After watching the outbreak of COVID-19 for the past two months, I've followed the pace of the infection, its severity, and how our world is tackling the virus. While we should be concerned and diligent, the situation has dramatically elevated to a mob-like fear spreading faster than COVID-19 itself. When 13% of Americans believe they are currently infected with COVID-19 (mathematically impossible), full-on panic is blocking our ability to think clearly and determine how to deploy our resources to stop this virus. Over three-fourths of Americans are scared of what we are doing to our society through law and hysteria, not of infection or spreading COVID-19 to those most vulnerable.

The following article is a systematic overview of COVID-19 driven by data from medical professionals and academic articles that will help you understand what is going on (sources include CDC, WHO, NIH, NHS, University of Oxford, John Hopkins, Stanford, Harvard, NEJM, JAMA, and several others). I'm quite experienced at understanding virality, how things grow, and data. In my vocation, I'm most known for popularizing the "growth hacking movement" in Silicon Valley that specializes in driving rapid and viral adoption of technology products. Data is data. Our focus here isn't treatments but numbers. You don't need a special degree to understand what the data says and doesn't say. Numbers are universal.

I hope you walk away with a more informed perspective on how you can help and fight back against the hysteria that is driving our country into a dark place. You can help us focus our scarce resources on those who are most vulnerable, who need our help.

Note: The following graphs and numbers are as of mid-March 2020. Things are moving quickly, so I update this article as much as possible. Most graphs are as of March 20th to 29th, 2020

Follow me on Twitter if you would like to see the updated graphics and articles.

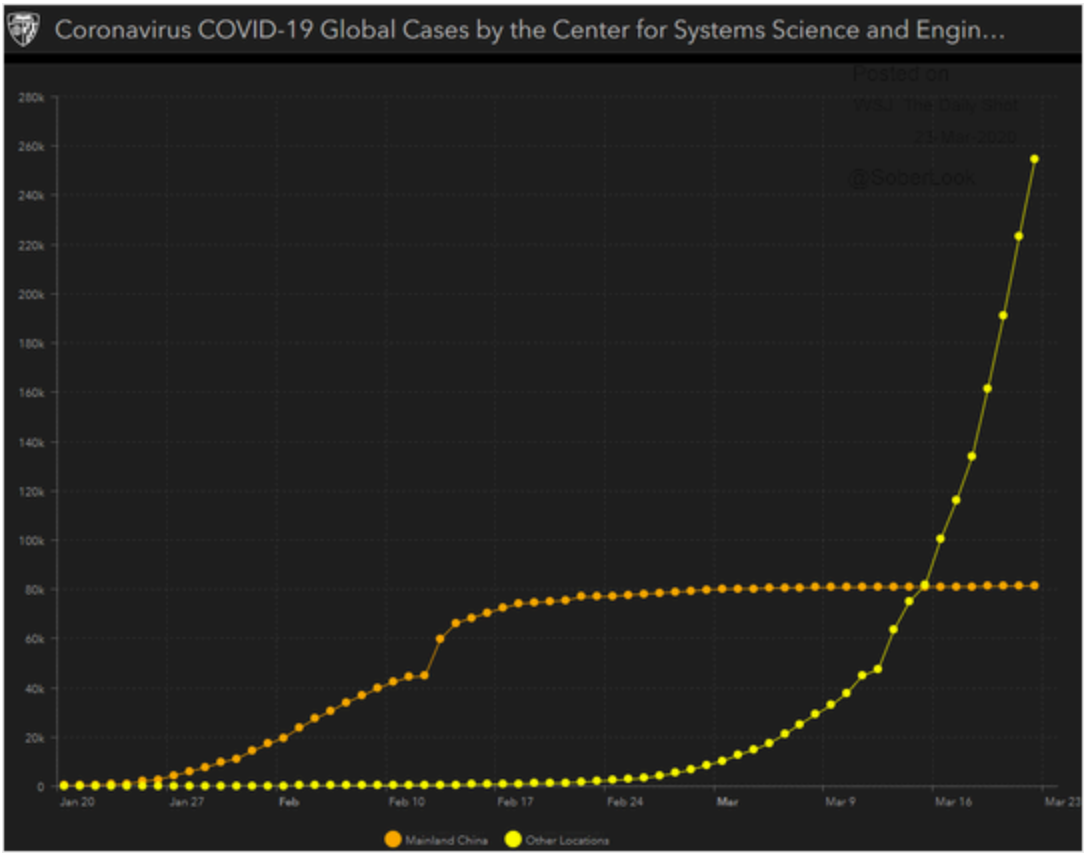
Best,

Aaron Ginn

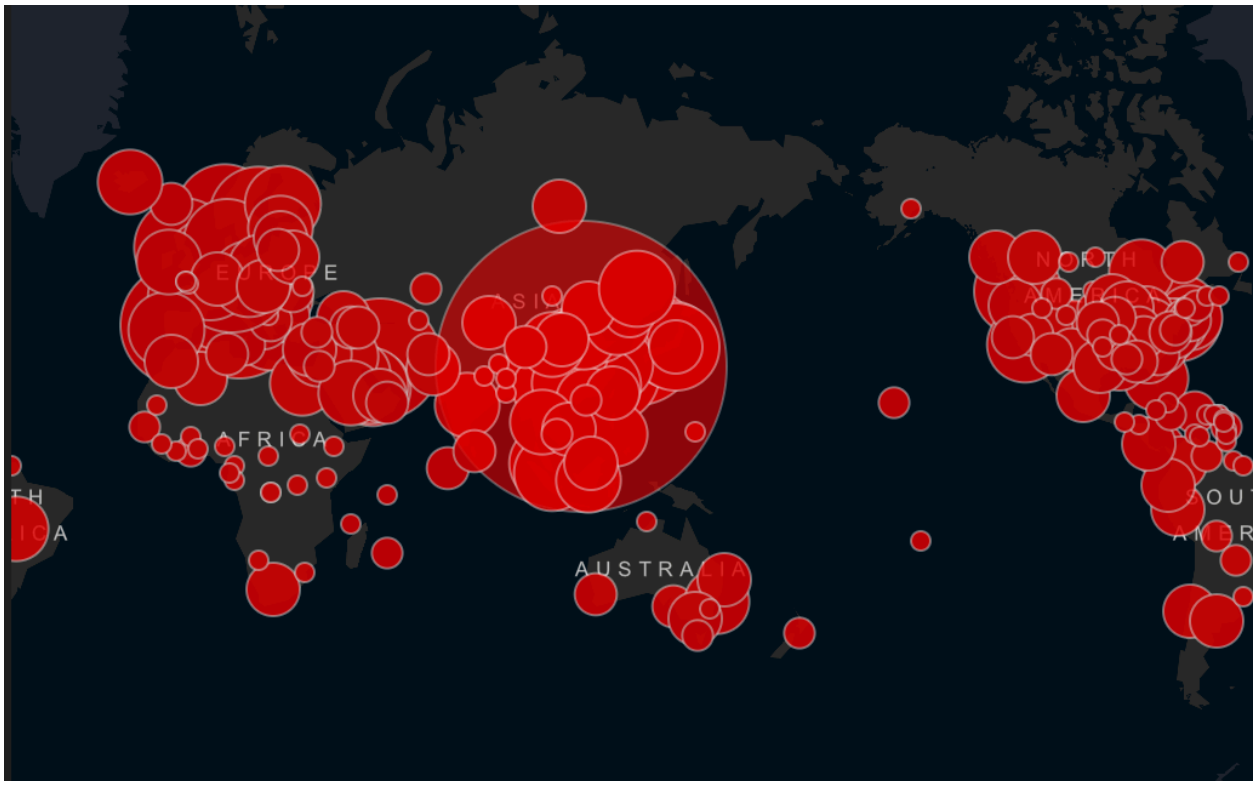
Total cases are the wrong metric

A critical question to ask yourself when you first look at a data set is, “What is our metric for success?”.

Let’s start at the top. How is it possible that more than 20% of Americans believe they will catch COVID-19? Here’s how. Vanity metrics—a single data point with no context. Wouldn’t this picture scare you?

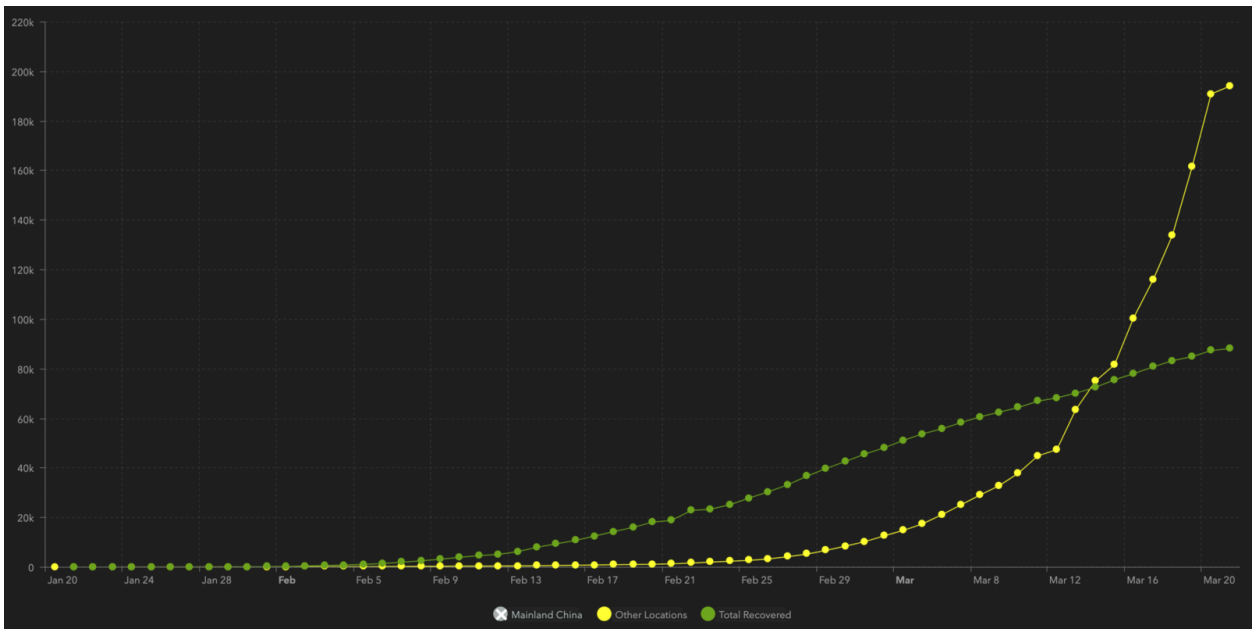


Look at all of those large red scary circles!



These images come from the now infamous John Hopkins COVID-19 tracking map. What started as a data transparency effort has now molded into an unintentional tool for hysteria and panic.

An important question to ask yourself is what do these bubbles actually mean? Each bubble represents the total number of COVID-19 cases per country. The situation looks serious, yet we know that this virus is over four months old, so how many of these cases are active?



Immediately, we now see that just under half of those terrifying red bubbles aren't relevant or actionable. The total number of cases isn't illustrative for what we should do now. This is a single vanity data point with no context; it isn't information or knowledge. To know how to respond, we need more numbers to tell a story and to paint the full picture. As a metaphor, the daily revenue of a business doesn't tell you a whole lot about profitability, capital structure, or overhead. The same goes for the total number of cases. The data isn't actionable. We need to look at ratios and percentages to tell us what to do next—conversion rate, growth rate, and severity.

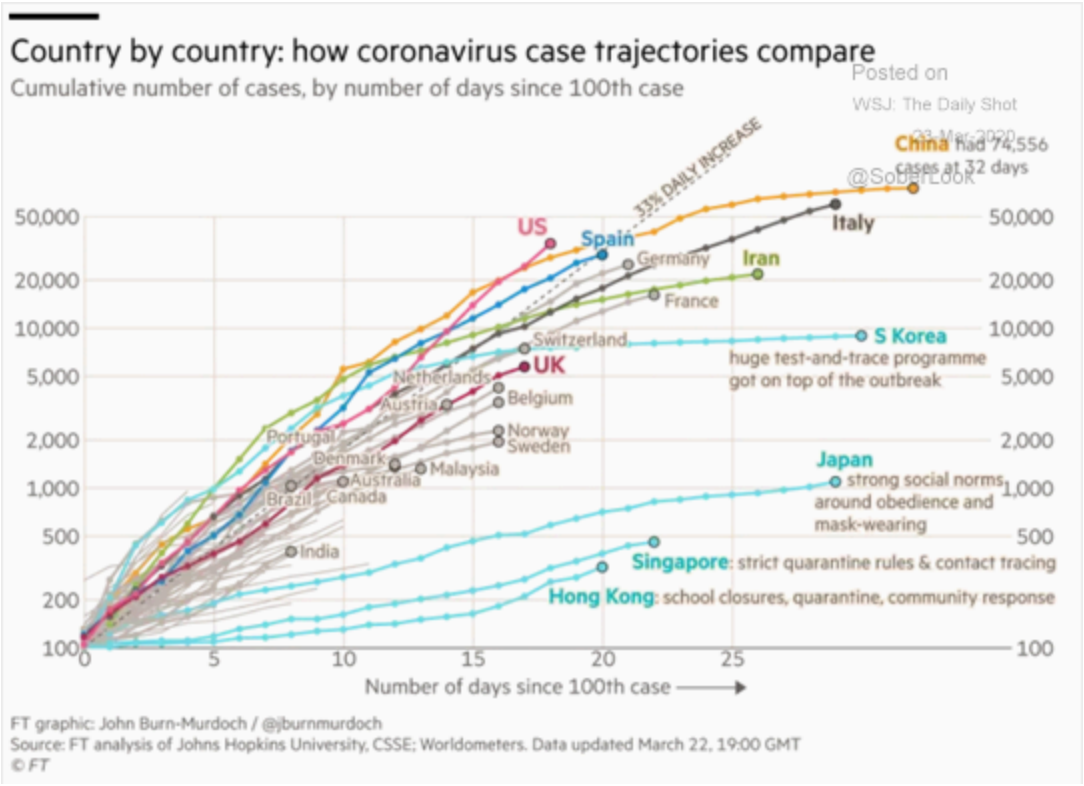
"The numbers are almost meaningless," says Steve Goodman, a professor of epidemiology at Stanford University. He says there is a huge reservoir of people who have mild cases, and would not likely seek testing. According to Dr. Goodman, the rate of increase in positive results

reflect a mixed-up combination of increased testing rates and spread of the virus. As well, positive tests in the US aren't recording symptoms or demographic information. He argues that hospitalizations is a superior metric as it tracks more closely to managing resources and the data quality is superior.

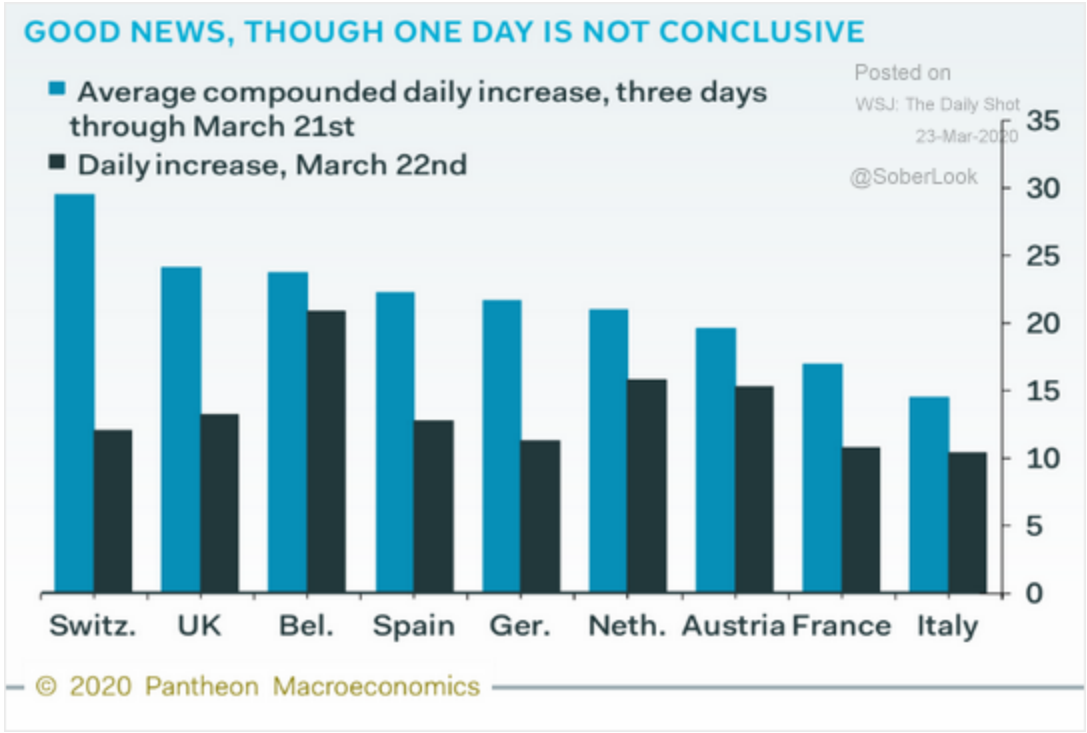
Time lapsing new cases gives us perspective

Breaking down each country by the date of the first infection helps us track the growth and impact of the virus. We can see how total cases are growing against a consistent time scale.

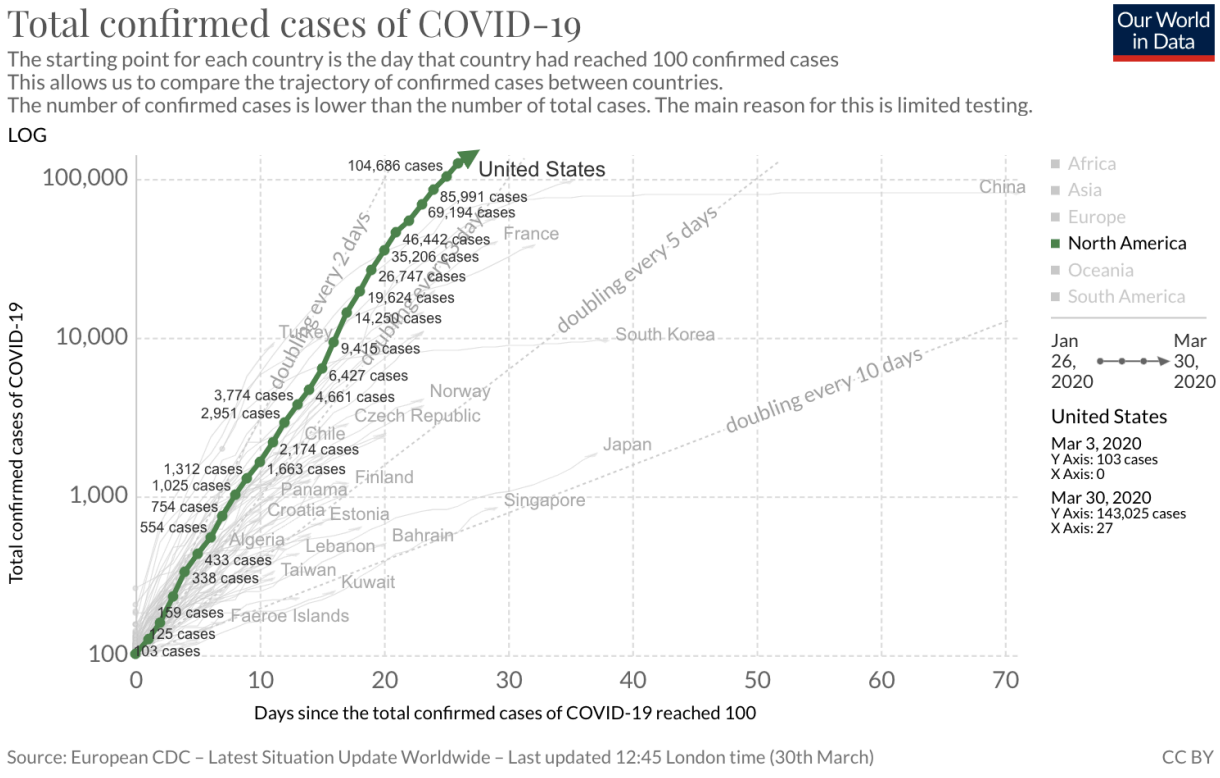
Here are new cases time lapsed by country and date of first 100 total cases.



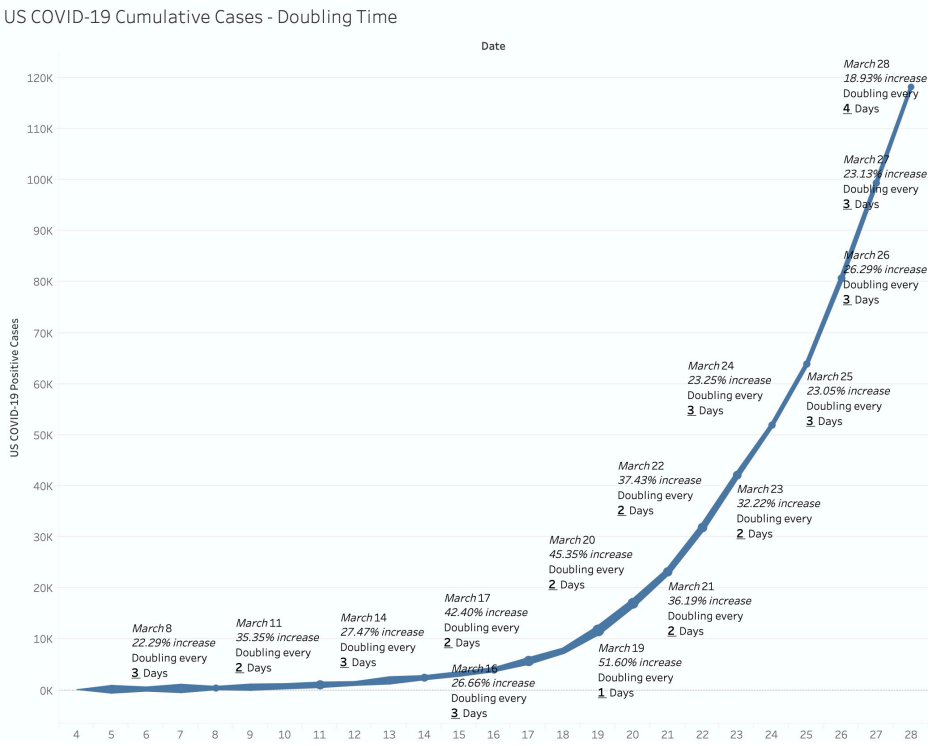
There are some signs that Europe has reached “peak” daily cases.



