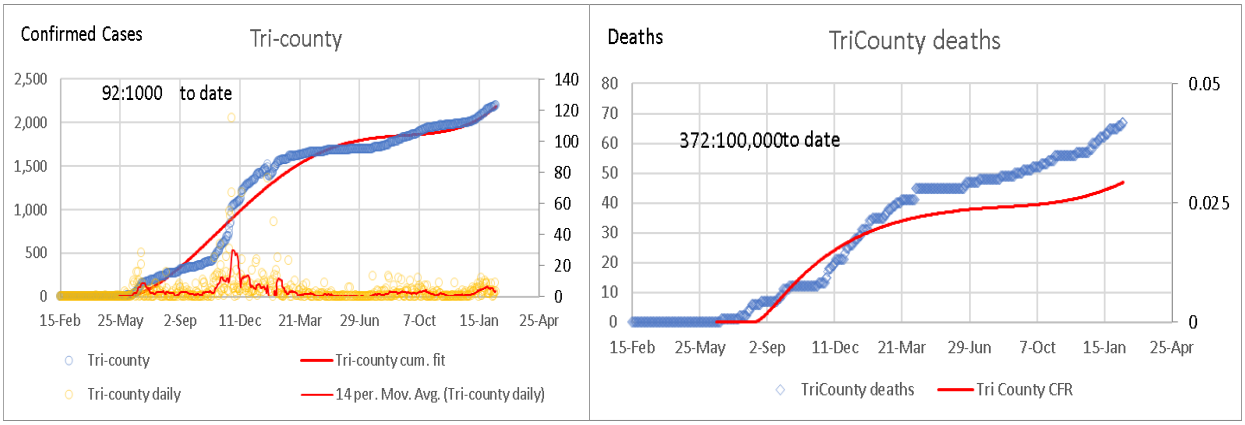
Tri-County (Brewster, Jeff Davis, and Presidio Counties) and the rest of the World, CV19

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 7 (or 14) day averages.

US or Texas averages for confirmed cases scaled to Tri-County population of 18,000:

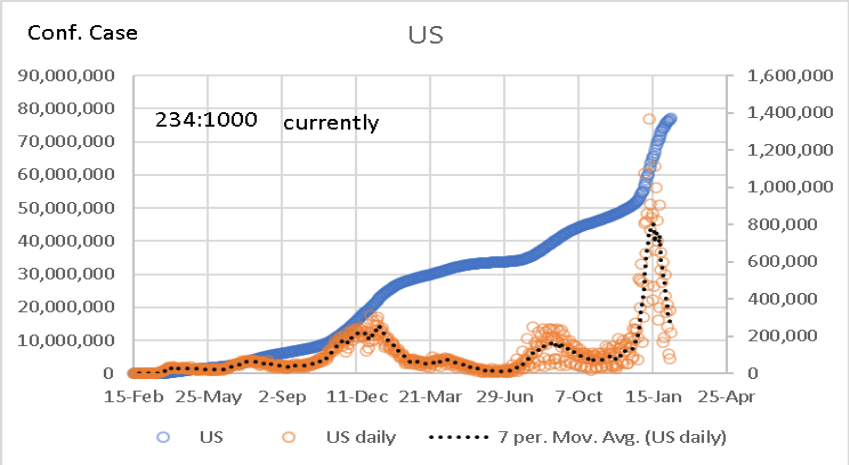
Confirmed Cases:		
max US daily (7 day avg)	76,418,349	persons
equiv. max Tri-County	4168.3	persons
max TX daily (7 day avg.)	63,372	persons
scaled to Tri-County	40.7	persons
max US cumulative	77,083,020	persons
equiv. max Tri-County	4205	persons
per capita	251:1000	
max TX cumulative	6,509,857	persons
scaled to Tri-County	4,185	persons
per capita	232:1000	
Tri-County (current)	92:1000	2/12/2022



Tri-county has a fairly low number of confirmed cases, compared to Texas, but a high death rate. This seems to be the rule in areas with high Hispanic[1] populations, for some reason. See El Paso.

