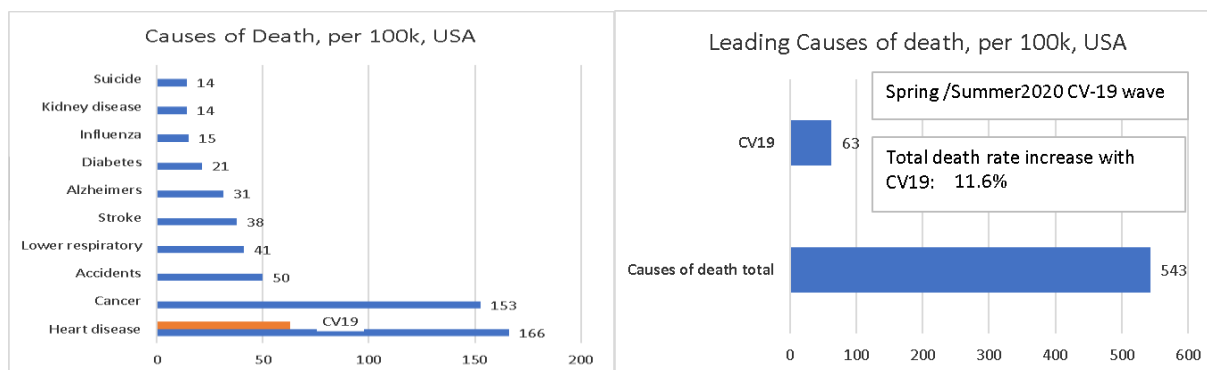
The USA CV-19 death statistic is based on a triangular distribution, combined with a later gamma distribution curve fit of US deaths that generates a cumulative maximum for the two combined (minus their overlap). It appears the downturn in daily confirmed cases is reducing the pool of potential deaths, and so the death estimates are decreasing, too, which is good news:

A point of comparison:

Around 1920, the population of the US was 105 million. It is estimated that 500,000 people in the US died from the Spanish Flu epidemic in those years. This is a death rate of around 480 per 100k. Most deaths occurred during the Fall of 1918.



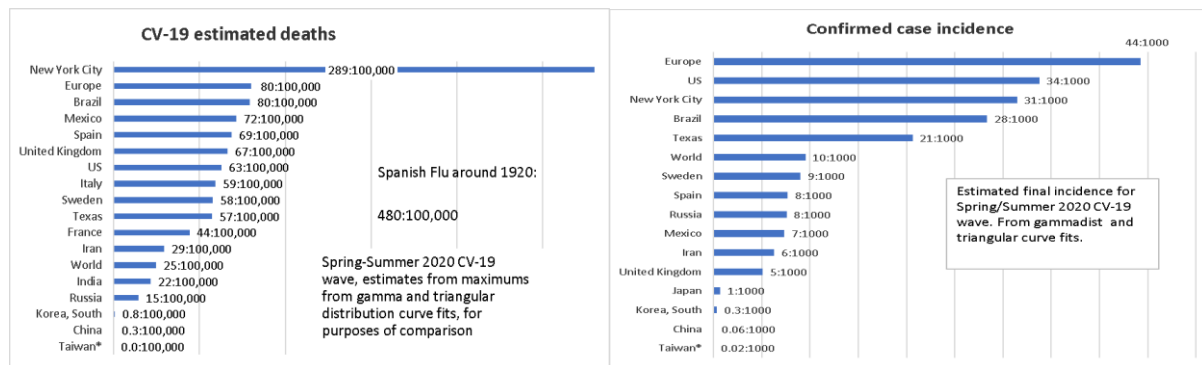
A few months ago the Wall Street Journal published data on annual causes of death which is plotted with the USA CV-19 death statistics. The possible death value is plotted as deaths per 100,000 with WSJ data of annual averages of leading causes:



It's right up there with the major killers, although it's known many who died from CV-19 already had these potentially fatal issues.<sup>2</sup> It's not clear where dying from old age fits here, either. (It's strange how nobody dies of old age anymore—it's always some other cause.) It's interesting to read off the mortality table the IRS uses that the expected age of death is 77.3 yrs (median is 80.3) and the mortality for that age, for the year, is 2,663:100,000! 62% of deaths are 77 years of age and higher on the table.

<sup>2</sup> On the right chart above, about 12% increase in overall annual deaths is attributed to CV19. Or, put another way, a 12% decrease in all those existing causes of death would completely cancel this year's projected CV19 deaths. Or, just a 20% decrease in cancer and heart disease deaths cancels all CV19 for the year. Something to think about when you consider how we continue to eat crap food and not exercise without a qualm, but act like scared rabbits in face of CV19!

What follows are some comparative tabulations of these estimates. As you can see, NYC had about half the death rate as the Spanish Flu disaster in the 1920s. But that doesn't make the current situation good. Texas finally reached a daily maximum, which affected the estimate in a positive way. Good news is Iran hit a turnaround point, which also drastically changed its death estimate, downward. Japan has been struggling as of late, but a lot better than we are, nonetheless.



It's also worth reminding yourself of basic arithmetic—a confirmed case incidence of 21:1000 is big on this ranking, but still is only 2.1% of the population!