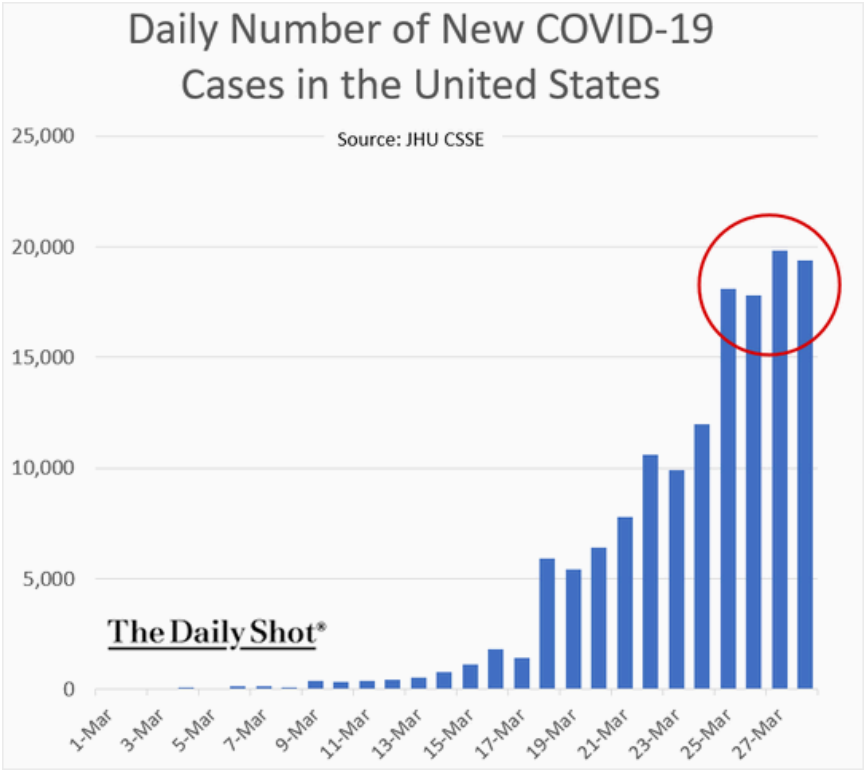
Here is a better picture of US confirmed case daily growth.



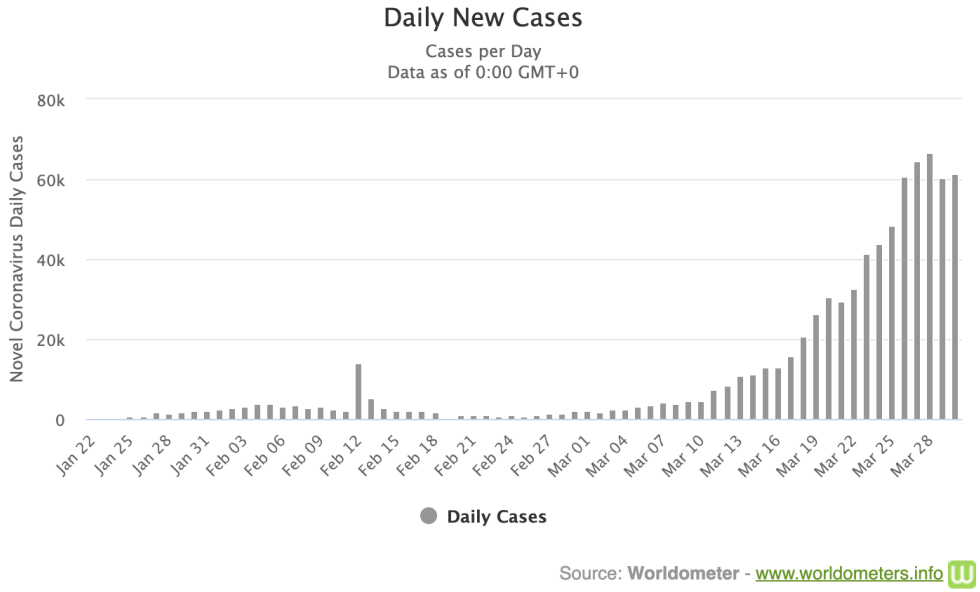
Though rapidly increasing, a true exponential curve failed to appear. As of the end of March, the total number of cases started to slow.



On a new daily case growth basis, the US started to see a flattening of cases since March 25th.


Daily Number of New COVID-19 Cases in the United States
Source: JHU CSSE
25,000
20,000
15,000
10,000
5,000
0
The Daily Shot®
1-Mar
3-Mar
5-Mar
7-Mar
9-Mar
11-Mar
13-Mar
15-Mar
17-Mar
19-Mar
21-Mar
23-Mar
25-Mar
27-Mar

Globally, daily case growth also started to flatten.



The United States is tracking with European nations with doubling cases every three days or so. As we measure and test more Americans, this will continue to grow. Our time-lapse growth is lower than China, but not as good as South Korea, Japan, Singapore, or Taiwan. All are considered models of how to beat COVID-19. The United States is performing average, not great, compared to the other modern countries by this metric.

Still, there is a massive blindspot with this type of graph. None of these charts are weighted on a per-capita basis. It treats every country as a single entity, as we will see this fails to tell us what is going on in several aspects.

On a per-capita basis, we shouldn't be panicking

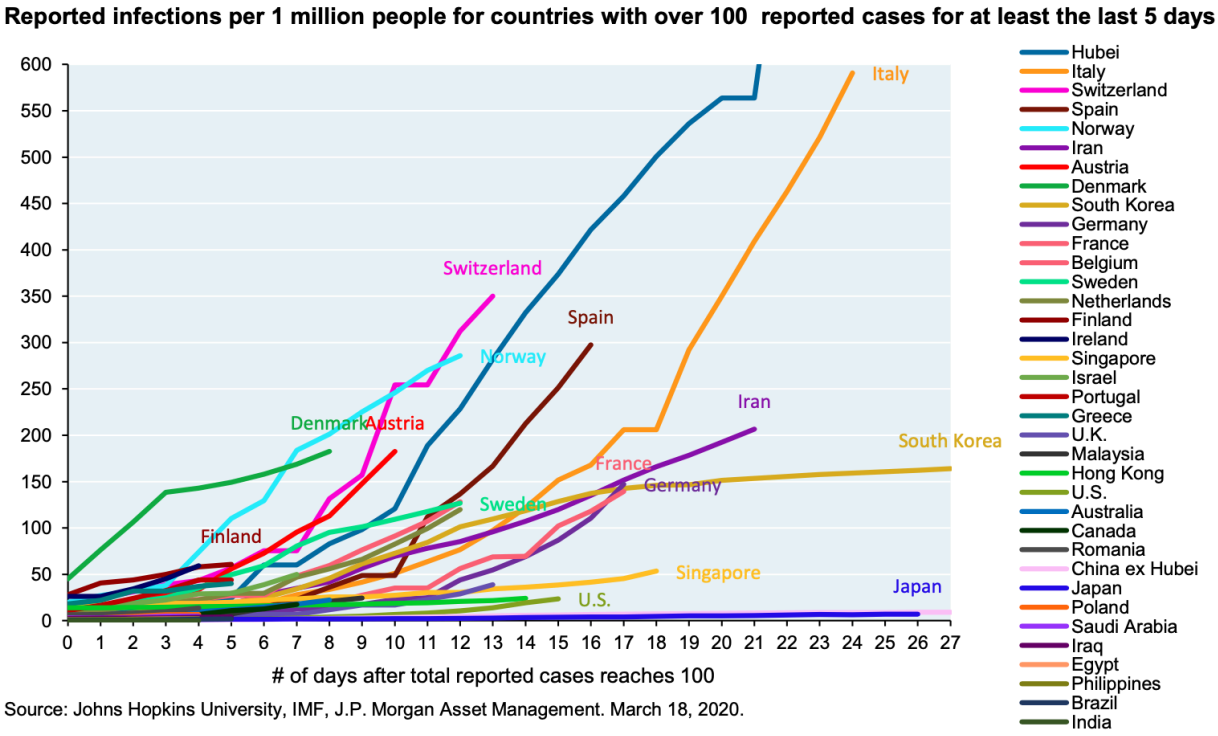
Every country has a different population size which skews aggregate and cumulative case comparisons. By controlling for population, you can properly weigh the number of cases in the context of the local population size. Viruses don't acknowledge our human borders. The US population is 5.5X greater than Italy, 6X larger than South Korea, and 25% the size of China. Comparing the US total number of cases in absolute terms is rather silly.

Rank ordering based on the total number of cases shows that the US on a per-capita basis is significantly lower than the top six nations by case volume. On a 1 million citizen per-capita basis, the US moves to above mid-pack of all countries and rising, with similar case volume as Singapore (385 cases), Cyprus (75 cases), and United Kingdom(3,983 cases). This is data as of March 20th, 2020.

Country	Total number of cases	Total Cases / 1M Population
China	81,008	56
Italy	47,021	778
Spain	21,571	461
Germany	19,848	237
USA	19,658	59
Iran	19,644	234
France	12,612	193
S. Korea	8,799	172

Source: https://www.worldometers.info/coronavirus/

Here is a visualization of a similar per-capita analysis.

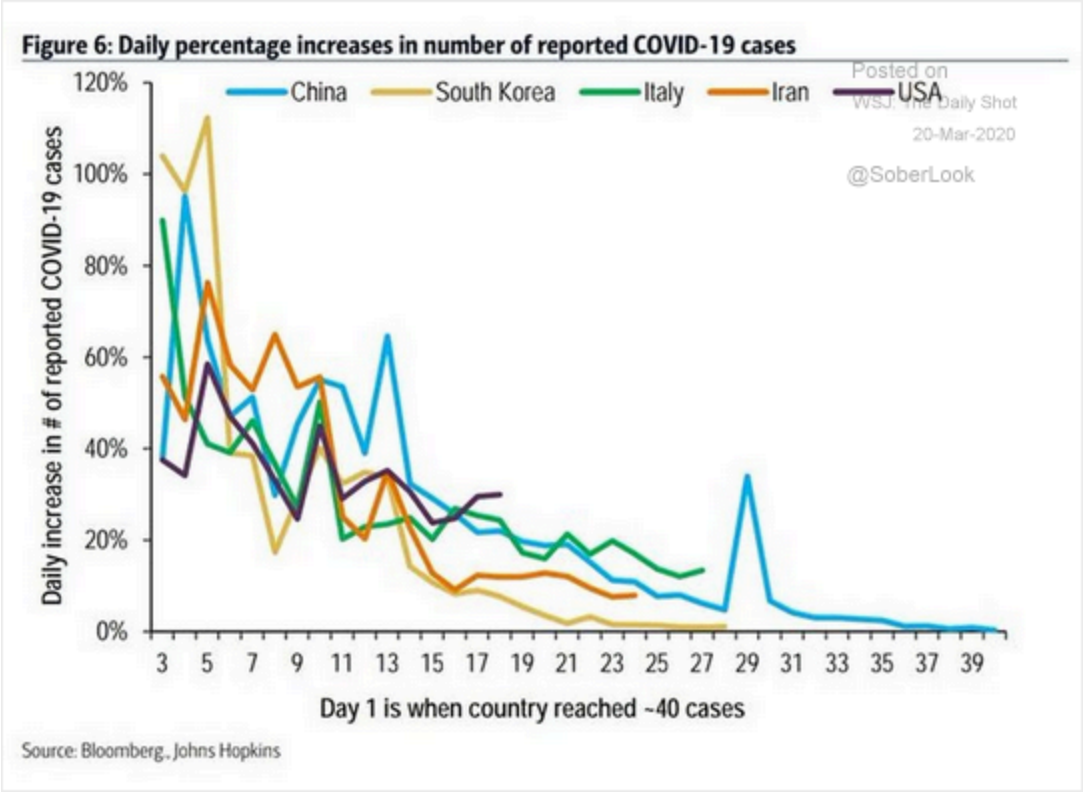


Source: Johns Hopkins University, IMF, J.P. Morgan Asset Management. March 18, 2020.

But total cases even on a per-capita basis will always be a losing metric. The denominator (total population) is more or less fixed. We aren't having babies at the pace of viral growth. Per-capita won't explain how fast the virus is moving and if it is truly "exponential".

COVID-19 is spreading, but no longer accelerating

Growth rates are tricky to track over time. Smaller numbers are easier to move than larger numbers. As an example, GDP growth of 3% for the US means billions of dollars while 3% for Bermuda means millions. Generally, growth rates decline over time, but the nominal increase may still be significant. This holds true of daily confirmed case increases. **Daily growth rates declined over time across all countries regardless of particular policy solutions, such as shutting the borders or social distancing**. **All of these countries took various approaches and implementations yet the decline appears to be very similar, so which policy proposals work?**



Italy is seen to have made significant mistakes in containment and mitigation, while South Korea is held up as a model. For China, outside of Hubei the virus fatality was dramatically lower. Despite the wide variance in policy solutions, all three countries follow a similar viral pattern.


ITALY'S PEAK LASTING LONGER THAN CHINA'S AND KOREA'S
Daily change in number of coronavirus cases: China ex-Hubei
South Korea
Italy
Posted on
WSJ: The Daily Shot
30-Mar-2020
@SoberLook
T=0
China: Jan 23
S. Korea: Feb 20
Italy: Mar 9
1000
900
800
700
600
500
400
300
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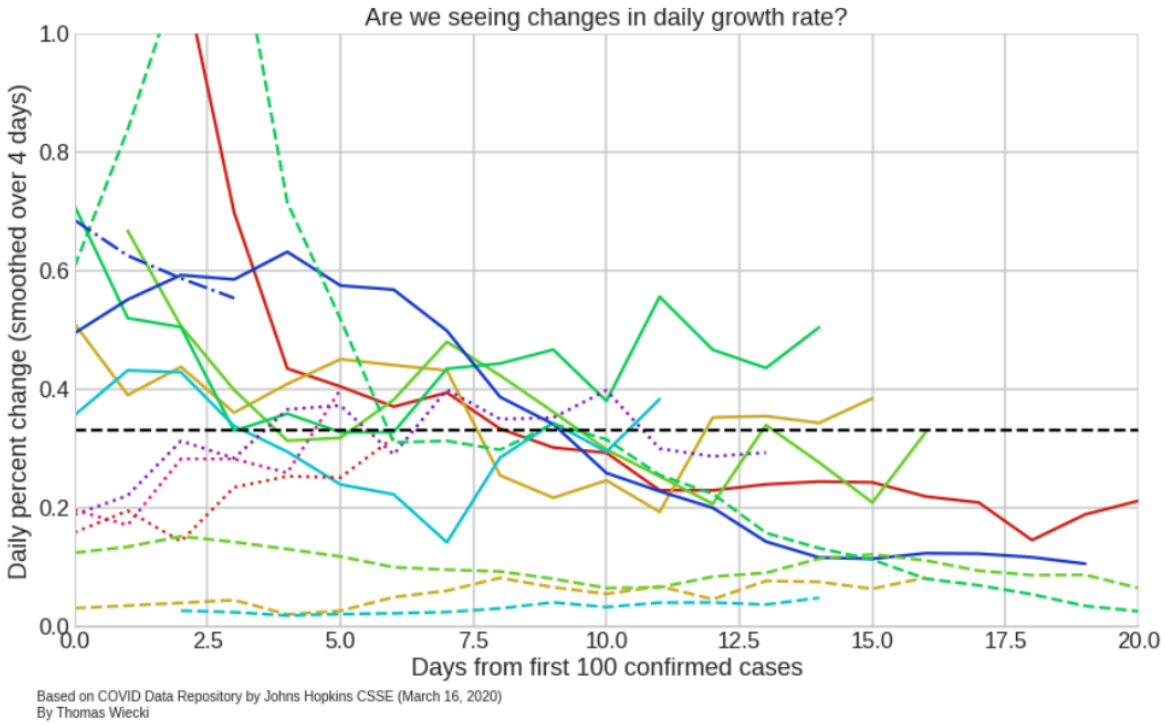
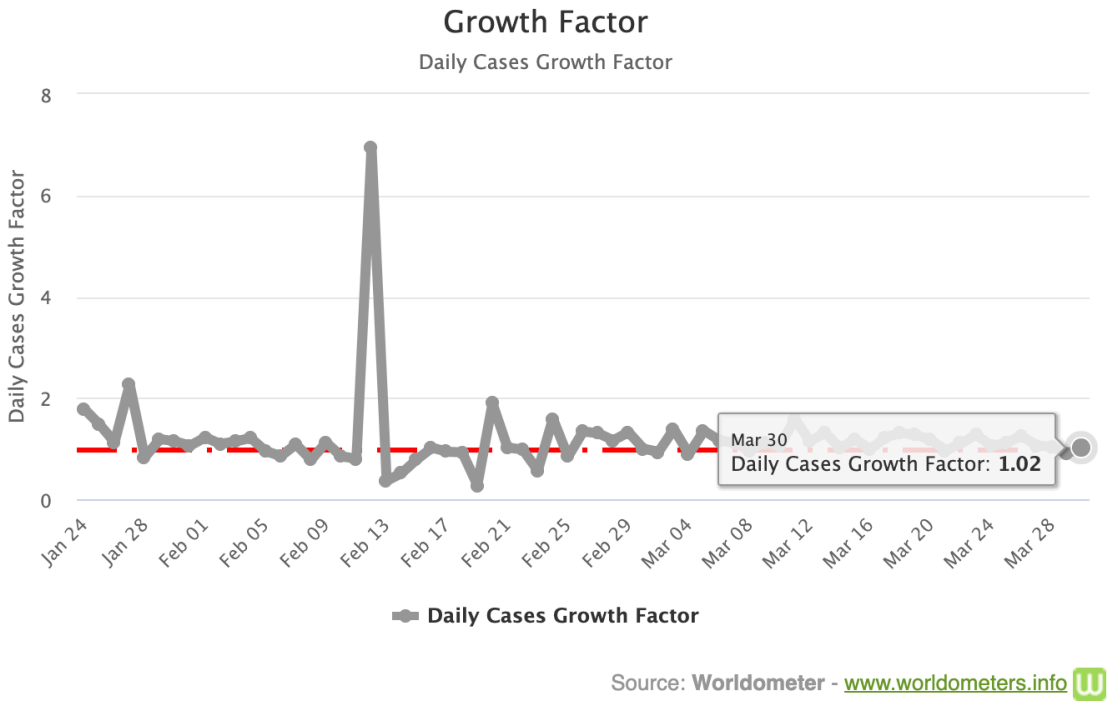


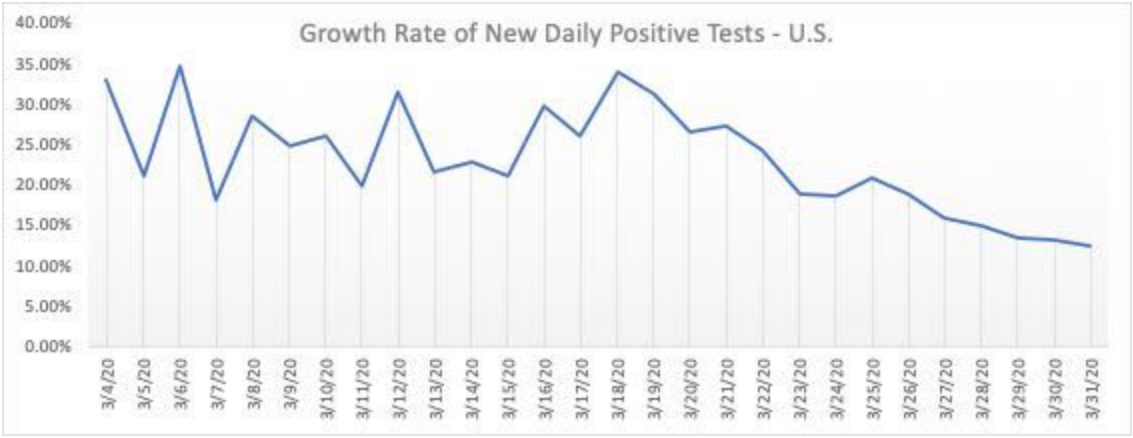
The daily growth data across the world is a little noisy. Weighing daily growth of confirmed cases by a relative daily growth factor cleans up the picture, more than 1 is increasing and below 1 is declining. For all of March, the world has hovered around 1.1. This translates to an average daily growth rate of 10%, with ups and downs on a daily basis. This isn't great, but it is good news as COVID-19 most likely isn't increasing in virality. The growth rate of the growth rate is approximately 10%; however, the data is quite noisy. With inconsistent country-to-country reporting and what qualifies as a confirmed case, the more likely explanation is that we are

increasing our measurement, but the virus hasn't increased in viral capability. Recommended containment and prevention strategies are still quite effective at stopping the spread.



Cases globally are increasing (it is a virus after all!), but beware of believing metrics designed to intentionally scare like "cases doubling". These are typically small numbers over small numbers and sliced on a per-country basis. Globally, COVID-19's growth rate is rather steady. Remember, viruses ignore our national boundaries.

According to COVIDtracking, US's daily case growth started to decline from a peak on March 18th, 2020.



Viruses though don't grow infinitely forever and forever. As with most things in nature, viruses follow a common pattern—a bell curve.