[1] The US seems obsessed with demographic categories for some reason, probably another nasty legacy of slavery. "Hispanics" are actually Native Americans, the descendants of Mayans, Nahuatl's, Aztecs, etc. with a minor infusion of European.

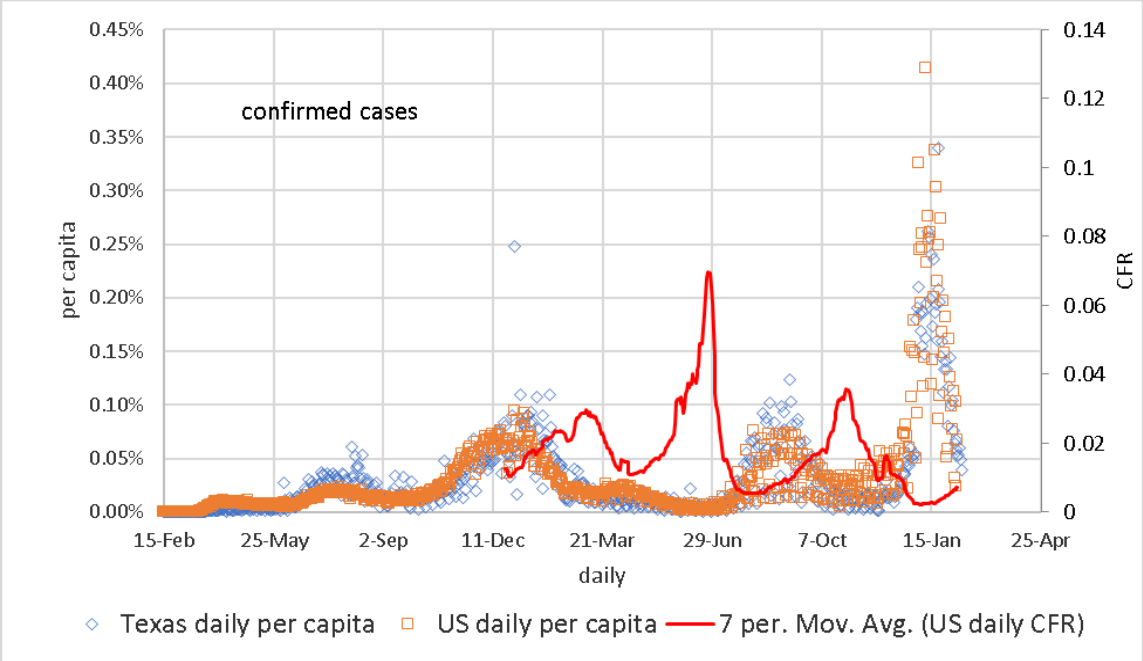
Basis of Comparison
The cumulative number for each jurisdiction, divided by its population:



The current wave is by far the tallest, no flattening of curve here!

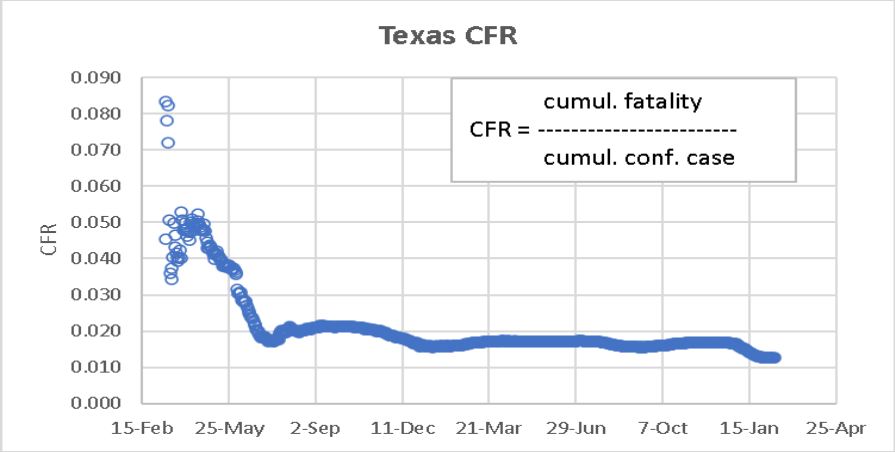
Comments

US and Texas Confirmed Cases:



Another wave, that is dissipating, consistent with winter season and Omicron strain. I would guess that herd immunity doesn't really work with this virus, since it mutates so much and the immunity doesn't seem to last, whether from natural infection or vaccine. Deaths are high, unfortunately, and is a lagging indicator. Counting cases is becoming futile, this is undoubtedly becoming endemic, not epidemic.