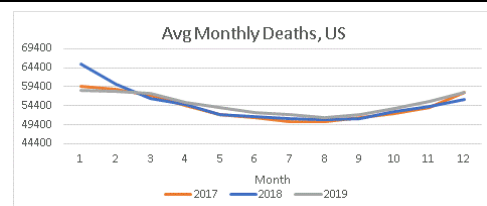
Recently, a lot of discussion has centered around excess deaths. The CDC has taken a stab at this, while recognizing the difficulties of getting accurate death certificate information (e.g. did this person die *from* CV-19, or die while *having* CV-19, etc.). They took weighted data from the previous three years and averaged it. They also created a threshold above the average (I didn't quite understand that, so just took the simple three year average as a basis of comparison here). It's also weighted, presumably against change in population over the three year period. Those are points you can check out on your own, as they're not that relevant to this discussion. Here are the results:

#### USA Excess Deaths (from CDC data):

Summary Table	All Causes Observed - Expected	All Causes , excl. CV19 Observed - Expected	CV19 Difference
2017-2019 avg	-5:100,000	-5:100,000	0:100,000
2020 (annualized) Week 1 thru Week 36	102:100,000	31:100,000	71:100,000

#### USA Average Deaths (from CDC data):

2017-2019 avg	864:100,000
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<https://data.cdc.gov/NCHS/Excess-Deaths-Associated-with-COVID-19/xkkt-xrst/data>

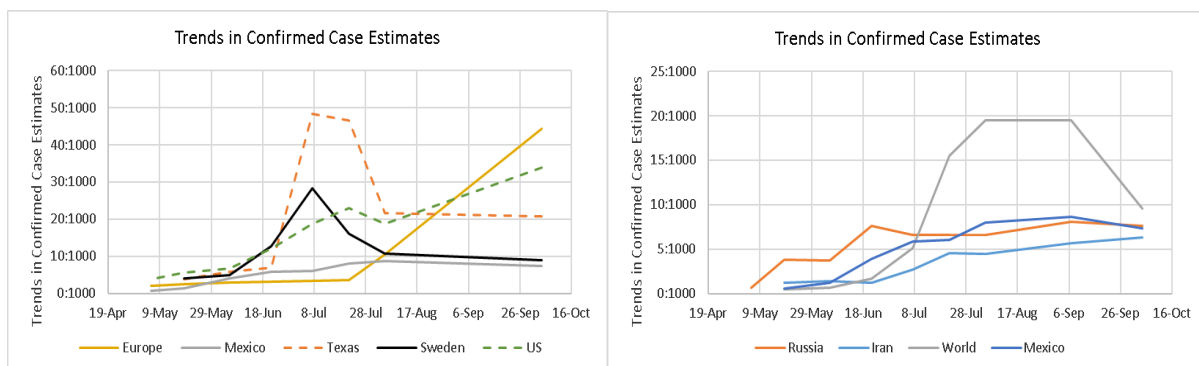
It's interesting to see the interest perk up on doing lockdowns<sup>3</sup> as the virus is now doing its expected resurgence. I still don't understand how the decision on lockdowns has to be based

<sup>3</sup> Example: <https://a.msn.com/r/2/BB19g5Hz?m=en-us&referrerID=InAppShare>

purely on “the science<sup>4</sup>,” as it has a huge political and economic aspect, not covered by science. Somehow it seems to me invoking “the science” is a bit of a cop-out, maybe in frustration with so many people going around defying common sense with their mask resistance, partying, etc. Europe looks particularly dismal, and you can be sure we are not far behind.

### *Trends in Confirmed Case Estimates*

The confirmed case estimates are based on the maximum value parameter of a curve fit for a *completed* epidemic wave. A way to look at this is this estimate is what it *would* be, if the data followed a gamma (or other distribution). Historically that’s what they tend to do, but you can see plenty of examples here where the data suddenly diverged (e.g. US, World, Texas, etc.). Still, it’s a useful way to characterize it. The curve fit has been based on data that was in the process of being completed for the Spring/Summer 2020 CV-19 wave, so it’s to be expected that the estimates might change. Here are confirmed case trends for a few select countries:



<sup>4</sup> Why is science now called “the science,” as if it was some holy book? Data is another word often invoked. As you can see, I don’t mind looking at data, but that also means trying to learn something from it, not worshipping it.

### Explanation of statistic used for comparative purposes:

Often the generation of confirmed cases or deaths tend to be in a gamma distribution, which is a slightly skewed bell-shaped curve. Other times a triangular distribution better describes what's happening. A least squares procedure is used to get the closest fit to the data. Generally, the data is provided in a *cumulative* format, so the number increases each day, until the wave is over, at which point it is at its maximum and no longer changes. This can be converted to a daily format just by finding the difference between each pair of successive days. In mathematical terms, the daily format is the time derivative of the cumulative format. In any case, the area under the daily curve is identical to the last, largest and unchanging value in the cumulative format. This is the value that is used here as a comparative statistic, on a per capita basis, for a completed curve. Each locale's "wave" has a different beginning, develops at a different rate, so comparison of values on a particular date among any given datasets doesn't tell you anything, but nonetheless that is how most of this data is usually presented to the public.

Cases are described here as incidents per thousandths; deaths are described as incidents per hundred thousandths. In this way, one can get a better feel for the relative performance of locales, as long as the current population figure is available. It's also a way to gauge one's own personal risk. Keep in mind this statistic can and will change over time, not as a direct result of increasing cases or deaths, but because of the possible change in shape of the distribution. In some cases, particularly with the US, the distribution was changed from a gamma to a triangular because it fit better (at least the first section), which also changed the comparative statistic. It should be thought a qualitative measure, since it's impossible to put error bounds on it, at least in its earlier stages before the inflection point.

### **$R_0$**

Basic Reproduction Rate (said as R-sub-0, or just R-0).  $R_0$  is a measure of transmissibility:  $R_0 < 1$ , disease disappears;  $R_0 = 1$ , it's endemic;  $R_0 > 1$ , epidemic.  $R_0$  is mentioned a lot during this epidemic, along with flattening of curves, with not a lot of understanding or relevance. The real trick is figuring out the *effective* reproduction rate,  $R_e$ . More on that in the "*Details on  $R_0$  you may or may not be interested in.doc*" found elsewhere on this site.