Watch the Bell Curve

As COVID-19 spreads and declines (which it will decline despite what the media tells you), every country will follow a similar pattern and the variance will depend on various mitigation strategies. The following is a more detailed graph of S. Korea's successful defeat of COVID-19 compared also to China with thousands of more cases and deaths. It is a bell curve:

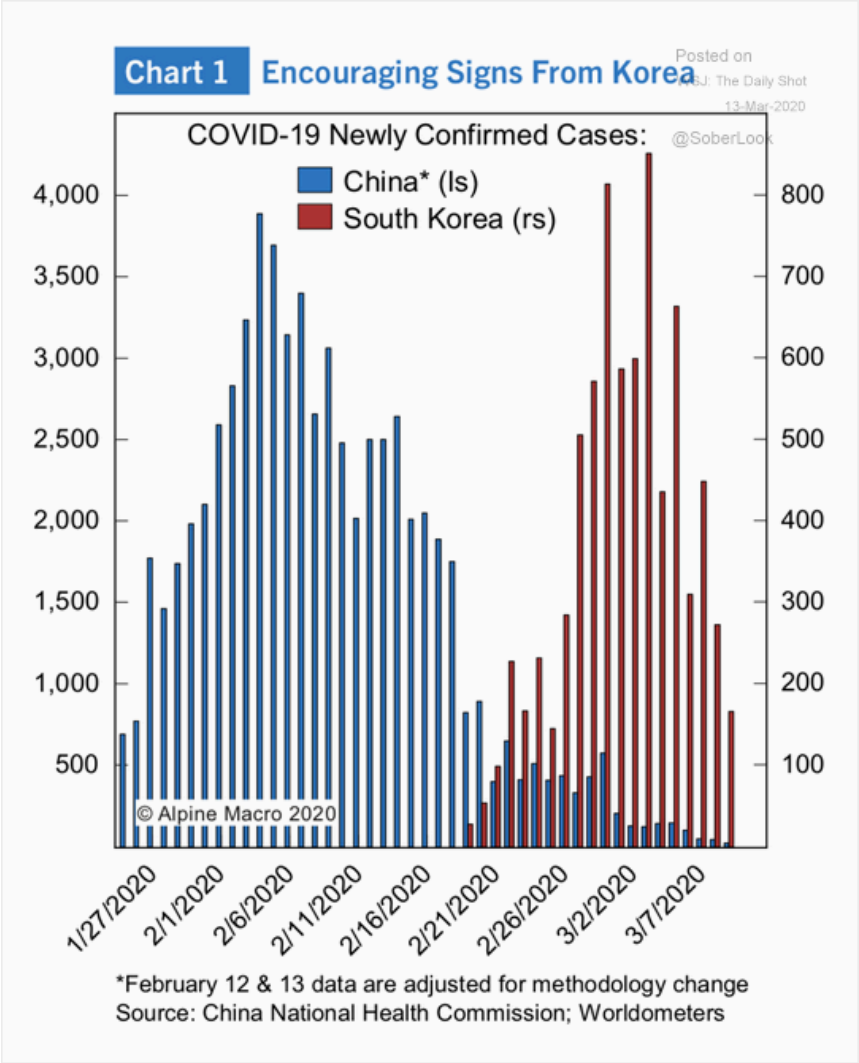
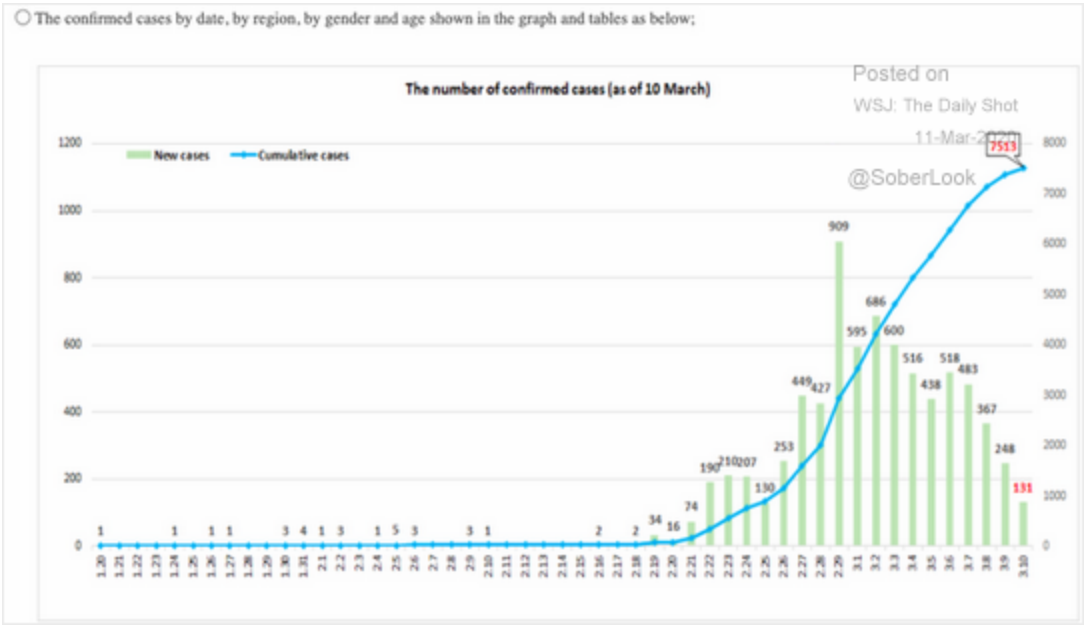
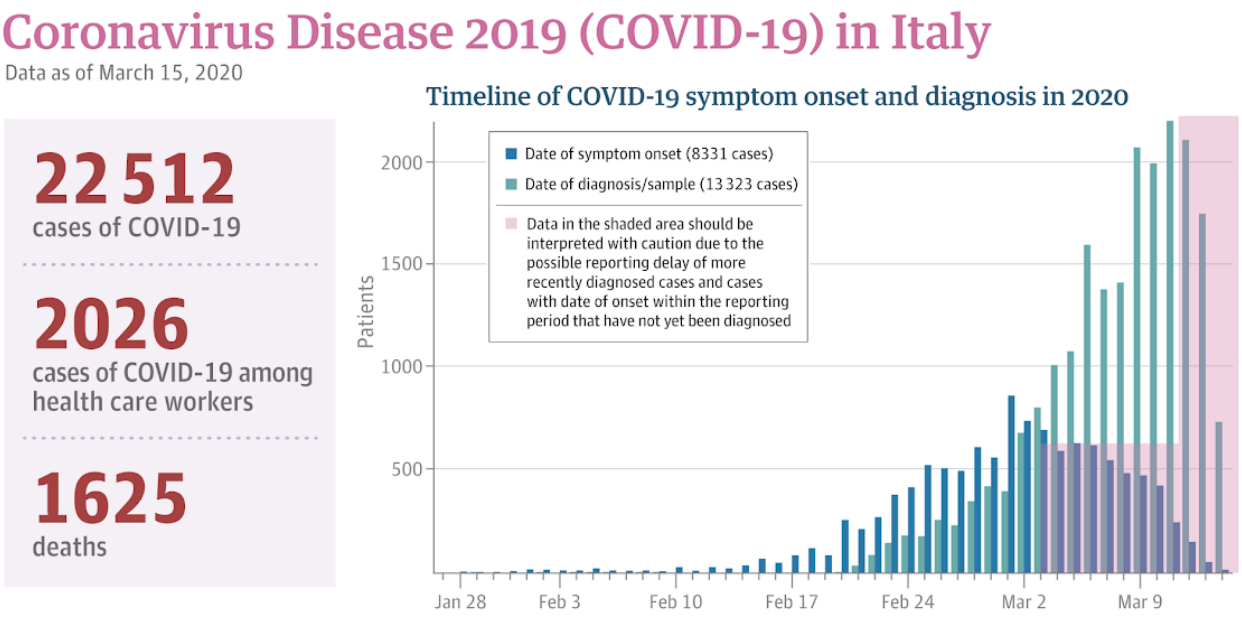


Chart 1 Encouraging Signs From Korea
Posted on WSJ: The Daily Shot 13-Mar-2020
COVID-19 Newly Confirmed Cases:
@SoberLook
China* (ls)
South Korea (rs)
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
800
700
600
500
400
300
200
100
© Alpine Macro 2020
1/27/2020
2/1/2020
2/6/2020
2/11/2020
2/16/2020
2/21/2020
2/26/2020
3/2/2020
3/7/2020
*February 12 & 13 data are adjusted for methodology change
Source: China National Health Commission; Worldometers

Here is a more detailed graph of S. Korea graphed against the total number of cases.



Here is a graph from Italy showing a bell curve in symptom onset and number of cases, which may point to the beginning of the end for Italy —

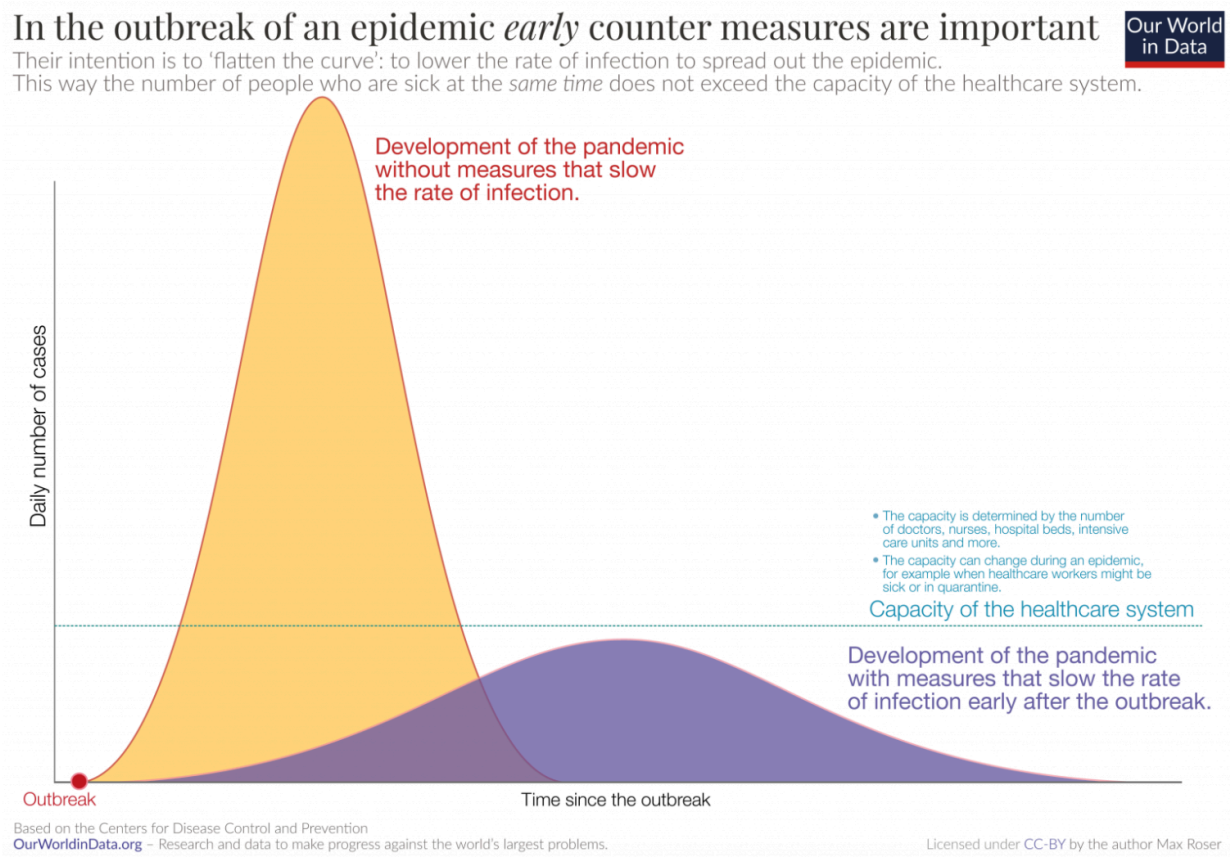


JAMA—https://jamanetwork.com/journals/jama/pages/coronavirus-alert

Bell curves is a trait of most outbreaks. A virus like COVID-19 doesn't grow linearly or exponentially forever (if assuming reasonable assumptions about time). It accelerates, plateaus, and then declines. Whether via environmental factors or our own efforts, viruses accelerate then reach resistance barriers. Academically, this is represented in Farr's law. CDC's recommendation of "bend the curve" or "flatten the curve" reflects this natural reality.

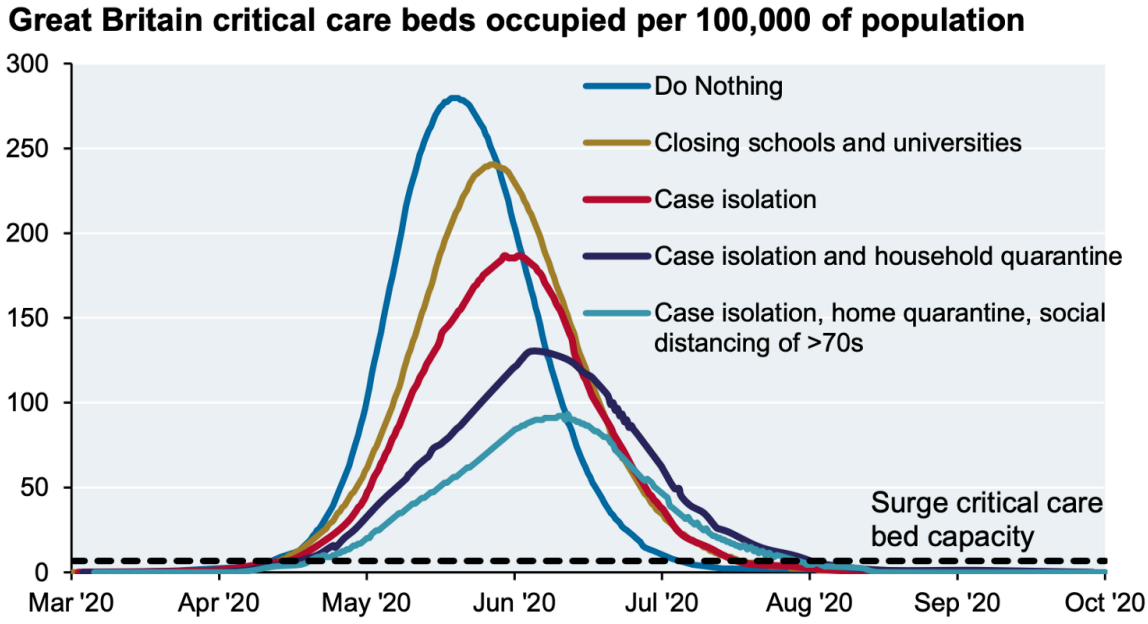
Dr. Dan Yamin, who successfully predicted the spread of Ebola at Yale, currently heads the Laboratory for Epidemic Modeling and Analysis in Tel Aviv University's engineering faculty, writes on the viral outbreak of COVID-19.

“The basic principle is that a virus with an R0 of 2 in a non-immune population can be expected to infect 50% of the population. After that the R) will reach a value of 1 or less, and the disease will be contained. By the way, it will recede in a converging exponential; in other words, the coronavirus can be expected to disappear from the region with the same dizzying speed with which it entered our lives.”



It is important to note that in both scenarios, the total number of COVID-19 cases will be similar. The primary difference is the length of time. “Flattening the curve”’s focus is to minimize a shock to the healthcare system which can increase fatalities due to capacity constraints, as seen in Italy and Wuhan, China. In the long-term, it isn’t pure “infection prevention”, rather it prioritizes lower healthcare utilization. Unfortunately, “flattening the curve” doesn’t include other downsides and costs of execution.

Predictive models out of Imperial College of London (now “updated” as March 26th with massive global criticism) predicts millions of infections if nothing is done, but follows a bell curve pattern.



Source: *"Impact of non-pharmaceutical interventions (NPIs) to reduce COVID19 mortality and healthcare demand",* N Ferguson et al, Imperial College of London, March 2020.

Recently, the Imperial College study and overall work has come under criticism for utilizing a worse-case scenario modeling. Ten years ago, a similar issue arose with their swine flu projections that forecasted billions infected and millions of fatalities. CDC estimated that 151,700-575,400 people worldwide died.

University of Oxford's Evolutionary Ecology of Infectious Disease group criticized the Imperial College projections as their modeling showed significant herd immunity within England, "I am surprised that there has been such unqualified acceptance of the Imperial model,' said Professor Sunetra Gupta of theoretical epidemiology who led the study.

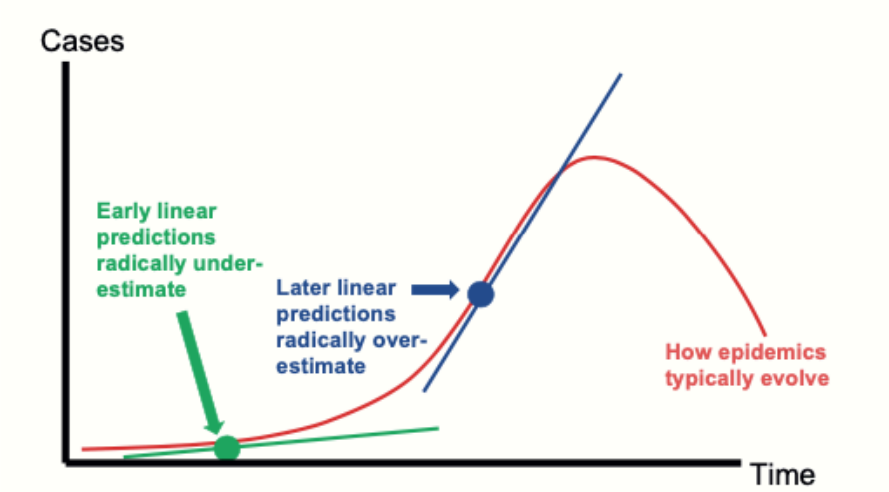
Both the CDC and WHO are optimizing for healthcare utilization, while ignoring the economic shock to our system. Both organizations assume you are going to get infected, eventually, and it won't be that bad. Typically, "flattening the curve" reduces fatalities with expanded healthcare capacity but overall infections are similar in both scenarios.

You can play a game here on the different "flattening the curve" scenarios - https://www.washingtonpost.com/graphics/2020/world/corona-simulator/

In a time of pandemics and viral outbreaks, it is easy to get wrapped up in infinite and "straight line" thinking. When you read reports about millions and millions infected, these models usually

assume some form of straight line thinking which will break down eventually.

Figure 2 Mistakes from straight lining the future



Source: Authors' elaboration.

For context on how to avoid this type of thinking, Christopher Balding, an associate professor at the Fulbright University Vietnam, writes:

Arguably the most repeated phrase in corona publicity is that it is growing at 30% daily. At the outset, we can discard this number as entirely unrealistic. How do we know? If that number were true of the virus from when it became known on November 15, it would have already infected 1.4 quadrillion people. However, this number must also be false even if we just focus on the United States. Again, how do we know? ***Assume the virus entered the US, roughly accurate assumption based upon existing evidence, on January 1, 2020 and grew at 30% daily, it would have already infected 6.3 billion Americans. In other words, it would have infected every American man, woman, and child 19 times.*** *However, neither can it be the*

globally observed number of 10.5%. If it entered America on January 1, this would result in fewer than 6,000 corona cases. So the question becomes: how fast is corona spreading?

A low chance of catching COVID-19

The World Health Organization ("WHO") released a study on how China responded to COVID-19. Currently, this study is one of the most exhaustive pieces published on how the virus spreads.

The results of their research show that COVID-19 doesn't spread as easily as we first thought or the media had us believe (remember people abandoned their dogs out of fear of getting infected). **According to their report if you come in contact with someone who tests positive for COVID-19 you have a 1–5% chance of catching it as well**. The variability is large because the infection is based on the type of contact and how long.

The majority of viral infections come from prolonged exposures in confined spaces with other infected individuals. Person-to-person and surface contact is by far the most common cause. From the WHO report, "When a cluster of several infected people occurred in China, it was most often (78–85%) caused by an infection within the family by droplets and other carriers of infection in close contact with an infected person.

From the CDC's study on transmission in China and Princess Cruise outbreak -

> *A growing body of evidence indicates that COVID-19 transmission is facilitated in confined settings; for example, a large cluster (634 confirmed cases) of COVID-19 secondary infections occurred aboard a cruise ship in Japan, representing about one fifth of the persons aboard who were tested for the virus. This finding indicates the high transmissibility of COVID-19 in enclosed spaces*

Dr. Paul Auwaerter, the Clinical Director for the Division of Infectious Diseases at Johns Hopkins University School of Medicine echoes this finding,

> "If you have a COVID-19 patient in your household, your risk of developing the infection is about 10%….If you were casually exposed to the virus in the workplace (e.g., you were not locked up in conference room for six hours with someone who was infected [like a hospital]), your chance of infection is about 0.5%"

According to Dr. Auwaerter, these transmission rates are very similar to the seasonal flu.

Air-based transmission or untraceable community spread is very unlikely. According to WHO's COVID-19 lead Maria Van Kerkhove, true community based spreading is very rare. The data from China shows that community-based spread was only a very small handful of cases. "This virus is not circulating in the community, even in the highest incidence areas across China," Van Kerkhove said.

> ***"Transmission by fine aerosols in the air over long distances is not one of the main causes of spread.*** *Most of the 2,055 infected hospital workers were either infected at home or in the early phase of the outbreak in Wuhan when hospital safeguards were not raised yet,"* she said.

True community spread involves transmission where people get infected in public spaces and there is no way to trace back the source of infection. WHO believes that is not what the Chinese data shows. If community spread was super common, it wouldn't be possible to reduce the new cases through "social distancing".

> "We have never seen before a respiratory pathogen that's capable of community transmission but at the same time which can also be contained with the right measures. If this was an influenza epidemic, we would have expected to see

> widespread community transmission across the globe by now and efforts to slow it down or contain it would not be feasible," said Tedros Adhanom, Director-General of WHO.

An author of a working paper from the Department of Ecology and Evolutionary Biology at Princeton University said, "The current scientific consensus is that most transmission via respiratory secretions happens in the form of large respiratory droplets … rather than small aerosols. Droplets, fortunately, are heavy enough that they don't travel very far and instead fall from the air after traveling only a few feet."

The media was put into a frenzy when the above authors released their study on COVID-19's ability to survive in the air. The study did find the virus could survive in the air for a couple of hours; however, this study was designed as academic exercise rather than a real-world test. This study put COVID-19 into a spray bottle to "mist" it into the air. I don't know anyone who coughs in mist form and it is unclear if the viral load was large enough to infect another individual. As one doctor, who wants to remain anonymous, told me, "Corona doesn't have wings".

To summarize, China, Singapore, and South Korea's containment efforts worked because community-based and airborne transmission aren't common. The most common form of transmission is person-to-person or surface-based.