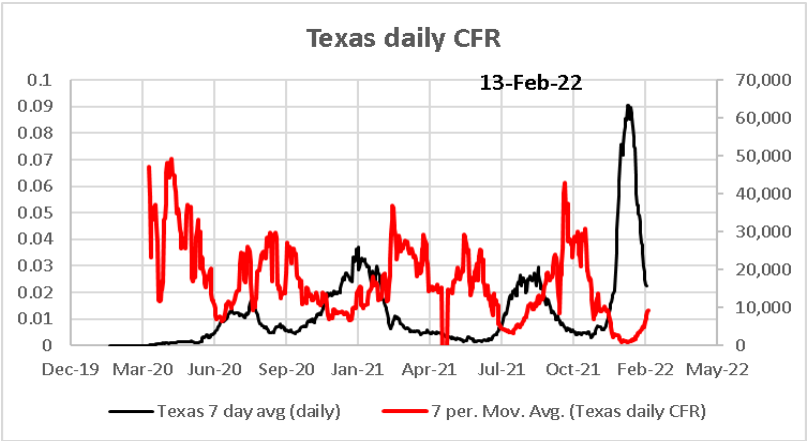
Mortality seems to have stabilized, but downward. This is an example of the confirmed case fatality ratio (CFR):



What's to be done? 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 typical cloth mask does, except more effectively than your hand (or elbow), since this virus is stronger than the usual germs.

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. For example, Alpine has done some nice work on granting special use rules so restaurants can serve food outside on tables on the sidewalk. And, for better or for worse, Germany has taken action on fresh air in buildings.[2]

A serious claim by the CDC is that 42% of the US adult population is obese, a very big comorbity with this virus. Sounds like some low hanging fruit to me; stop pushing sugary foods and drinks on the young![3]

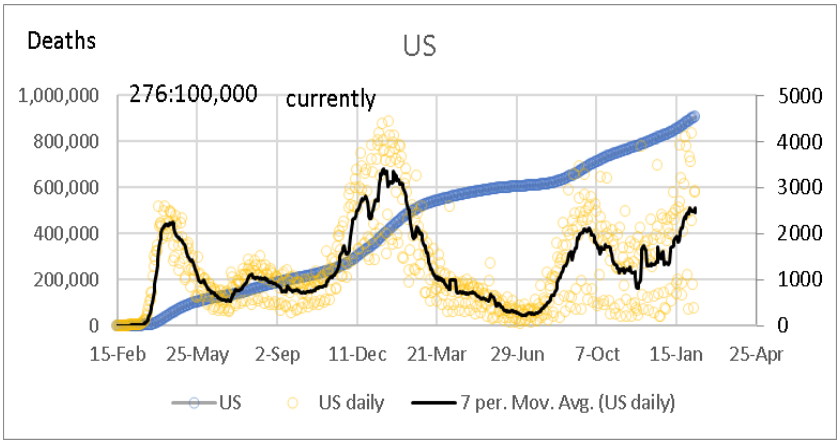


The fact the CFR for Texas (confirmed case-fatality ratio) remains low is good news; hopefully it maintains that trend.