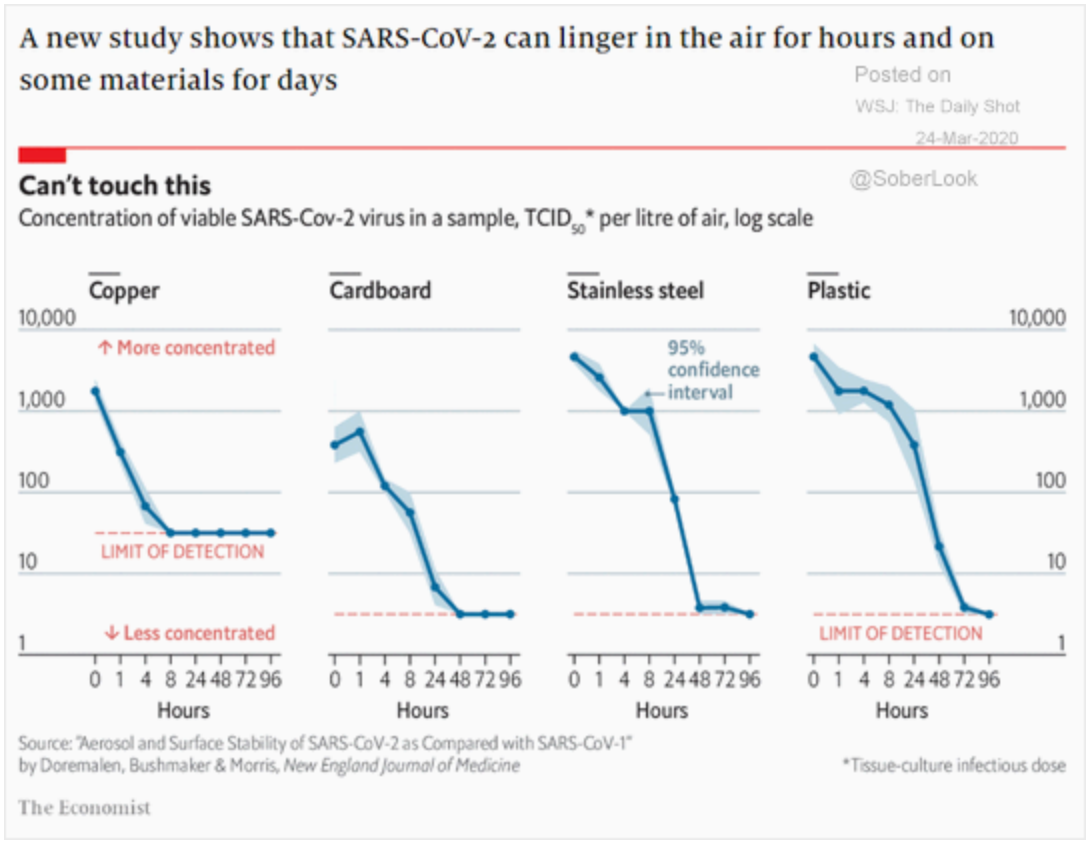
Common transmission surfaces

COVID-19's ability to live for a long period of time is limited on most surfaces and it is quite easy to kill with typical household cleaners, just like the normal flu.

- COVID-19 can be detected on copper after 4 hours and 24 hours on cardboard.

- COVID-19 survived best on plastic and stainless steel, remaining viable for up to 72 hours
- COVID-19 is very vulnerable to UV light and heat.

Presence doesn't mean infectious. The viral concentration falls significantly over time. The virus showed a half-life of about 0.8 hours on copper, 3.46 hours on cardboard, 5.6 hours on steel and 6.8 hours on plastic.



According to Dylan Morris, one of the authors, “We do not know how much virus is actually needed to infect a human being with high probability, nor how easily the virus is transferred from the cardboard to one’s hand when touching a package”

According to Dr. Auwaerter, “It’s thought that this virus can survive on surfaces such as hands, hard surfaces, and fabrics. Preliminary data indicates up to 72 hours on hard surfaces like steel and plastic, and up to 12 hours on fabric.”

COVID-19 could “burn off” in the summer

Due to COVID-19’s sensitivity to UV light and heat (just like the normal influenza virus), it is possible that it will “burn off” as humidity increases and temperatures rise.

Released on March 10th, one study mapped COVID-19 virality capability by high temperature and high humidity. It found that both significantly reduced the ability of the virus to spread from person-to-person. From the study,

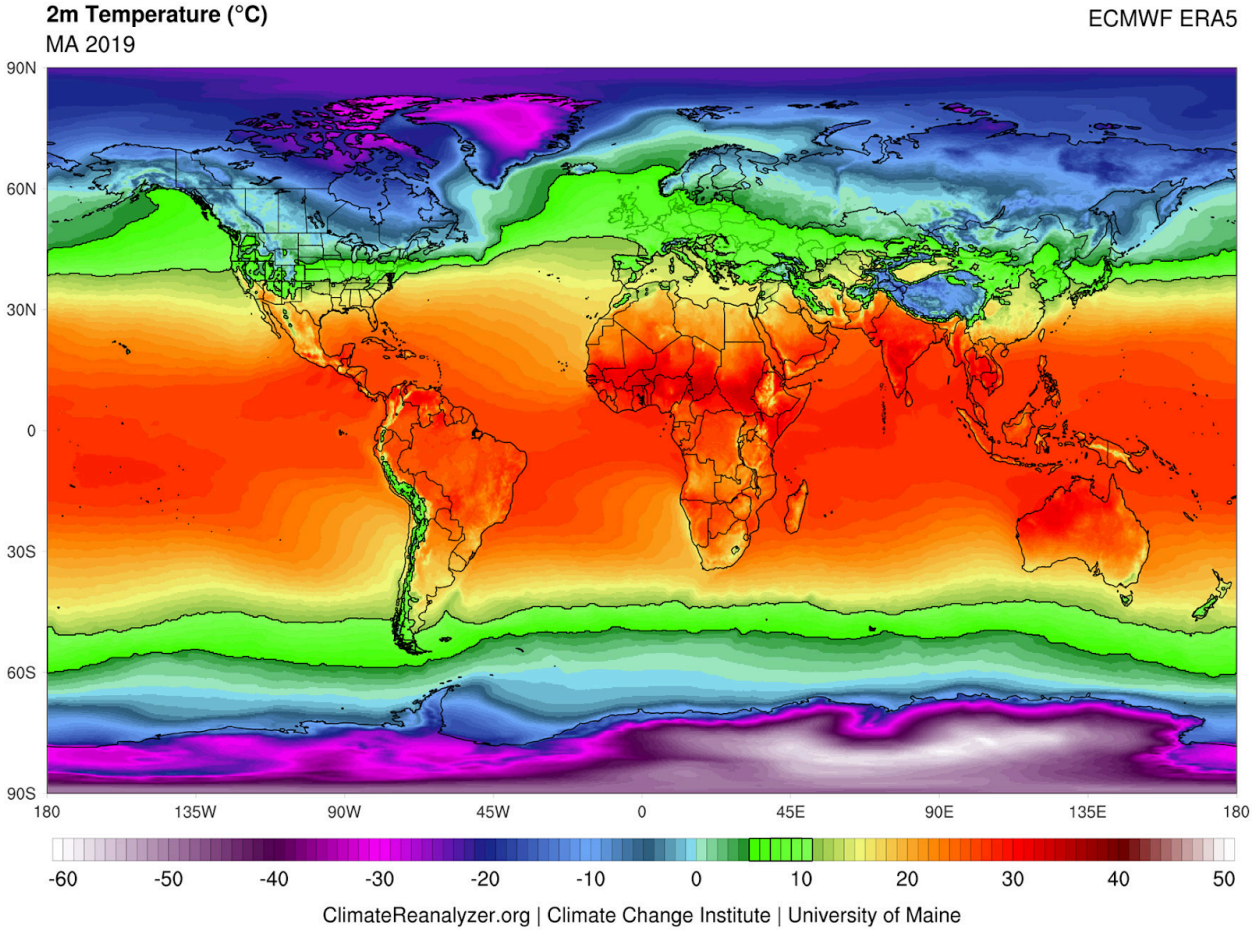
> “This result is consistent with the fact that the high temperature and high humidity significantly reduce the transmission of influenza. It indicates that the arrival of summer and rainy season in the northern hemisphere can effectively reduce the transmission of the COVID-19.”

The University of Maryland mapped severe COVID-19 outbreaks with local weather patterns around the world, from the US to China. They found that the virus thrives in a certain temperature and humidity channel. “The researchers found that all cities experiencing significant outbreaks of COVID-19 have very similar winter climates with an average temperature of 41 to

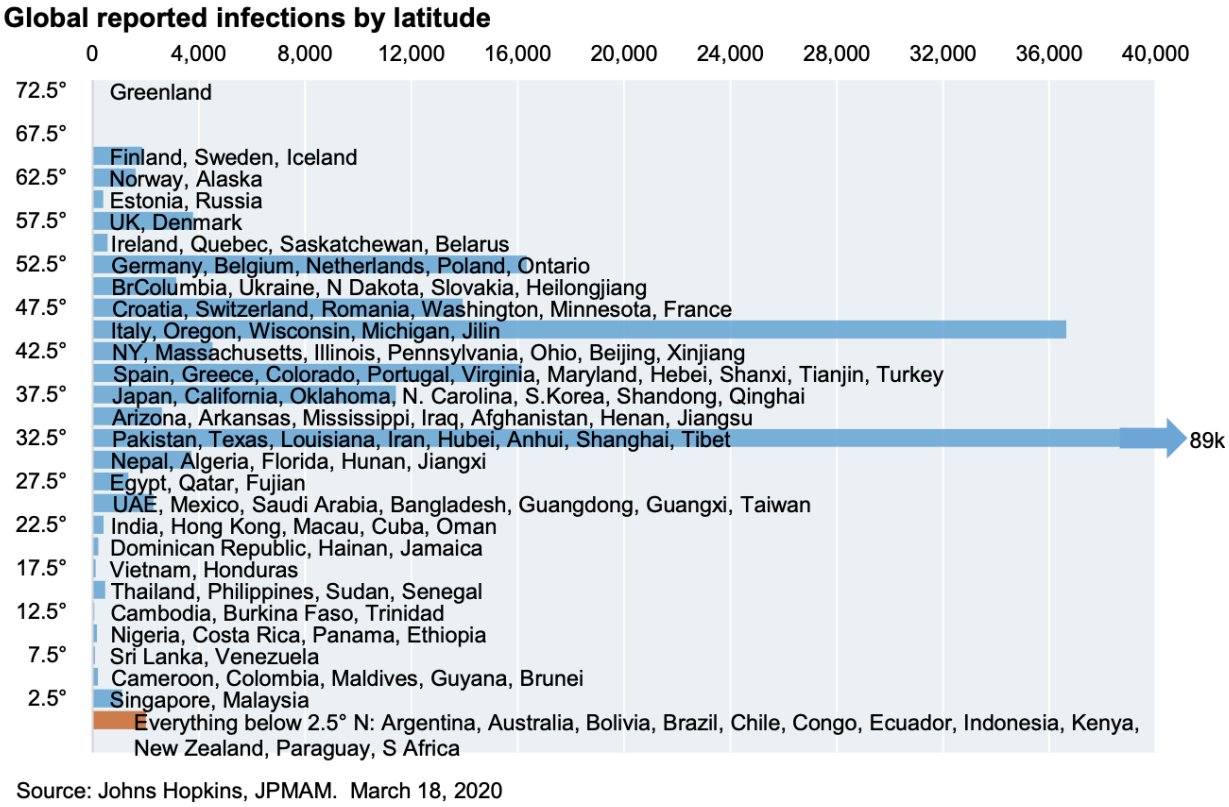
52 degrees Fahrenheit, an average humidity level of 47% to 79% with a narrow east-west distribution along the same 30–50 N" latitude", said the University of Maryland.

> "Based on what we have documented so far, it appears that the virus has a harder time spreading between people in warmer, tropical climates," said study leader Mohammad Sajadi, MD, Associate Professor of Medicine in the UMSOM, physician-scientist at the Institute of Human Virology and a member of GVN.

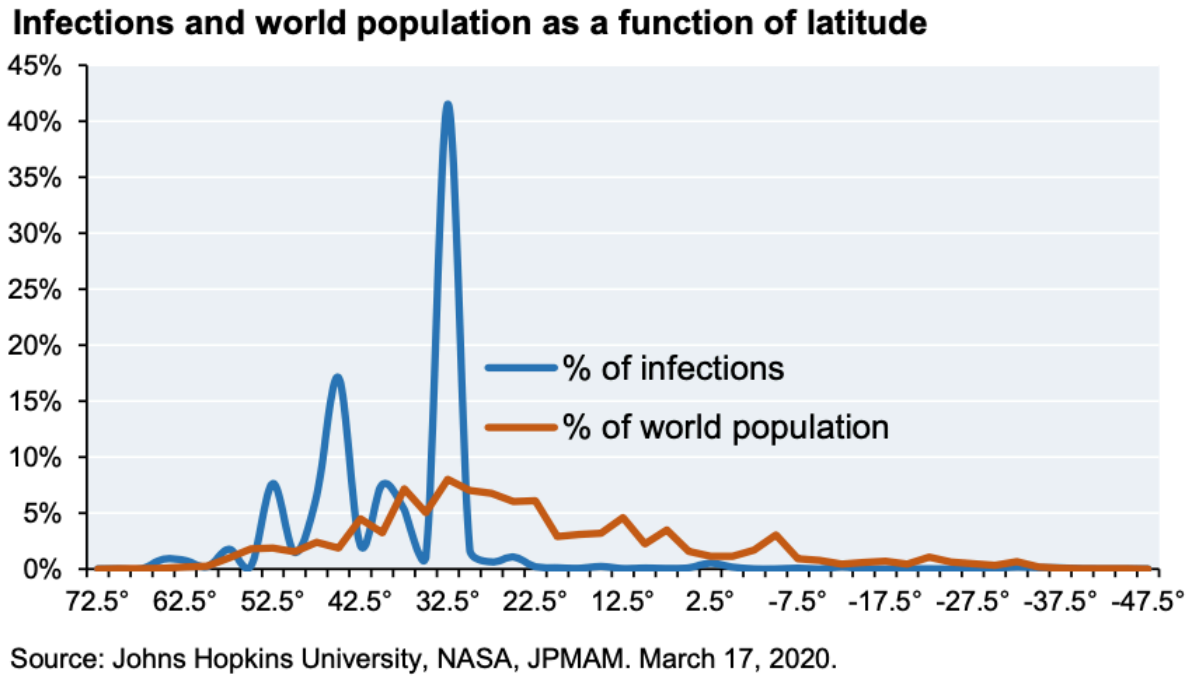
In the image below, the zone at risk for a significant community spread in the near-term includes land areas within the green bands.



As of right now reported cases as a function of latitude, about one-third of the world's population is below 22.5°N yet has not experienced meaningfully high levels of infections.



About 95% of all infections in a latitude band encompassing 55% of the world's population, which includes a large portion of America.



Source: Johns Hopkins University, NASA, JPMAM. March 17, 2020.

Infections as a function of temperature and humidity: 90% still in the blue zone.

Infections as a function of prevailing temperature and relative humidity

Temperature (Celsius)		Relative humidity (percent) Below 5	5 to 20	20 to 35	35 to 50	50 to 65	65 to 80	80 to 95
Below	-10	-	-	1	-	-	232	-
-10 to	-5	-	125	246	1,123	470	234	-
-5 to	0	-	2,601	8,466	1,142	1,280	3,302	899
0 to	5	58	1,749	2,858	444	1,212	4,024	25
5 to	10	-	2,705	53,944	19,232	4,950	448	173
10 to	15	-	-	9,550	81,748	2,102	164	-
15 to	20	-	279	452	1,817	106	536	65
20 to	25	269	196	202	991	1,016	1,171	-
25 to	30	76	-	11	30	-	-	-
30 to	35	61	11	6	-	-	-	-
35 to	40	-	-	-	-	-	-	-

Source: WHO, Johns Hopkins, OpenWeatherMapAPI, JPMAM, March 18, 2020

Research has also explored how the virus reacts to humidity.

Children and Teens are low-risk

It's already well established that the young aren't particularly vulnerable. In fact, there isn't a single death reported below the age of 10 in the world and most children who test positive don't show symptoms. As well, infection rates are lower for individuals below the age of 19, which is similar to SARS and MERS (COVID-19's sister viruses).

According to the WHO's COVID-19 mission in China, only 8.1% of cases were 20-somethings, 1.2% were teens, and 0.9% were 9 or younger. As of the study date February 20th, 78% of the

cases reported were ages 30 to 69. The WHO hypothesizes this is for a biological reason and isn't related to lifestyle or exposure.

> "**Even when we looked at households, we did not find a single example of a child bringing the infection into the household and transmitting to the parents.** It was the other way around. And the children tend to have a mild disease," said Van Kerkhove.

According to a WSJ article, children have a near-zero chance of becoming ill. They are more likely to get normal flu than COVID-19.

- A World Health Organization report on China concluded that cases of Covid-19 in children were "relatively rare and mild." Among cases in people under age 19, only 2.5% developed severe disease while 0.2% developed critical disease. Among nearly 6,300 Covid-19 cases reported by the Korea Centers for Disease Control & Prevention on March 8, there were no reported deaths in anyone under 30. Only 0.7% of infections were in children under 9 and 4.6% of cases were in those ages 10 to 19 years old
- Only 2% of the patients in a review of nearly 45,000 confirmed Covid-19 cases in China were children, and there were no reported deaths in children under 10, according to a study published in JAMA last month. (In contrast, there have been 136 pediatric deaths from influenza in the U.S. this flu season.)
- About 8% of cases were in people in their 20s. Those 10 to 19 years old accounted for 1% of cases and those under 10 also accounted for only 1%.

However even if children and teens are not suffering severe symptoms themselves, they may "shed" large amounts of virus and may do so for many days**,** says James Campbell, a professor of pediatrics at the University of Maryland School of Medicine.

Children had a virus in their secretions for six to 22 days or an average of 12 days. "Shedding virus doesn't always mean you're able to transmit the virus", he notes. It is still important to

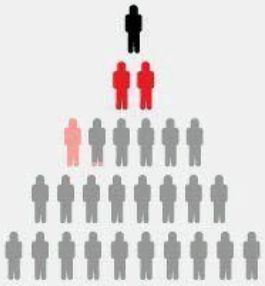
consider that prolonged shedding of high viral loads from children is still a risky combination within the home since the majority of transmission occurs within a home-like confined environment.

A strong, but unknown viral effect

While the true viral capacity is unknown at this moment, it is theorized that COVID-19 is more than the seasonal flu but less than other viruses. The average number of people to which a single infected person will transmit the virus, or Ro, range from as low as 1.5 to a high of 3.0

How contagious is a disease?

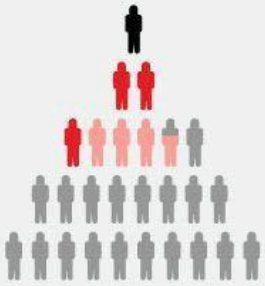
Scientists use "R naught," or R0, to estimate how many other people one sick person is likely to infect



Covid-19

2-3.11

*This estimate is preliminary and likely to change

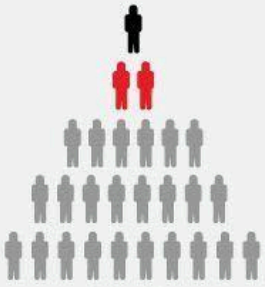


Zika

3-6.6

Measles

11-18



Ebola

2

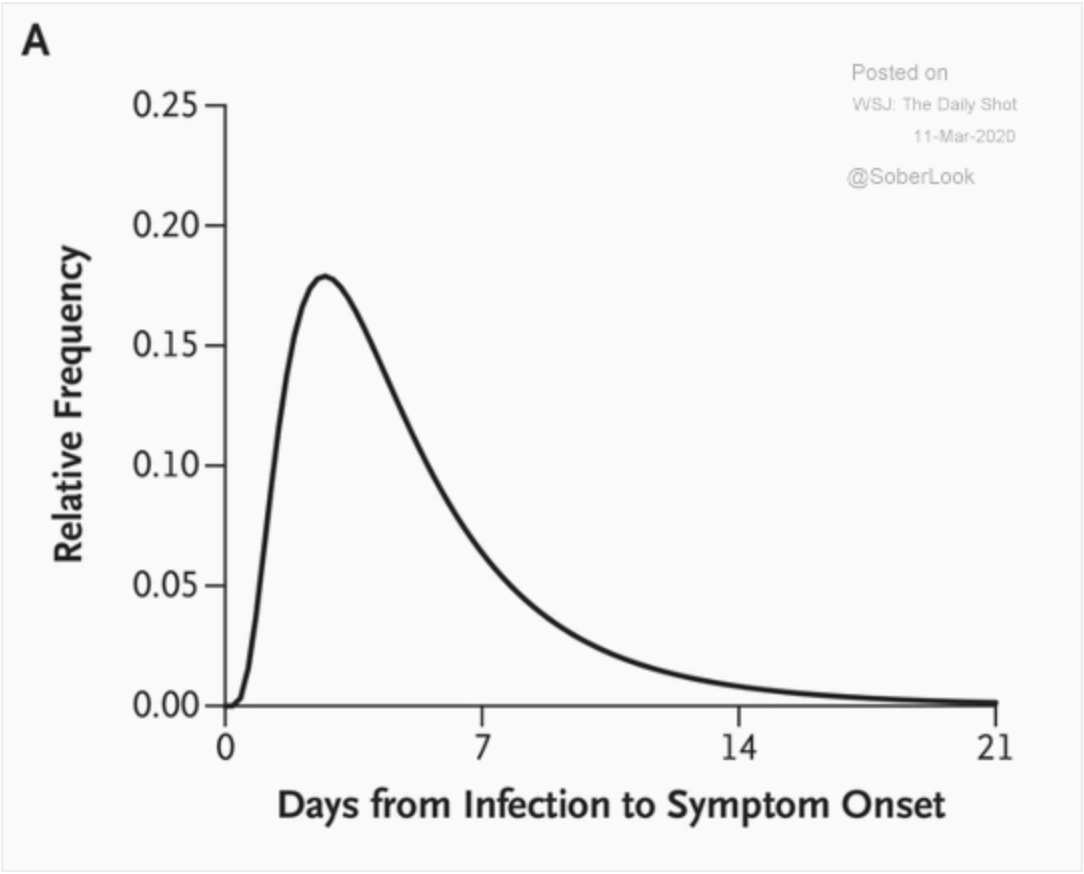
*An early estimate based on the Colombia outbreak in 2015

Newer analysis suggests that this viral rate is declining. According to Nobel Laureate and biophysicist Michael Levitt, the infection rate is declining -

> *"Every coronavirus patient in China infected on average 2.2 people a day—spelling exponential growth that can only lead to disaster. But then it started dropping, and the number of new daily infections is now close to zero." He compared it to interest rates again: "even if the interest rate keeps dropping, you still make money. The sum you invested does not lessen, it just grows more slowly. When discussing diseases, it frightens people a lot because they keep hearing about new cases every day. But the fact that the infection rate is slowing down means the end of the pandemic is near."*

What about asymptomatic spread?

The majority of cases see symptoms within a few days, not two weeks as originally believed.



On true asymptomatic spread, the data is still unclear and this issue is being debated. Two studies point to a low infection rate from pre-symptomatic and asymptomatic individuals. One study said 10% of infections come from people who don't show symptoms yet. Another WHO study reported 1.2% of confirmed cases were truly asymptomatic. Several studies confirming asymptotic spread have ended up disproven. One study calculated that up to 50% of "asymptomatic cases" are false positives. It is important to note there is a difference between

“never showing symptoms” and “pre-symptomatic” and the media is promoting this narrative, despite the active debate. Some argue that the virus can spread before the onset of symptoms.