[2] https://www.bbc.co.uk/news/world-europe-54599593
[3] https://www.cdc.gov/obesity/data/adult.html

COVID-19 deaths

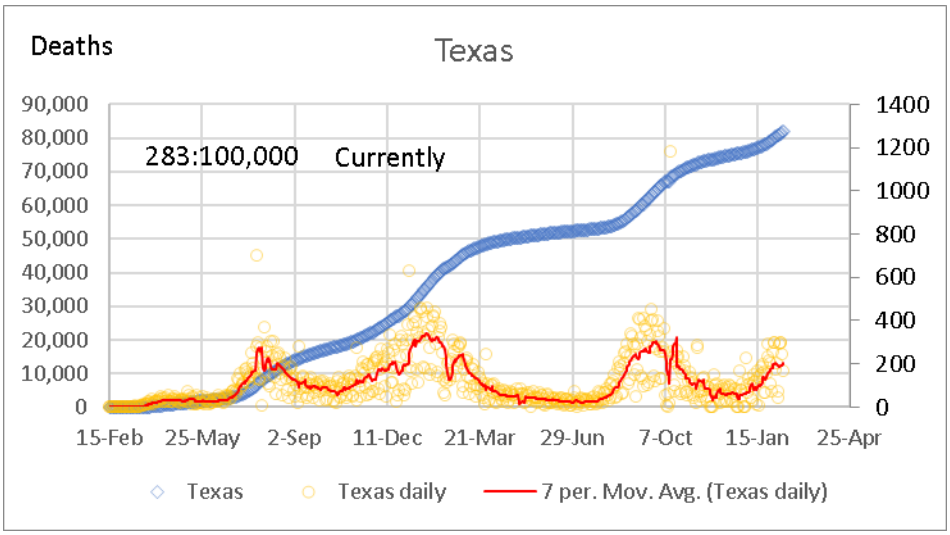
Make no mistake, Omicron (or Delta residuals) are still killing a lot of people in the US:



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.

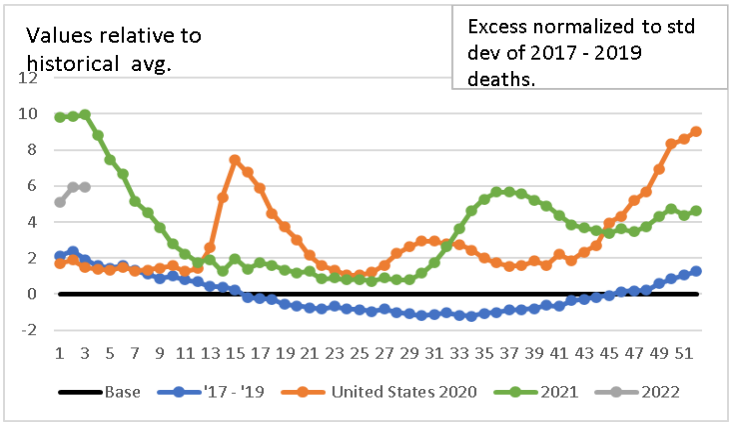
Last year the Wall Street Journal published data on annual causes of death which is plotted with the USA CV-19 death statistics. The possible death value is plotted as deaths per 100,000 with WSJ data of annual averages of leading causes. CDC data also shown, for 2020, as an alternative estimate. See "*Some Graphs*" for data and plots. Also see https://github.com/Dav909/Tri-County2/blob/master/Experimental%20page.pdf for some more relative comparisons of COVID mortality risk versus other common kinds. In addition to that, an interesting meta-analysis finds the lockdowns had no significant effect on mortality.[4] Also, here are some critical remarks on that same pre-print.[5]

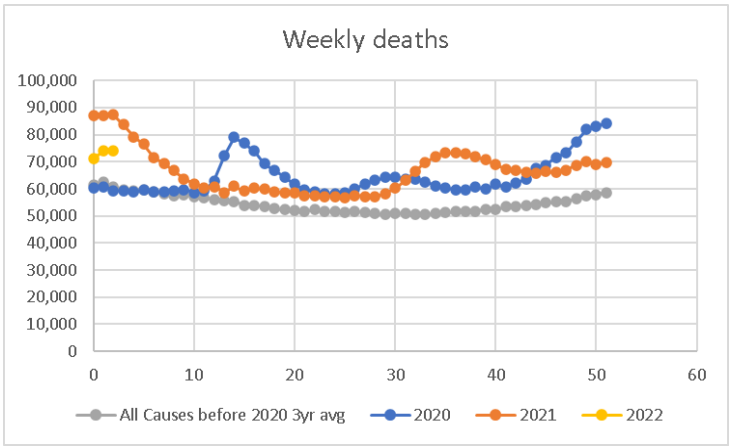


[4] https://sites.krieger.jhu.edu/iae/files/2022/01/A-Literature-Review-and-Meta-Analysis-of-the-Effects-of-Lockdowns-on-COVID-19-Mortality.pdf