Others argue that true asymptomatic cases do exist but may not be able to spread the virus. WHO and CDC claim that asymptomatic spread isn’t a concern and quite rare. Almost all people infected end up in the latter camp within five days, almost never the former. According to WHO and CDC, it is very unlikely for individuals with COVID-19 to never show symptoms.

In another case, Iceland is leading the globe in testing its entire population of ~300,000 for asymptomatic spread, not just those that show symptoms. They randomly tested 1,800 citizens who don’t show symptoms and, as far as they knew, were not exposed to positive individuals. Of this sample, only 19 tested positive for COVID-19, or 1.1% of the sample; however, 50% of individuals who tested positive did not show symptoms at the time of testing, which could develop later.

In another study in an Italian town of 3,300 citizens, the local government tested everyone in the town for COVID-19. The tests were performed on people whether or not they were displaying symptoms of COVID-19. When testing started, 3.0% of the population tested positive and half of those displayed no symptoms at the point of testing. After isolating all positive cases, a few days later a second round of testing dropped the positivity rate to 0.3%.

Another way of looking at asymptotic spread is the number of flight attendants, airport staff, or pilots that have tested positive for COVID-19. Out of the thousands of flights since November 2019, only a handful of airport and airline staff have tested positive (such as AA pilot, some BA staff, and several TSA employees).

Outside of medical and hospital staff, these individuals are in greatest contact with infected persons in confined spaces. Despite having no protective gear and most likely these people were asymptomatic, airline and airport staff aren’t likely to catch COVID-19 compared to the rest

of the population. Those employed in the travel sector are infected at a lower rate than the general population or healthcare workers.

> "We still believe, looking at the data, that the force of infection here, the major driver, is people who are symptomatic, unwell, and transmitting to others along the human-to-human route," Dr. Mike Ryan of WHO Emergencies Program.

Obviously, this type of viral spread is the most concerning. It does seem possible to be infected and never show symptoms; however it remains unclear whether or not these individuals can spread COVID-19 and infect other people. If true COVID-19 asymptomatic cases exist, then the infected population could be quite large based on early viral estimates.

If the symptoms are so close to other less fatal coronaviruses, what is the positivity rate of those tested?

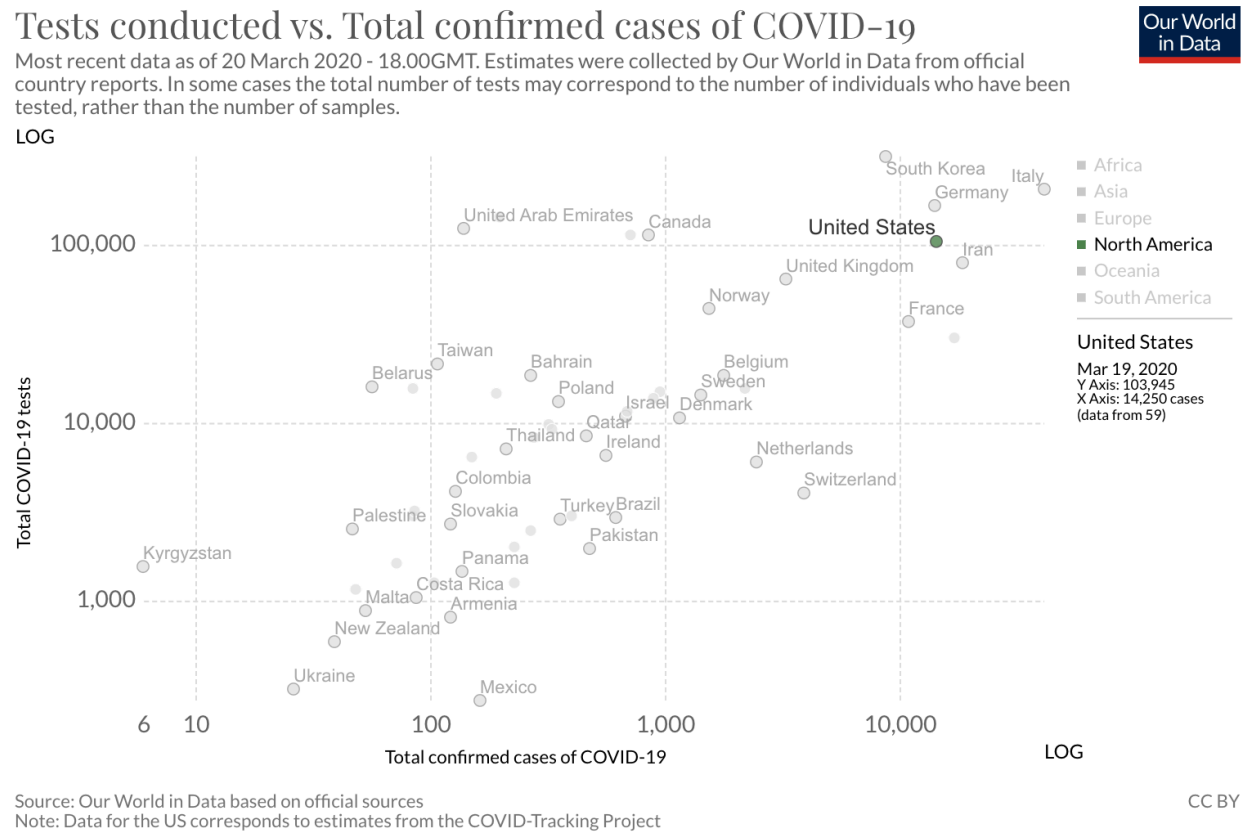
90% of people who think they are positive aren't

Looking at the success in S. Korea and Singapore, the important tool in our war chest is measurement. If we are concerned about the general non-infected population, what is the probability those who show symptoms actually test positive? What is the chance that the cough from your neighbor is COVID-19? This "conversion rate" will show whether or not you have a cold (another coronavirus) or are heading into isolation for two weeks. Global data shows that ~95% of people who are tested aren't positive. The positivity rate varies by country.

- UK: 7,132 concluded tests, of which 13 positive (0.2% positivity rate).
- UK: 48,492 tests, of which 1,950 (4.0% positivity rate)
- Italy: 9,462 tests, of which 470 positive (at least 5.0% positivity rate).
- Italy: 3,300 tests, of which 99 positive (3.0% positivity rate)
- Iceland: 3,787 tests, of which 218 positive (5.7% positive rate)

- France: 762 tests, of which 17 positive, 179 awaiting results (at least 2.2% positivity rate).
- Austria: 321 tests, of which 2 positive, awaiting results: unknown (at least 0.6% positivity rate).
- South Korea: 66,652 tests with 1766 positives 25,568 awaiting results (4.3% positivity rate).
- United States: 445 concluded tests, of which 14 positive (3.1% positivity rate).

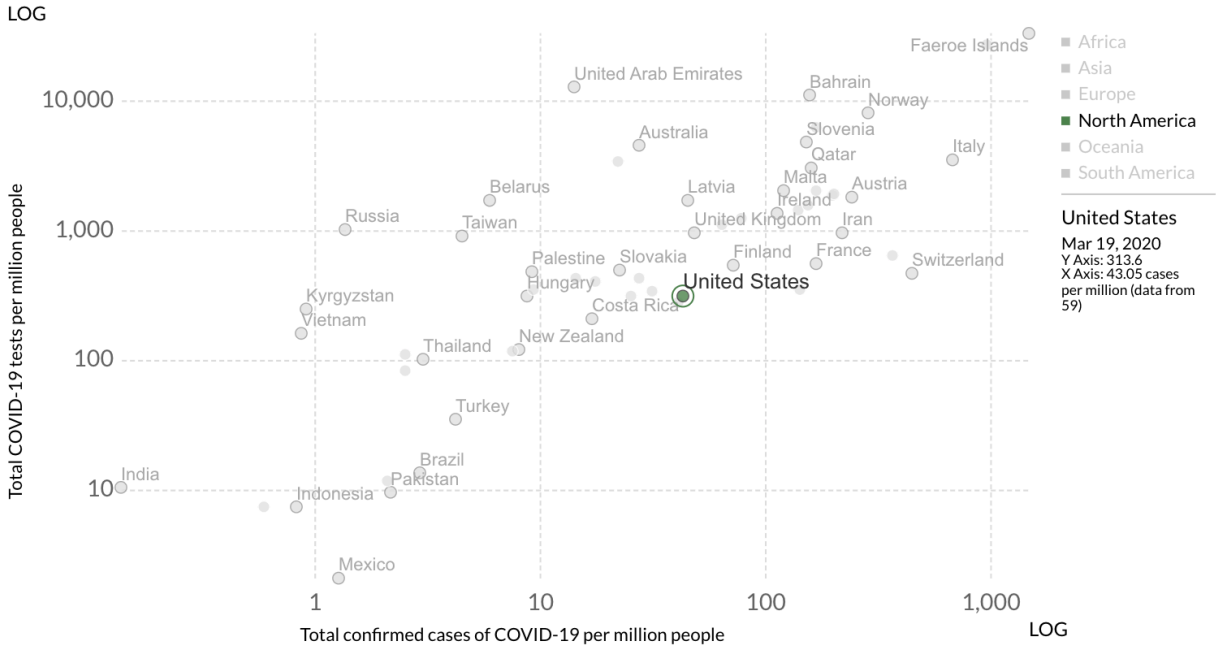
University of Oxford's Our World in Data attempts to track public reporting on individuals tested vs positive cases of COVID-19. For the US, it estimates 14.25% of those tested are positive.



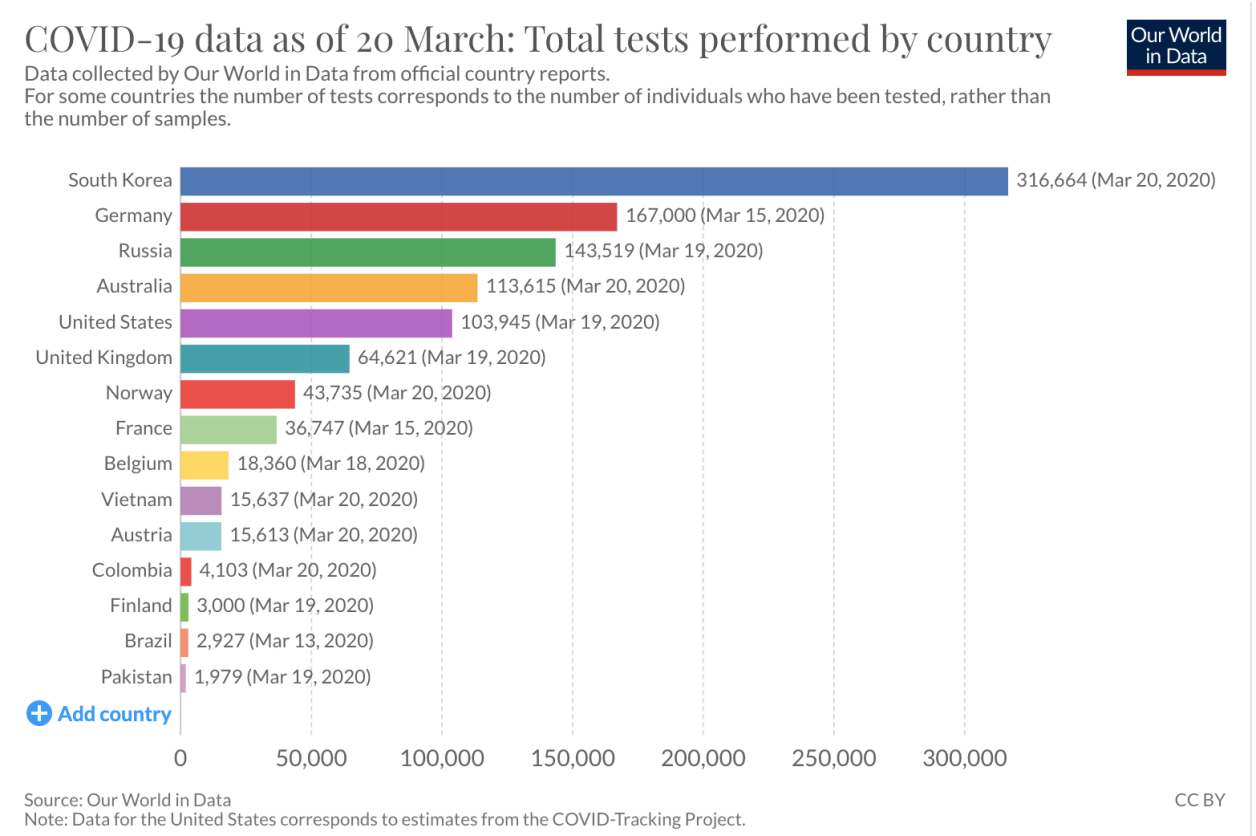
Last week, the US was significantly behind in testing, near the bottom of all countries worldwide. As of March 20th, a week later, the US is much closer to other G8 and European countries, but there is a long way to go.

Per million people: Tests conducted vs. Total confirmed cases of COVID-19

Most recent data as of 20 March 2020 - 18.00GMT. Estimates were collected by Our World in Data from official country reports. In some cases the total number of tests may correspond to the number of individuals who have been tested, rather than the number of samples.

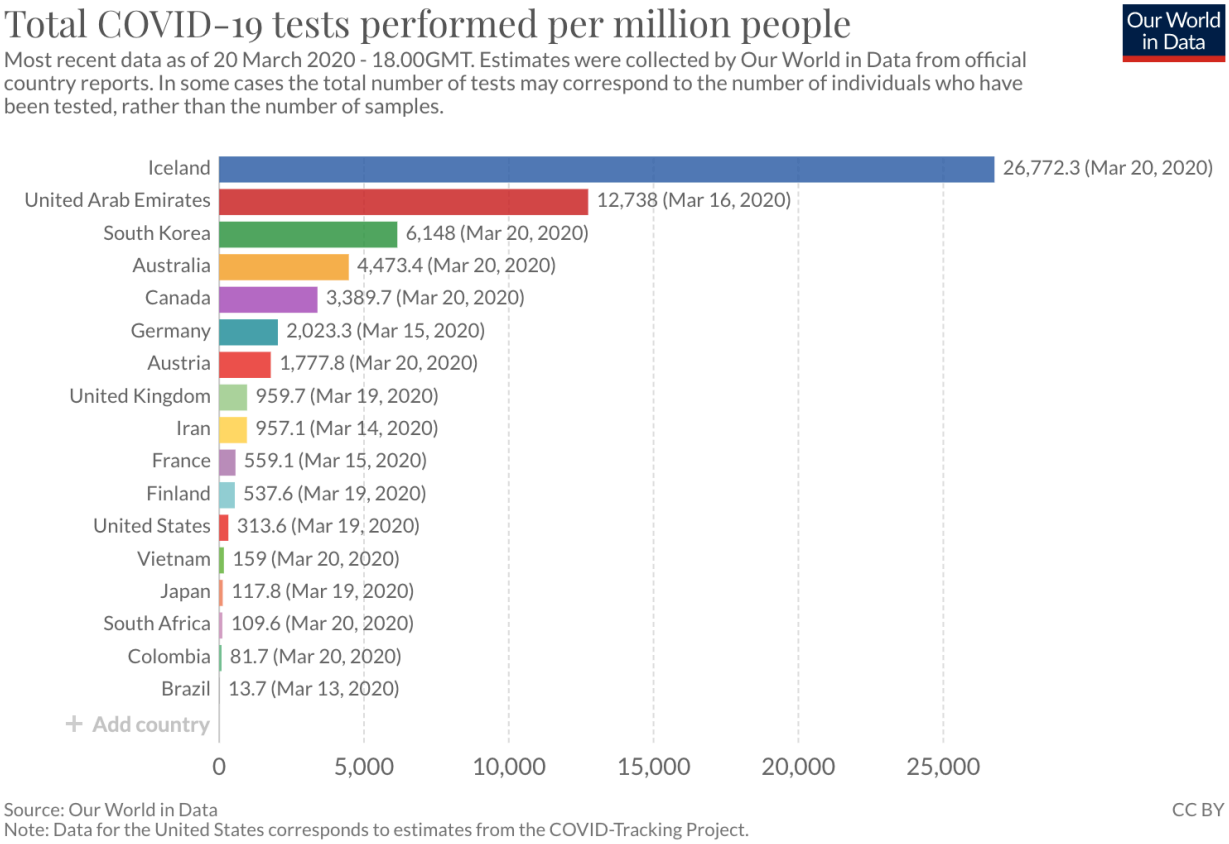


Source: Our World in Data based on official sources
Note: Data for the US corresponds to estimates from the COVID-Tracking Project



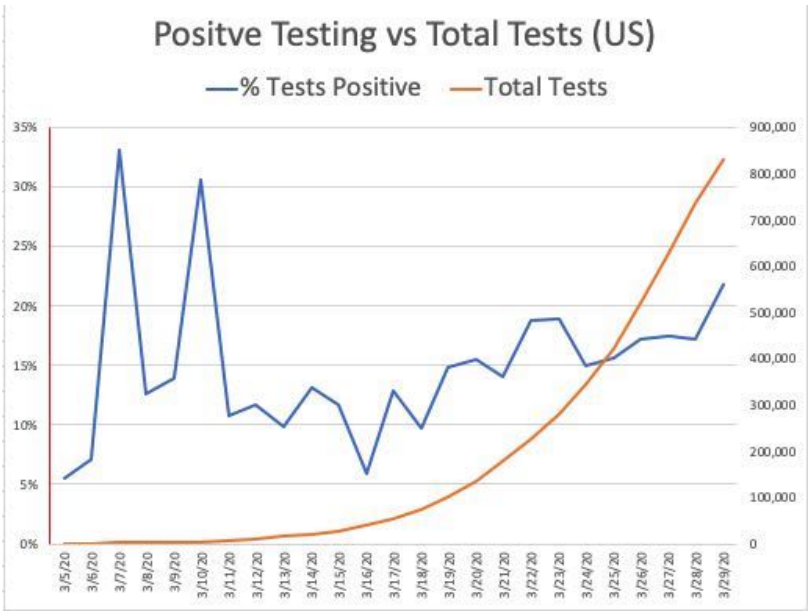
Based on the initial results and the results from other countries, the total number of positive COVID-19 cases will increase as testing increases, but the fatality rate will continue to fall and the severity case mix will fall.

In general, the size of the US population infected with COVID-19 will be much smaller than originally estimated as most symptomatic individuals aren't positive. 85%-90% have other conditions that on the surface feels like COVID-19.

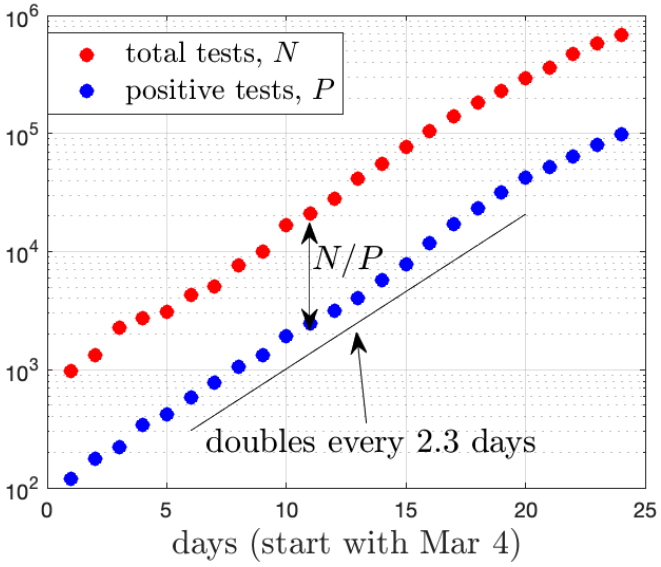


Globally, the US has a long way to go to catch up in testing. As testing expands, the total number of cases will increase, but the mild to severe case ratio will decline dramatically.

According to COVIDtracking as the US expanded testing, the positivity rate leveled off and remained rather consistent despite over a million tests performed and over 50% of positive cases coming from the NY metro area.



This suggests that testing and positive cases are linearly correlated, which suggests linear virus growth pattern or the lack of exponential growth pattern.



Dr. Dan Yamin [writes on testing and severity](#) -

"If I can only carry out a few tests, I will test those who have the highest chance of becoming ill, and then, when I check the mortality rate among them, I will get very high numbers. But there is one country we can learn from: South Korea. South Korea has been coping with corona for a long time, more than most Western countries, and they lead in the number of tests per capita. Therefore, the official mortality rate there is 0.9 percent. But even in South Korea, not all the infected were tested – most have very mild symptoms.

The actual number of people who are sick with the virus in South Korea is at least double what's being reported, so the chance of dying is at least twice as low, standing at about 0.45 percent –

very far from the World Health Organization's [global mortality] figure of 3.4 percent. And that's already a reason for cautious optimism."

1% of tests will probably be severe cases

Looking at the whole funnel from top to bottom, **~1% of everyone who is tested for COVID-19 with the US will have a severe case** that will require a hospital visit or long-term hospital admission.

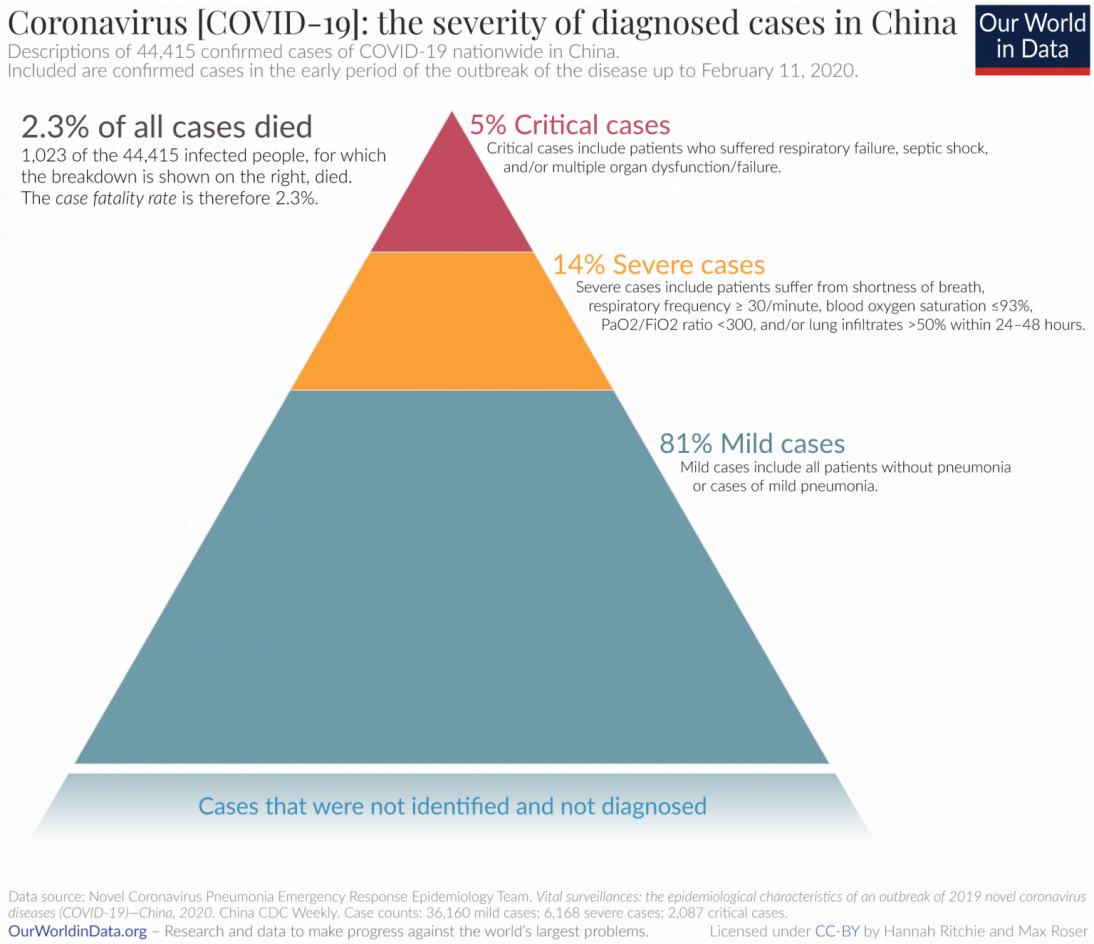
According to Dr. Jason Oke and Carl Heneghan at University of Oxford Center for Evidence Based Medicine, approximately 0.25% of all infections will be fatal to up to 1% with those with serious underlying conditions.

"The overall case fatality rate as of 16 July 2009 (10 weeks after the first international alert) with pandemic H1N1 influenza varied from 0.1% to 5.1% depending on the country. The WHO reported in 2019 that swine flu ended up with a fatality rate of 0.02%. Evaluating CFR during a pandemic is a hazardous exercise, and high-end estimates end be treated with caution as the H1N1 pandemic highlights that original estimates were out by a factor greater than 10.

On the Diamond Princess, six deaths occurred out of 705 who tested positive constituting a CFR of 0.85%. All six deaths six occurred in patients > 70. No one under 70 died. Estimating the infection and case fatality ratio for COVID-19 using age-adjusted data from the outbreak on the Diamond Princess cruise ship. Comparing deaths onboard with expected deaths based on naive CFR estimates using China data, they estimated: CFR 1.1% (95% CI: 0.3-2.4%); IFR 0.5% (95% CI: 0.2-1.2%).

The current COVID outbreak seems to be following previous pandemics in that initial CFRs start high and then trend downward. In Wuhan, for instance, the CFR has gone down from 17% in the initial phase to near 1% in the late stage. Current testing strategies are not capturing everybody. At least 50% of those on the Diamond Princess was asymptomatic, who usually wouldn't get a test."

Globally according to the WHO, 80–85% of all cases are mild. These will not require a hospital visit and home-based treatment/ no treatment is effective.



As of mid-March, the US has a significantly lower case severity rate than other countries. Our current severe caseload is similar to South Korea. This data has been spotty in the past; however, lower severity is reflected in the US COVID-19 fatality rates (addressed later).

Early reports from CDC, suggest that [12% of COVID-19 cases need some form of hospitalization], which is lower than the projected severity rate of 20%, with 80% being mild cases.

[Early data from COVIDTracker], reports a hospitalization rate of ~12 -13% of total cases, which is was an expected increase of ~8% as of March 19th.

For context, [this year's flu season] has led to at least 17 million medical visits and 370,000 hospitalizations (0.1%) out of 30–50 million infections. Recalling that only comparing aggregate total cases isn't helpful, breaking down active cases on a per-capita basis paints a different picture on severity. This is data as of March 20th, 2020.

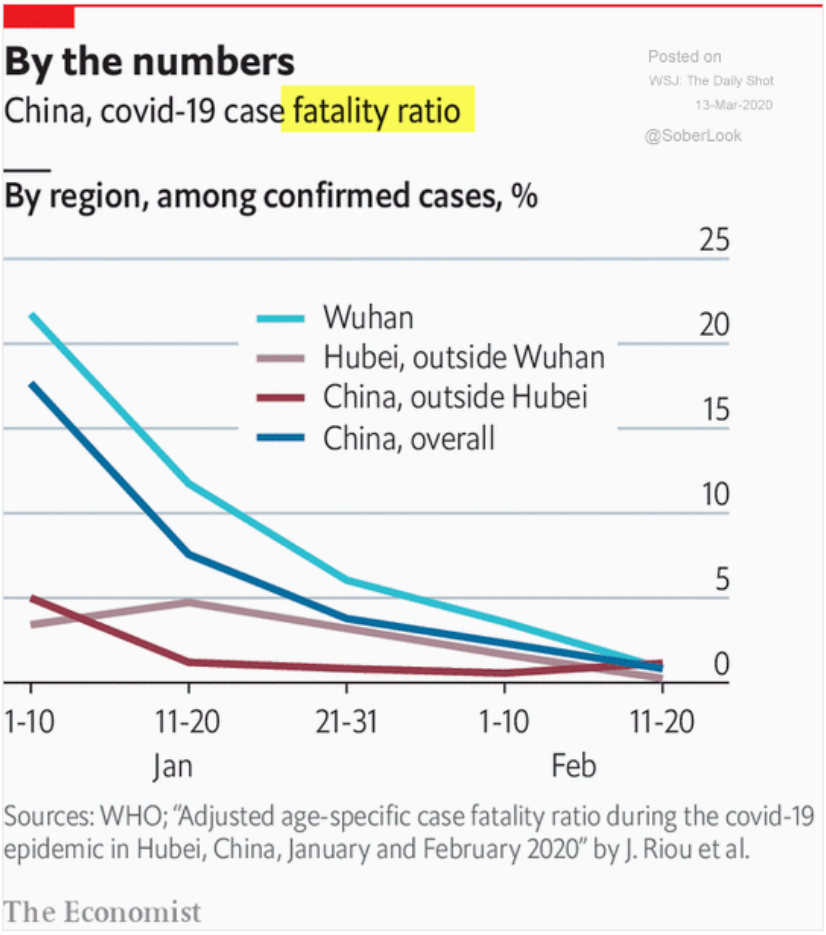
Country	Active Cases	Severe Cases	Severity Rate	Active Cases / 1M Population
Italy	37,860	2,655	7.01%	626.0
Germany	19,600	2	0.01%	236.7
USA	19,247	64	0.33%	58.3
Spain	18,890	939	4.97%	404.8
Iran	11,466	N/A	N/A	141.3
France	10,575	1,297	12.26%	157.9
S. Korea	6,085	59	0.97%	118.2
China	6,013	1,927	32.05%	4.6

Source: https://www.worldometers.info/coronavirus/

Predicted declining fatality rate

As the US continues to expand testing, the case fatality rate will decline over the next few weeks. There is little doubt that serious and fatal cases of COVID-19 are being properly recorded. What is unclear is the total size of mild cases. WHO originally estimated a case fatality rate of 4% at the beginning of the outbreak but revised estimates downward 2.3%—3% for all age groups. CDC estimates 0.5%—3%, however stresses that closer to 1% is more probable. Dr. Paul Auwaerter estimated 0.5%—2%, leaning towards the lower end. A paper released on March 19th analyzed a wider data set from China and lowered the fatality rate to 1.4%. This won't be clear for the US until we see the broader population that is positive but with mild cases. With little doubt, the fatality rate and severity rate will decline as more people are tested and more mild cases are counted.

Higher fatality rates in China, Iran, and Italy are more likely associated with a sudden shock to the healthcare system unable to address demands and doesn't accurately reflect viral fatality rates. As COVID-19 spread throughout China, the fatality rate drastically fell outside of Hubei. This was attributed to the outbreak slowing spreading to several provinces with low infection rates.



John P.A. Ioannidis is professor of medicine, of epidemiology and population health, of biomedical data science, and of statistics at Stanford University and co-director of Stanford's Meta-Research Innovation Center recently wrote about fatality rates and how our current instrumentation is leading to faulty policy solutions:

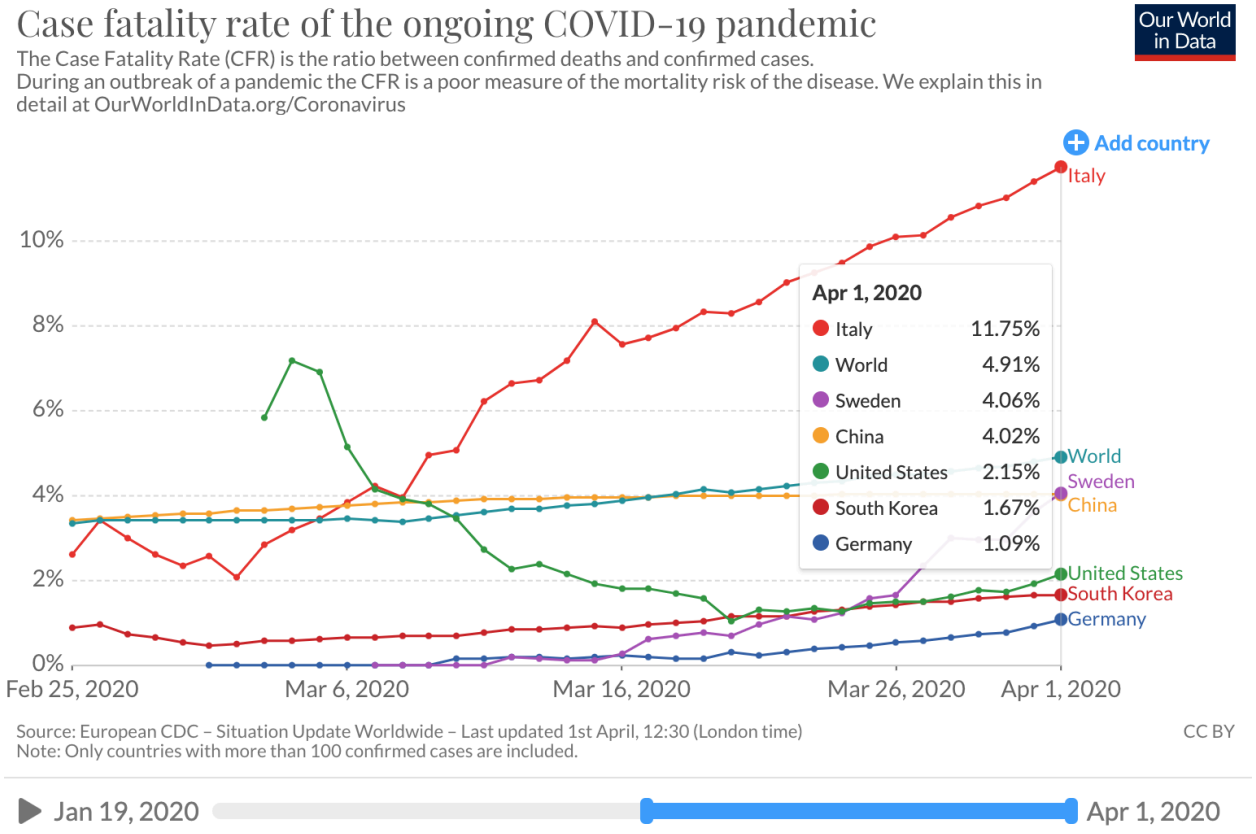
“The one situation where an entire, closed population was tested was the Diamond Princess cruise ship and its quarantine passengers. The case fatality rate there was 1.0%, but this was a largely elderly population, in which the death rate from Covid-19 is much higher.

Projecting the Diamond Princess mortality rate onto the age structure of the U.S. population, the death rate among people infected with Covid-19 would be 0.125%. But since this estimate is based on extremely thin data—there were just seven deaths among the 700 infected passengers and crew—the real death rate could stretch from five times lower (0.025%) to five times higher (0.625%). It is also possible that some of the passengers who were infected might die later, and that tourists may have different frequencies of chronic diseases—a risk factor for worse outcomes with SARS-CoV-2 infection—than the general population. Adding these extra sources of uncertainty…”

> ***“Reasonable estimates for the case fatality ratio in the general U.S. population vary from 0.05% to 1%.”***

Dr. Ioannidis is working on a paper, to be published soon, elaborating on these points.

Compared to other countries, United States CFR is hovering near ~2.0%. This has increased in the past few days as predicted with the initial COVID-19 patients begin to be counted as fatalities.

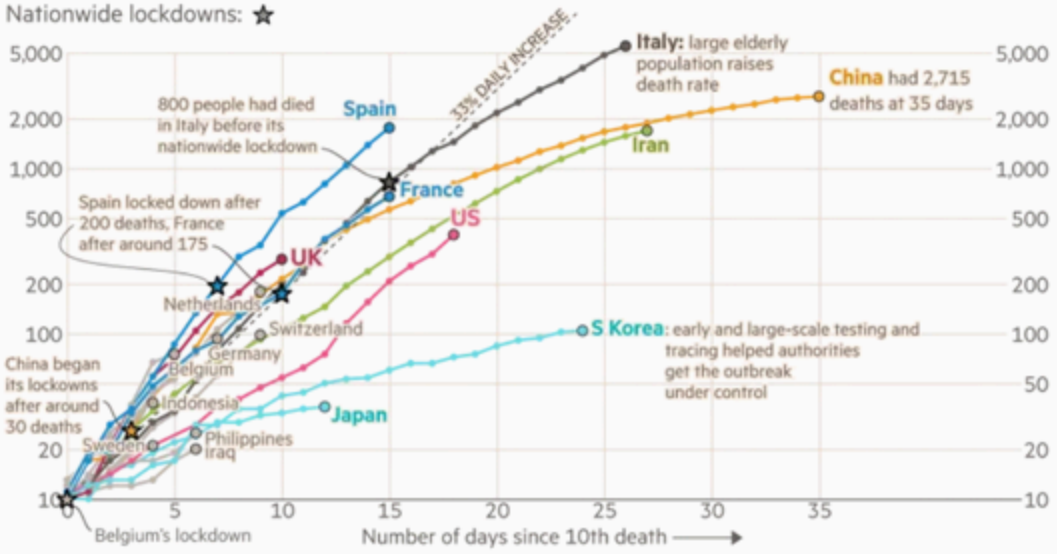


Mapped against other countries, our fatality rate and case-mix are following a similar pattern to South Korea which is a good sign, a supposed model of how to manage COVID-19.

Coronavirus deaths in Italy, Spain and the UK are increasing much more rapidly than they did in China

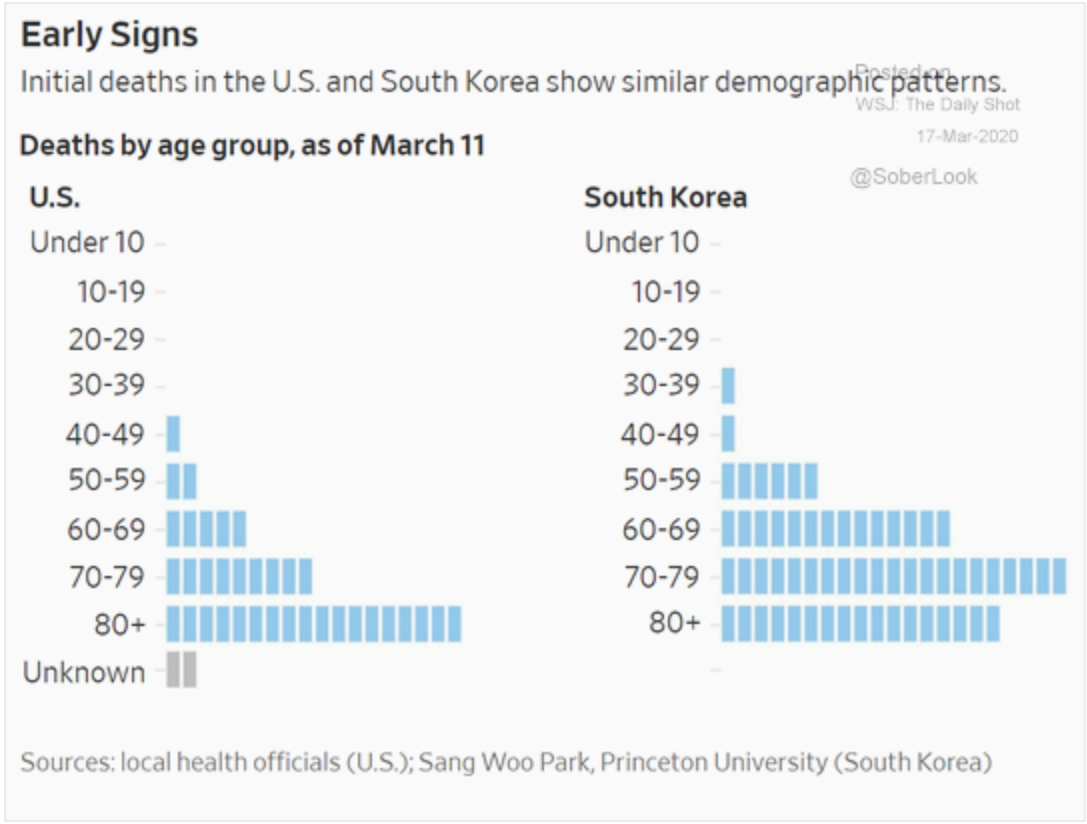
Cumulative number of deaths, by number of days since 10th death

Nationwide lockdowns: ☆



FT graphic: John Burn-Murdoch / @jburnmurdoch

Source: FT analysis of Johns Hopkins University, CSSE; Worldometers. Data updated March 22, 19:00 GMT

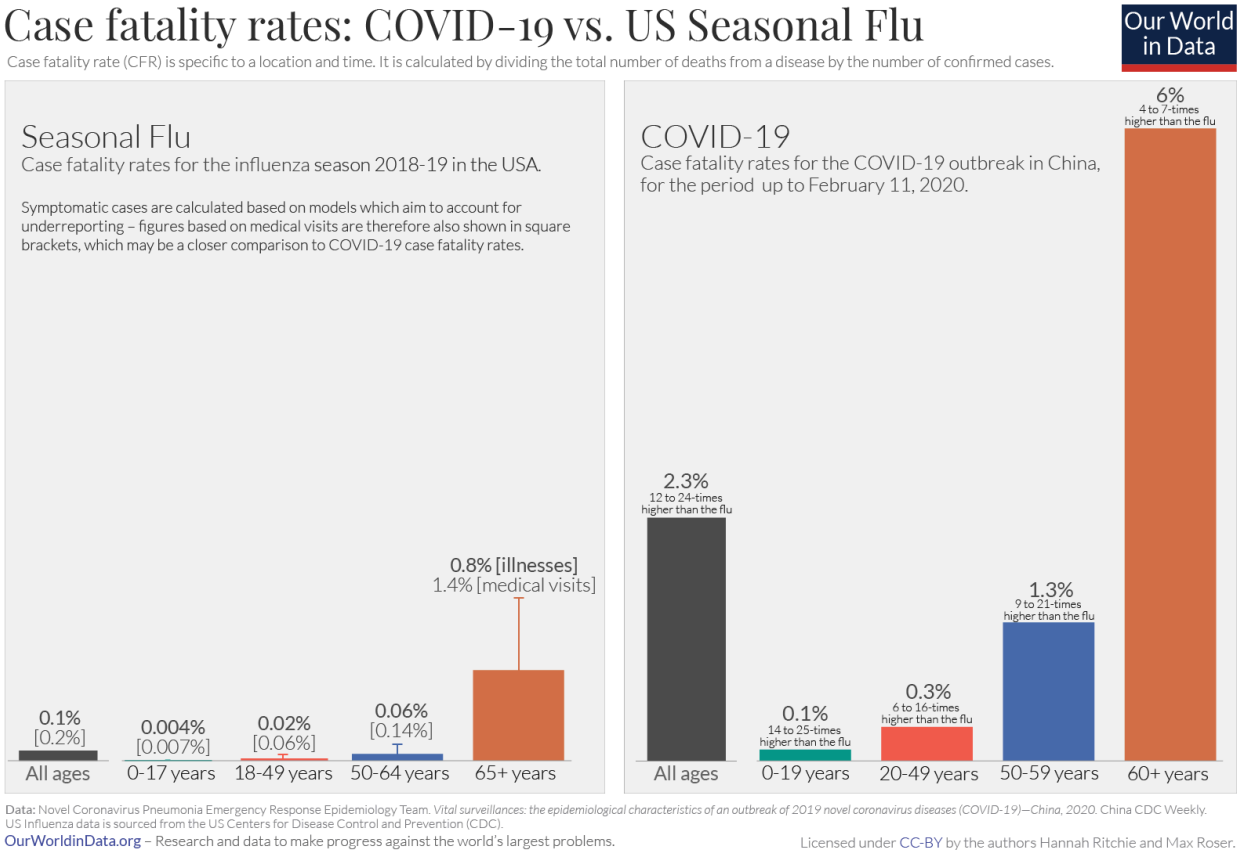


Here are deaths weighted by the total number of cases as of March 20th, 2020. Ranked by the total number of cases, our death rate is closer to South Korea's than Spain's or Italy's.

Country	Total number of cases	Total Deaths	Death Rate
China	81,008	3,255	4.02%
Italy	47,021	4,032	8.57%
Spain	21,571	1,093	5.07%
Germany	19,848	68	0.34%
USA	19,658	264	1.34%
Iran	19,644	1,433	7.29%
France	12,612	450	3.57%
S. Korea	8,799	102	1.16%

Source: https://www.worldometers.info/coronavirus/

The initial higher fatality rate for the US is trending much lower than originally estimated. A study of about half deaths within the US (154 of 264), almost all fit a similar demographic profile as the other global ~11,000 fatalities.