[5] https://www.sciencemediacentre.org/expert-reaction-to-a-preprint-looking-at-the-impact-of-lockdowns-as-posted-on-the-john-hopkins-krieger-school-of-arts-and-sciences-website/

Excess Deaths





The chart on the top expresses it in terms of a *Z*-score, where $Z = 1$ is one standard deviation of the base data (2017 – 2019). We are not starting the year out very well, so far.

R_o

Basic Reproduction Rate (said as R-sub-0, or just R-0). R_o is a measure of transmissibility: $R_o < 1$, disease disappears; $R_o = 1$, it's endemic; $R_o > 1$, epidemic. R_o is mentioned a lot during this epidemic, along with flattening of curves, with not a lot of understanding or relevance. It's not even a rate, but usually defined as a ratio of two different rates. It is often referred to as "infection rate", to be confused with infectious rate and infected rate; I don't think that is a good usage. It is found in the cumulative data at the very beginning of an epidemic, when the curve is exponential, and when there is no immunity, and when all are considered susceptible. The mathematics start out pretty simple, but once you try to factor in varying immunity over time, variants through mutation, and other issues, it leads to mathematical modeling that probably doesn't tell us very much. The best prediction seems to be that we will have to get a COVID shot every year, like we do with flu. More discussion in the "*Details on R_o you may or may not be interested in*" file found elsewhere on this site.

Masks

There's a lot of hullaballoo about masks, but it's useful to remember that the "95" rated masks, like the N95 or KN95, are rated for the most difficult particle size to trap. Above this size, it's relatively easy to make a material that will act like a seive and trap particles and still be breathable. Below this size, it's interesting that the effectiveness of the mask relies on the random kinetic motion of molecules to shove the particles *into* the material. That's how small viruses are! The viruses are on the order of 100 nanometers; the critical size most difficult to trap because it falls between the two filtration modes is about 300 nanometers. So the viruses are best trapped by kinetic motion of molecules. The N95 is rated to trap 95% of particles of 300 nanometer size, which is where the "95" designation comes from. Since this size is the hardest to trap, this implies efficacy is better than 95% for particles bigger or smaller than this critical size.[6]

However, how much virus travels in an aerosol (that is, suspended in the air by itself)? It turns out a large portion of them ride on relatively large water droplets that people cough, sneeze, or otherwise expel. The fraction traveling the one way or the other way is not well understood. An N95 is "tight" enough that it offers resistance to air flow, so if it is not fitted properly, the air you breathe will bypass the filter and it will do no good. It also will get saturated sooner or later with various particles, which increases flow resistance and increases the tendency for bypass, too. So, it must be fitted properly and changed regularly. It's interesting health authorities are now promoting N95 masks, which leads one to believe they believe aerosols are predominating over water droplet, as the main form of transmission.

The cloth and surgical masks everyone wears don't offer much protection to the wearer, especially if it turns out aerosol is the predominant mode of transmission. There is some information that the humidity kept close to the face with such maskes has some benefit. However, if aerosol predominants, it's much like throwing sand through a cyclone fence and expecting the cyclone fence to stop it. As COVID19 seems to be morphing into something else, lower virulence and higher transmissibility indicates we need a different approach than what's been taken for the earlier versions.

[6] Millimeter is a thousandth of a meter (mm), micrometer (or micron, or μm) is a millionth of a meter, and a nanometer is a billionth of a meter (nm). So, a nanometer is one thousandth of a micron. A human hair is measured in the micron range, for example, say from 20 μm to 200 μm; 300 nm is 0.3 μm.