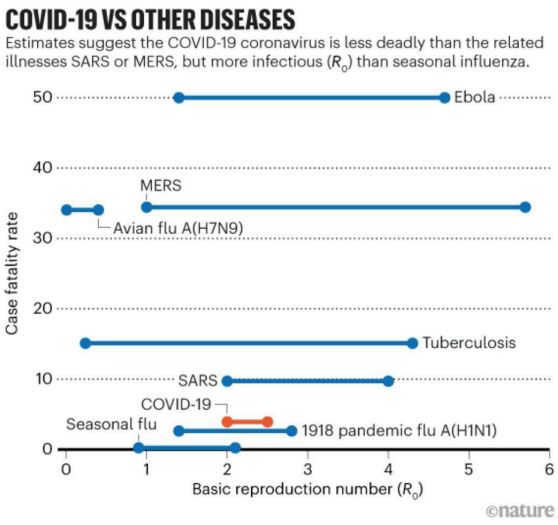
Another analysis by Nature, comparing the fatality rate (since revised down from the original ~4%) and infectious rate of COVID-19 to other illnesses. COVID-19 is now within range of its less potent sister coronaviruses. A recent study and modeling of symptomatic positive patients estimated CFR to 1.38% and hypothesized that higher CFRs are the result of overburdened healthcare utilization.

As the global health community continues to gather and report data, the claim that "COVID-19 isn't just like the flu" (though still severe) is looking less credible as fatality rates continue to decline and measuring of mild cases increases.

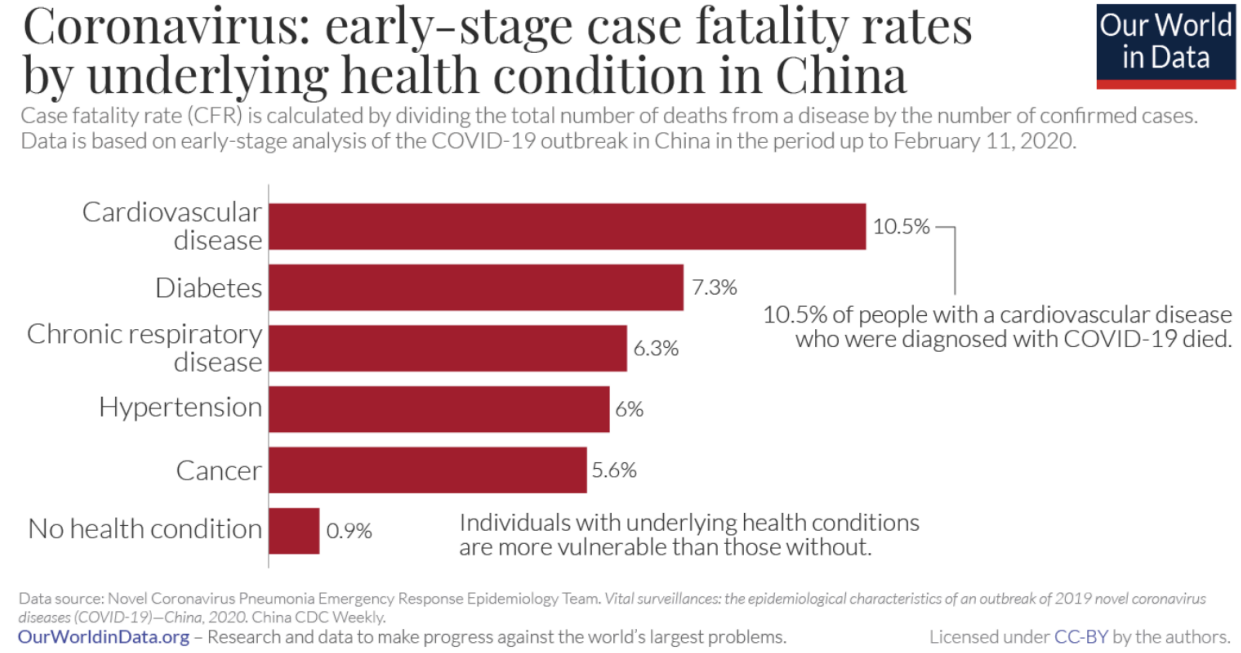
On March 24th on CNN, Dr. Ioannidis's early research is pointing to a CFR closer to the flu. This optimism is based on new research from Iceland who tested nearly 10,000 citizens, both those who show symptoms and those who don't. The Icelandic government took a random sample of those tested and reported the following -

- ~0.9% of their population currently has coronavirus (It is quite probable that more had COVID-19 in the previous weeks)
- Of the 473 cases they've had, there's been one death (fatality rate of 0.2%). One person is in ICU. Twelve individuals with COVID-19 are hospitalized.
- About a third (34%) of all cases can be traced to overseas travel, mostly to high-risk areas identified in the European Alps. More than a quarter (32.7%) of cases have been traced to domestic transmission. The rest (33.2%) have not been conclusively traced to a source of transmission.

This information implies a significantly lower fatality rate than initially estimated by WHO and CDC.



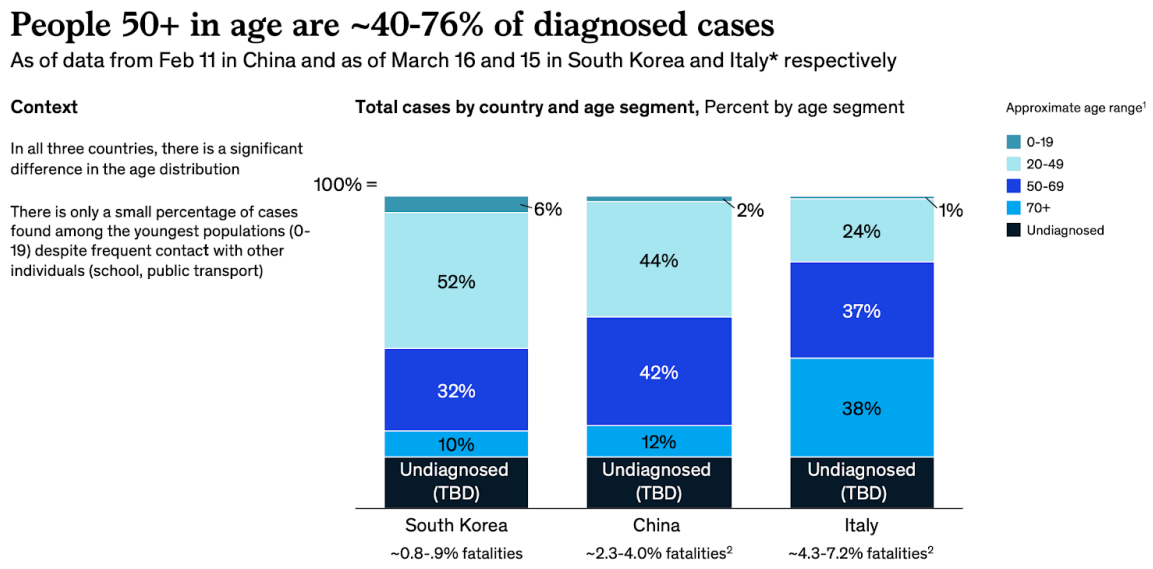
It is important to consider case-mix when looking at fatality rates. The fatality rate is significantly higher for patients with an underlying condition.



The fatality rates by underlying condition mimics the rise in the average fatality rate with those with underlying conditions who get the seasonal flu.

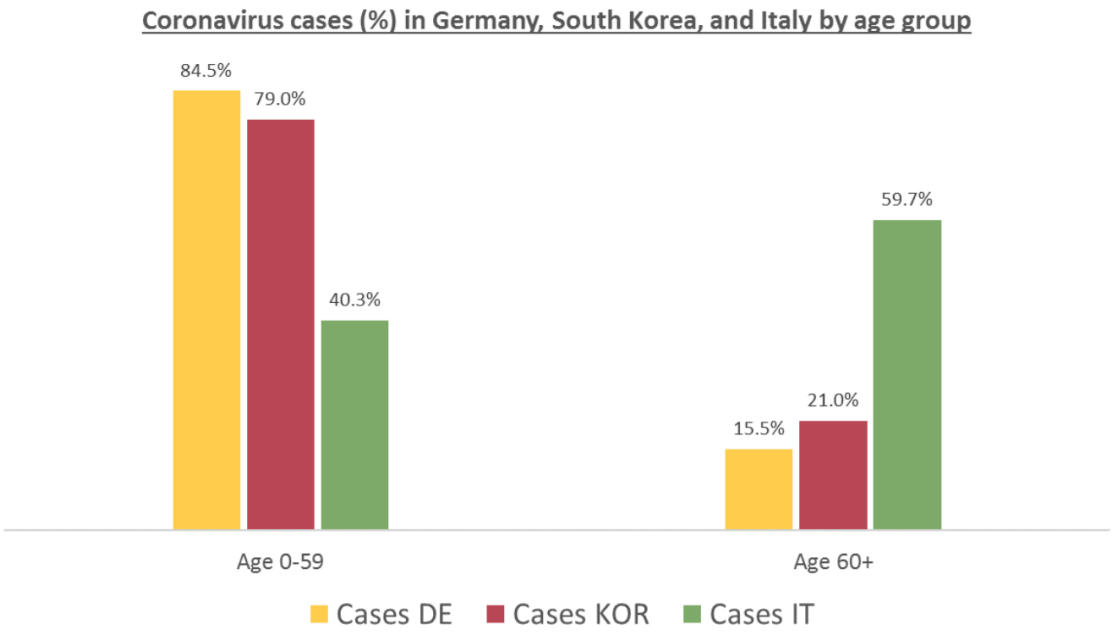
- Pneumonia and influenza: 1.53%—1.93%
- Chronic lower respiratory disease: 1.48%—1.93%
- All respiratory causes: 3.04%—4.14%
- Heart disease: 3.21%—4.4%
- Cancer: 0.68%—1.05%
- Diabetes: 0.26%—0.39%
- For all underlying conditions: 10.17%—13.67%.

Comparing case-mix across countries with a wide range of fatality (China and Italy) and those with low fatality rates (S. Korea) reveals a stark difference in age; therefore, underlying conditions also vary significantly across countries. These two factors contribute the most to a country's fatality rate.



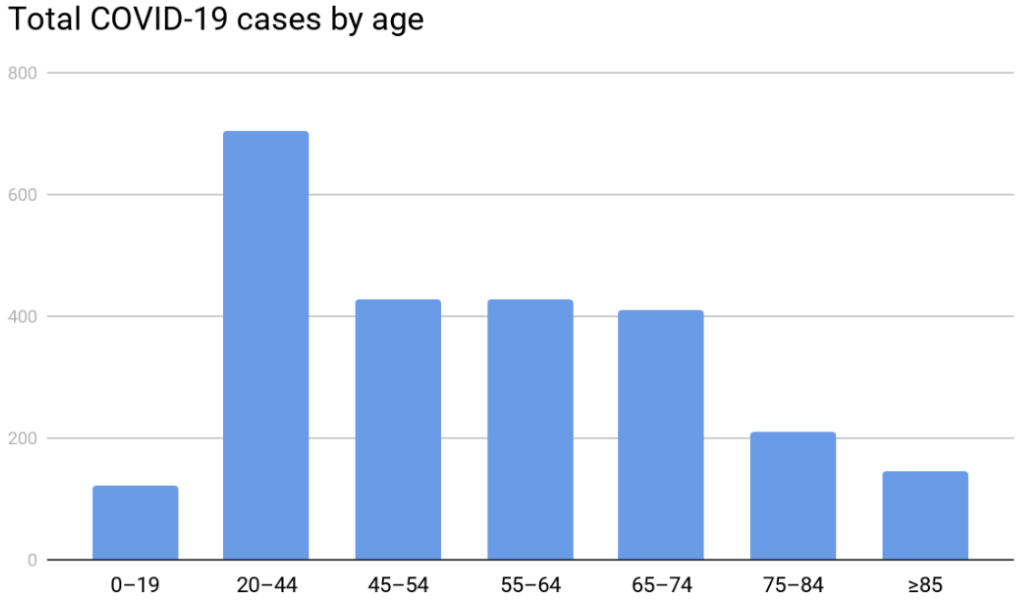
Source: Goldman Sachs

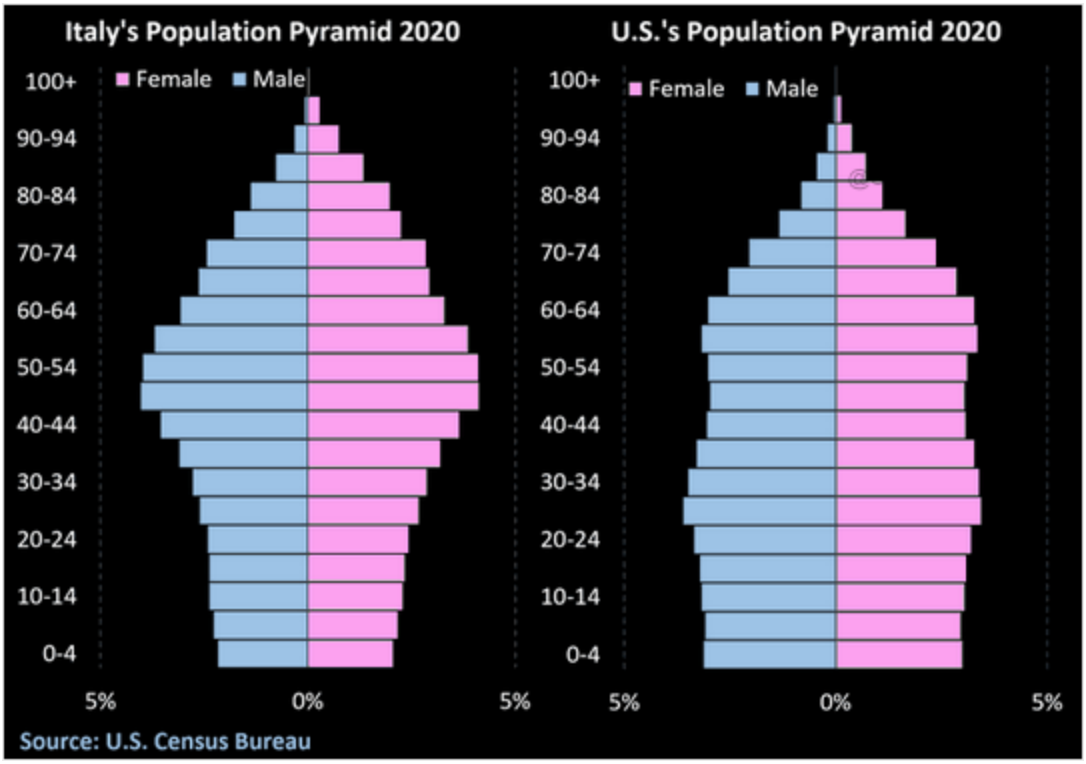
Divided by most at risk and low risk, Italy had significantly more cases of high at-risk patients than Germany or Korea



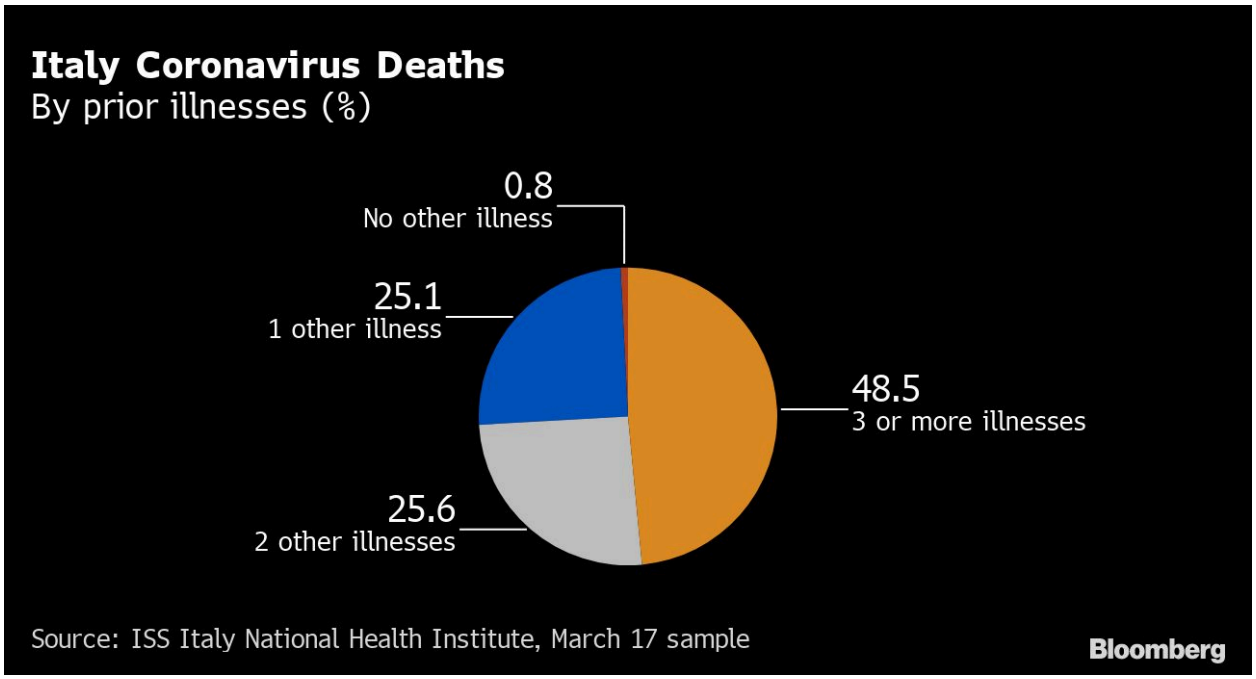
Source:
https://medium.com/@andreasbackhausab/coronavirus-why-its-so-deadly-in-italy-c4200a15a7bf

Based on an initial CDC study of 2,449 COVID-19 cases (almost half of current US cases have missing demographic data), the United States case-mix looks more like S. Korea and Germany rather than China or Italy. Approximately 69% of COVID-19 cases are in the lower at-risk population of under 65, while 31% are older than 65 and in the higher-risk population. This suggests the US will experience a declining fatality rate; however, the US has over 100 million adults with underlying and chronic illnesses that will negatively impact our fatality rate.

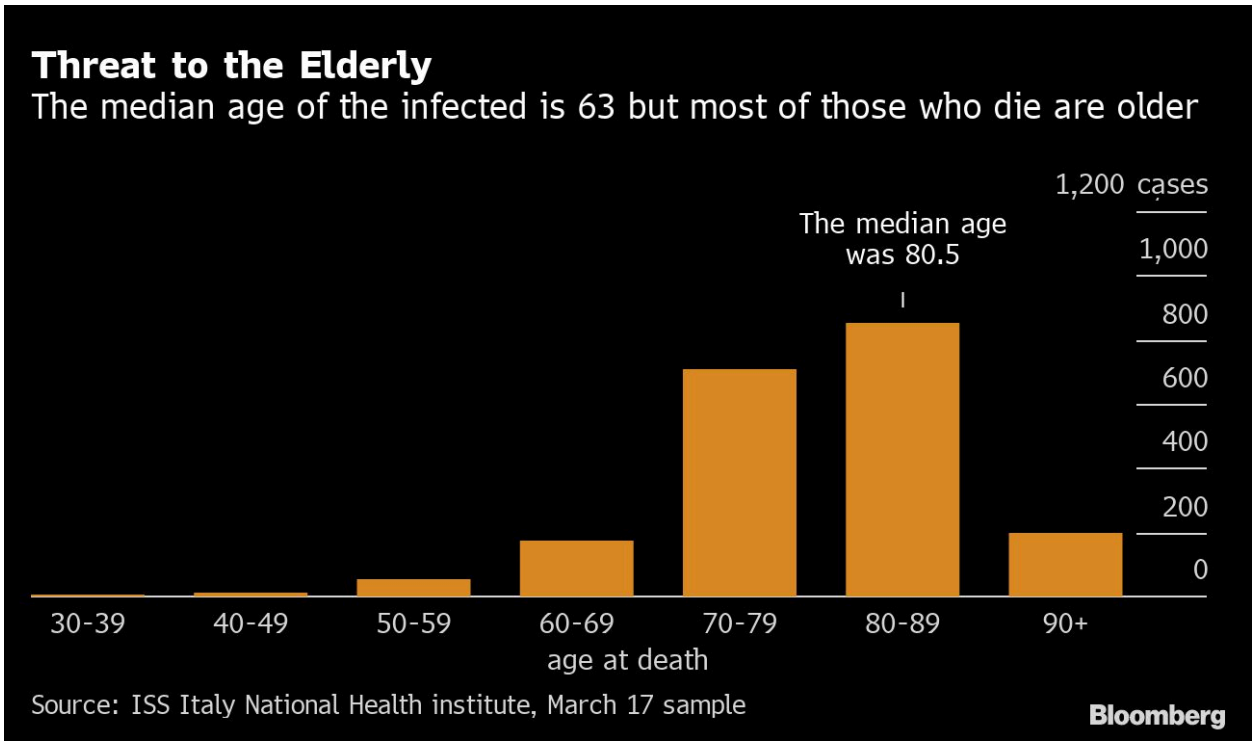

Total COVID-19 cases by age
800
600
400
200
0
0–19
20–44
45–54
55–64
65–74
75–84
≥85



An older population skew within the infected population explains most of the disparity in fatality rates between high and low countries. [According to a study of the fatalities](#) of COVID-19 cases in Italy, 99% of all deaths had an underlying pathology. Only 0.8% had no underlying condition.



Most of those infected in Italy were over the age of 60, but the median age of a fatality was 80. All of Italy's fatality under the age of 40 were males with serious pre-existing medical conditions.



Another factor to consider is how countries count fatalities. [According to Professor Walter Ricciardi, scientific adviser to Italy's minister of health], "only 12% of death certificates have shown a direct causality from coronavirus, while 88% of patients who have died have at least one pre-morbidity - many had two or three"

This doesn't necessarily mean that COVID-19 did not contribute to a patient's death, "rather it demonstrates that Italy's fatality toll has surged as a large proportion of patients have underlying health conditions."

"There are three factors involved in Italy: one is that it is a much older population, two the health system was overwhelmed, and three there has been a significant loss of health workers because of a high coronavirus infection rate among them," said Professor Martin McKee, professor of European public health at the London School of Hygiene and Tropical Medicine.

There is a wide variance in healthcare capacity, such as hospital beds per 1,000 citizens which could affect health outcomes like Italy; however, this doesn't seem to be highly correlated with fatality rates at this moment.

- S. Korea—11.5
- Germany—8.3
- China—4.2
- Italy—3.4
- United States—2.9
- Singapore—2.4

So what should we do?

The first rule of medicine is to do no harm.

"Right now we are floundering in a sea of ignorance about who is infected and the fate of people who are infected." - Steve Goodman, Professor of Epidemiology at Stanford University

Local governments and politicians are inflicting massive harm and disruption with little evidence to support their draconian edicts. We should take COVID-19 seriously and that requires thoughtful policy, less chosen ignorance and more data. Every local government is in a mimetic race to one-up each other in authoritarian city ordinances to show us who has more "abundance of caution". Politicians are competing, not on more evidence or more COVID-19 cures but more caution. As unemployment rises and families feel unbearably burdened already, they feel

pressure to “fix” the situation they created with even more radical and “creative” policy solutions. This only creates more problems and an even larger snowball effect. The first place to start is to stop killing the patient and focus on what works.

David L. Katz MD & MPH, the founding director Yale University’s Yale-Griffin Prevention Research Center and the past-president of the American College of Lifestyle Medicine, writes for NY Times,

> First, the medical system is being overwhelmed by those in the lower-risk group seeking its resources, limiting its capacity to direct them to those at greatest need. Second, health professionals are burdened not just with work demands, but also with family demands as schools, colleges and businesses are shuttered. Third, sending everyone home to huddle together increases mingling across generations that will expose the most vulnerable.

In response to a paper on COVID-19, Peter C Gøtzsche, Director Institute for Scientific Freedom in Copenhagen, one of the top evidence-based medicine researchers in the world, writes in response to Denmark guidelines on COVID-19:

“Why all the panic? Is it evidence-based healthcare to close schools and universities, cancel flights and meetings, forbid travel, and to isolate people wherever they happen to fall ill?”

Start with basic hygiene

The most effective means to reduce spread is basic hygiene. Most American’s don’t wash their hands enough and aren’t aware of how to actually wash your hands. Masks aren’t particularly effective if you touch your eyes with infected hands. Ask businesses and public places to freely distribute disinfectant wipes and hand sanitizer to the customers and patrons. If you get sick or

feel sick, stay home. These are basic rules for preventing illness that doesn't require trillions of dollars.

More data

The best examples of defeating COVID-19 requires lots of data. We are very behind in measuring our population and the impact of the virus but this has turned a corner the last few days. The swift change in direction should be applauded. Private companies are quickly developing and deploying tests, much faster than CDC could ever imagine. The inclusion of private businesses in developing solutions is creative and admirable. Data will calm nerves and allow us to utilize more evidence in our strategy. Once we have proper measurement implemented (the ability to test hundreds every day in a given metro), let's add even more data into that funnel—reopen public life and execute a random population trial to truly measure the transmission of COVID-19.

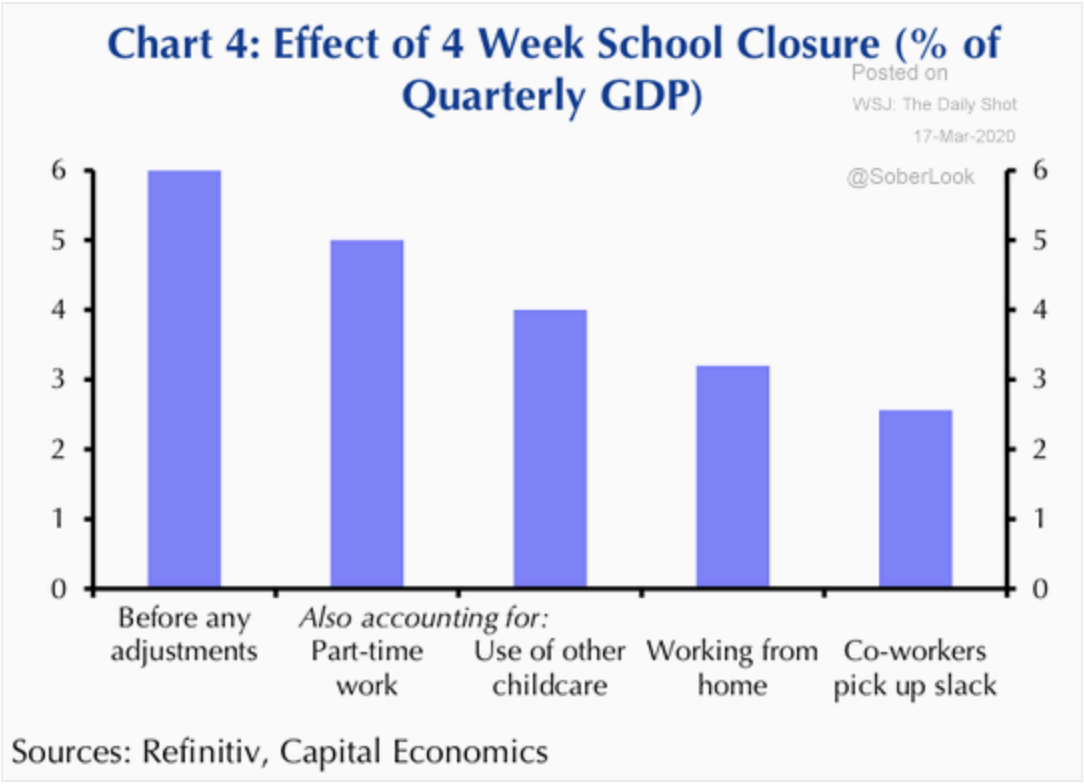
Taiwan is held up as a model for its approach. They embraced both data, tracking, free movement of people, evidence-based prevention, and focused their energy on those most vulnerable—preexisting conditions and those over the age of 65. Here are some of the steps they took:

- QR code scanning and online reporting of each person's travel history
- Health symptoms were used to classify traveler infectious risks based on flight origin and travel history in the past 14 days
- People with low risk were sent a health declaration border pass via SMS to their phones for faster immigration clearance
- Those with higher risk were quarantined at home and tracked through their mobile phone to ensure that they remained there during the incubation period

- Taiwan also proactively seeks out patients with severe respiratory symptoms (based on information from a national health database) to see who had tested negative for influenza so that they could be retested for COVID-19

Open schools

Closing schools is counterproductive. The economic cost for closing schools in the U.S. for four weeks could cost between $10 and $47 billion dollars (0.1–0.3% of GDP) and lead to a reduction of 6% to 19% in key health care personnel.



CDC's guidance on closing schools specifically for COVID-19 -

Available modeling data indicate that early, short to medium closures do not impact the epi curve of COVID-19 or available health care measures (e.g., hospitalizations). There may be some impact of much longer closures (8 weeks, 20 weeks) further into community spread, but that modeling also shows that other mitigation efforts (e.g., handwashing, home isolation) have more impact on both spread of disease and health care measures. In other countries, those

places who closed school (e.g., Hong Kong) have not had more success in reducing spread than those that did not (e.g., Singapore).

Based on transmission evidence, children are likely to catch COVID-19 in the home. As well, they are more likely to expose older vulnerable adults as multi-generational homes are more common. Schools also offer a single point of testing a large population for a possible infection in the home to prevent community spread. Sweden has kept a lot of schools open due to the low risk posed to children.

Open up public spaces

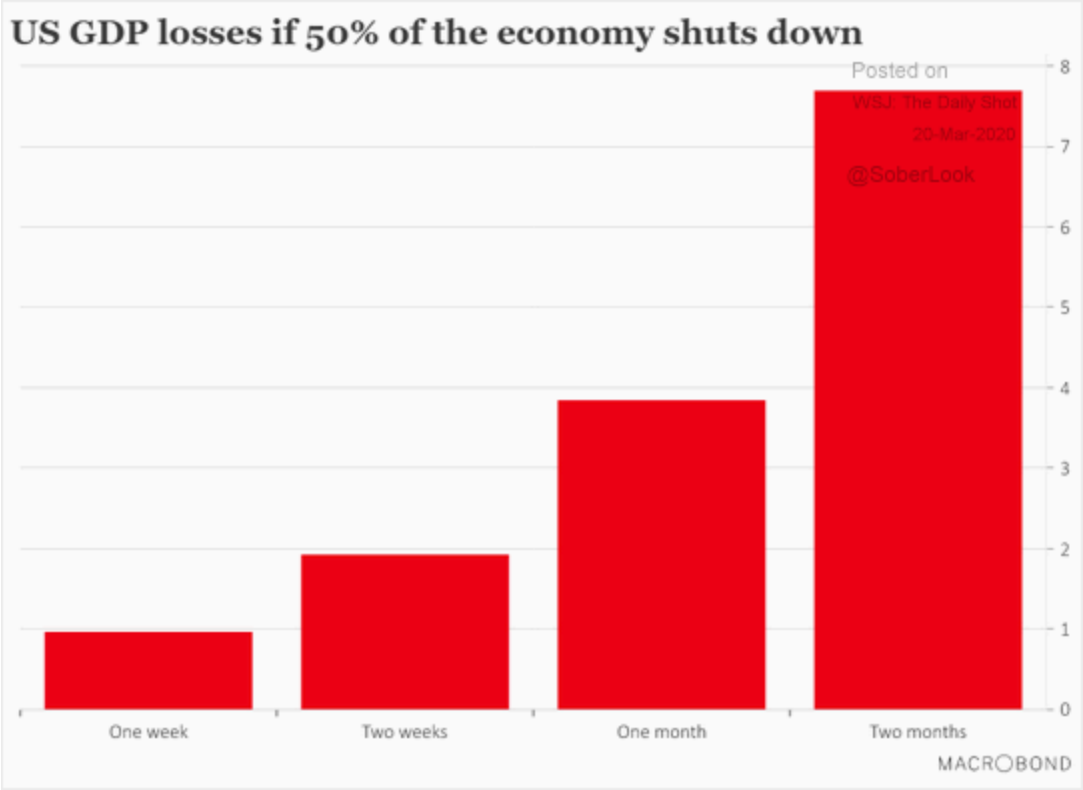
With such little evidence of prolific community spread and our guiding healthcare institutions reporting the same results, shuttering the local economy is a distraction and arbitrary with limited accretive gain outside of greatly annoying millions and bankrupting hundreds of businesses. The data is overwhelming at this point that community-based spread and airborne transmission is not a threat. We don't have significant examples of spreading through restaurants or gyms. When you consider the environment COVID-19 prefers, isolating every family in their home is a perfect situation for infection and transmission among other family members. Evidence from South Korea and Singapore shows that it is completely possible and preferred to continue on with life while making accommodations that are data-driven, such as reasonable social distancing and regular temperature checks in key public places.

Support business and productivity

The data shows that the overwhelming majority of the working population will not be personally impacted, both individually or their children. Supporting a shutdown policy is an unnecessary burden that is distracting resources and energy away from those who need it the most. By preventing Americans from being productive and specializing at what they do best (their vocation), we are pulling resources towards unproductive tasks and damaging the economy. We

will need money for this fight. Reject the straw man attempt to call this debate “lives vs. money”. **This is lives for lives**. Poverty, hunger, depression, and other poverty-driven pathologies cost lives.

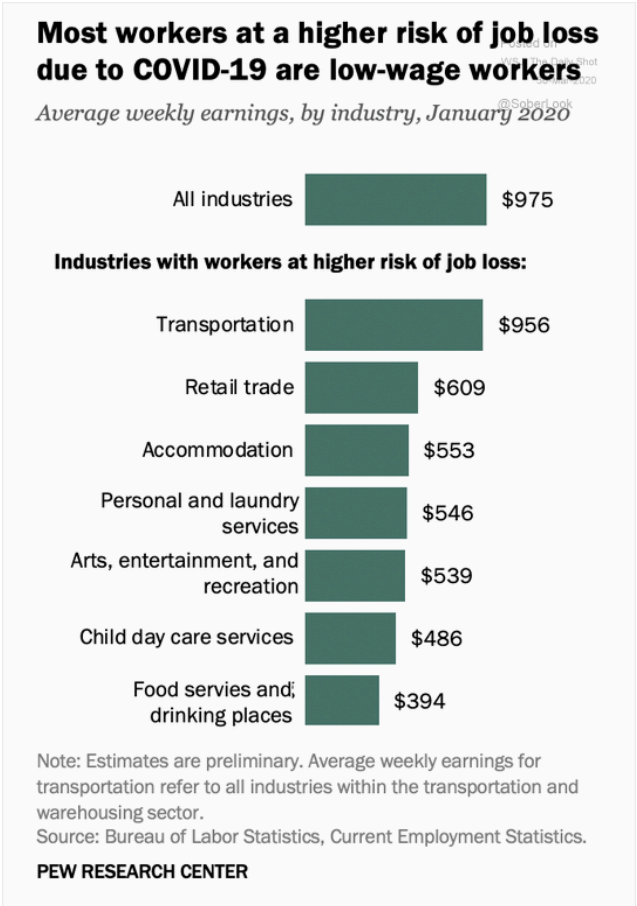
At this rate, we will spend more money on “shelter-in-place” than if we completely rebuilt our acute care and emergency capacity.



Source:
https://www.macrobond.com/posts/blog-central-banks-go-big-covi-19-market-crash-crisis/

Americans won’t have the freedom to go help those who get sick, volunteer their time at a hospital, or give generously to a charity. Instead, big government came barrelling in like a bull in a china shop claiming they could solve COVID-19. The same government that continued to not test incoming passengers from Europe and who couldn’t manufacture enough test kits with two months' notice.

For shut down supporters, there is little empathy or understanding of the lives impacted. Disportationally these lives are lower-income. Working from home is almost an exclusively a luxury for the educated and upper income ladders.

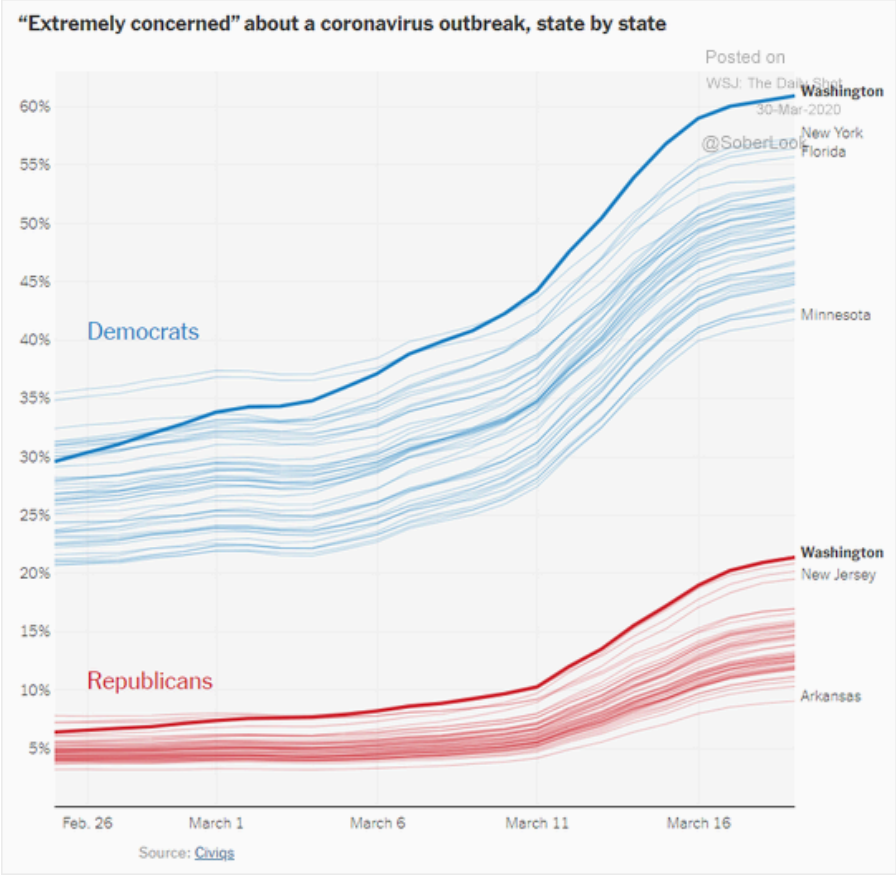


Let Americans be free to be a part of the solution, calling us to a higher civic duty to help those most in need and protect the vulnerable. Not sitting in isolation like losers.

People fear what the government will do, not an infection

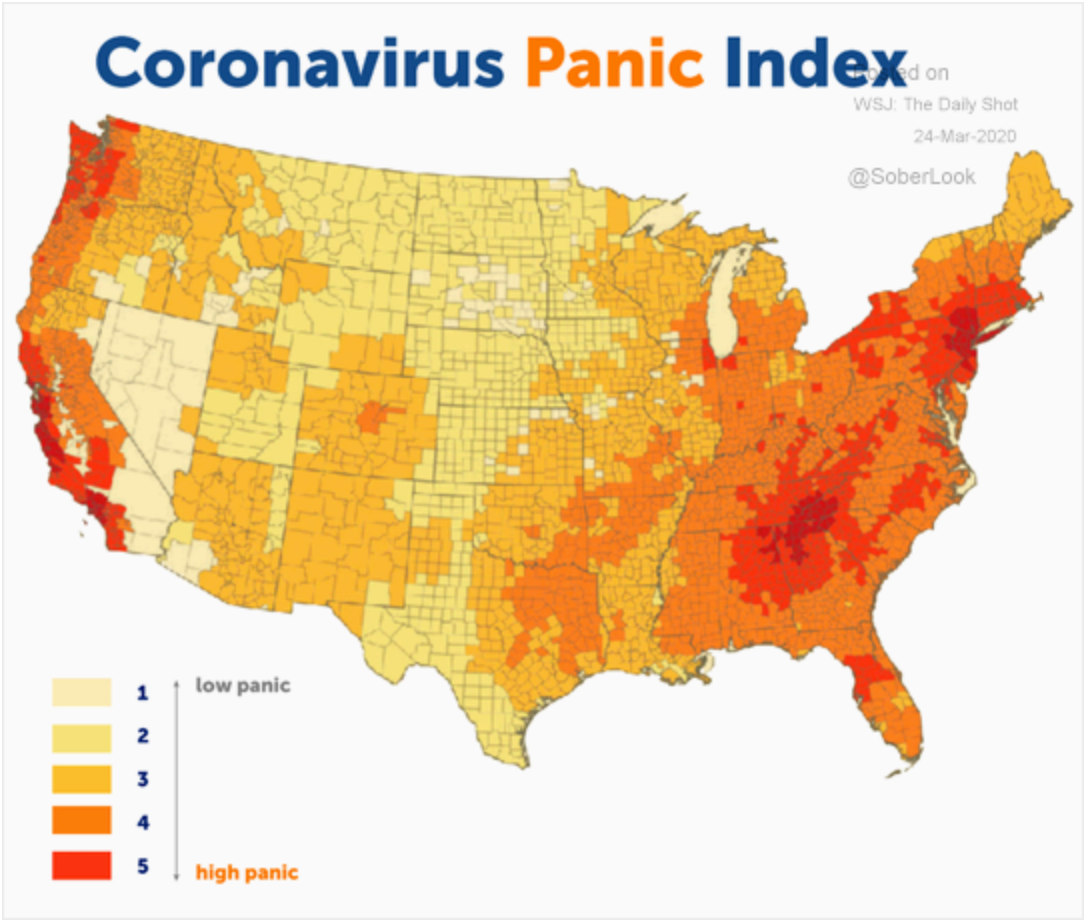
Rampant hoarding and a volatile stock market aren't being driven by COVID-19. An overwhelming majority of American's don't believe they will be infected. Rather, hoarding behavior strongly demonstrates an irrational hysteria, from purchasing infective household masks to buying toilet paper in the troves. This fear is being driven by government action, fearing what the government will do next. In South Korea, most citizens didn't fear infection but the government and public shaming. By presenting a consistent and clear plan that is targeted and specific to those who need the most help will reduce the volatility and hysteria. A sign the logic behind these government actions aren't widely accepted, nor believed as rational by the American people is the existence itself of the volatility and hysteria. Over three-fourths of Americans are scared not of COVID-19 but what it is doing to our society.

As COVID-19 became increasingly led by hysteria over evidence, COVID-19 became a political football masking as a public health concern. You shouldn't be surprised to see more and more virtue signalling as Americans shame others who don't abide by their self-isolation and shelter-in-place.



In CDC's worst-case scenario, CDC expects more than 150–200 million infections within the US. This estimate is hundreds of times bigger than China's infection rate (30% of our population compared to 0.006% in China). Does that really sound plausible to you? China has a sub-par healthcare system, attempted to suppress the news about COVID-19 early on, a lack of

transparency, an authoritarian government, and millions of Chinese traveling for the Lunar Festival at the height of the outbreak. In the US, we have a significant lead time, [several therapies proving successful](), transparency, a top tier healthcare system, a democratic government, and media providing ample accountability.



Infection isn't our primary risk at this point.

Expand medical capacity

COVID-19 is a significant medical threat that needs to be tackled by both finding a cure and limiting spread; however, some would argue that a country's authoritarian response to COVID-19 helped stop the spread. Probably not. In South Korea and Taiwan, I can go to the gym and eat at a restaurant which is more than I can say about San Francisco and New York, despite a significantly lower caseload on a per-capita basis.

None of the countries the global health authorities admire for their approach issued "shelter-in-place" orders, rather they used data, measurement,and promoted common sense self-hygiene.

Does stopping air travel have a greater impact than closing all restaurants? Does closing schools reduce the infection rate by 10%? Not one policymaker has offered evidence of any of these approaches. Typically, the argument given is "out of an abundance of caution". I didn't know there was such a law. Let's be frank, these acts are emotionally driven by fear, not evidence-based thinking in the process of destroying people's lives overnight. While all of these decisions are made by elites isolated in their castles of power and ego, the shock is utterly devastating Main Street.

A friend who runs a gym will run out of cash in two weeks. A friend who is a pastor let go of half of his staff as donations fell by 60%. A waitress at my favorite breakfast place told me her family will have no income in a few days as they force the closure of restaurants. While political elites twiddle their thumbs with models and projections based on faulty assumptions, people's lives are being destroyed with Marxian vigor. The best compromise elites can come up with is $2,000.

Does it make more sense for us to pay a tax to expand medical capacity quickly or pay the cost to our whole nation of a recession? Take the example of closing schools which will easily cost our economy $50 billion. For that single unanimous totalitarian act, we could have built 50 hospitals with 500+ beds per hospital.

Eliminate arcane certificate of need and expand acute medical capacity to support possible higher healthcare utilization this season. Here is a short list of all therapies and vaccines currently being tested.

Don't let them forget it and vote

These days are precarious as Governors float the idea of martial law for not following "social distancing", yet violating those same rules in their press conferences. **Remember this tone is for a virus that has impacted 0.004% of our population**. Imagine if this was a truly existential threat to our Republic.

The COVID-19 hysteria is pushing aside our protections as individual citizens and permanently harming our free, tolerant, open civil society. Data is data. Facts are facts. We should be focused on resolving COVID-19 with continued testing, measuring, and be vigilant about protecting those with underlying conditions and the elderly from exposure. We are blessed in one way, there is an election in November. Never forget what happened and vote.

You may ask yourself. Who is this guy? Who is this author? I'm a nobody. That is also the point. The average American feels utterly powerless right now. I'm an individual American who sees his community and loved ones being decimated without given a choice, without empathy, and while the media cheers on with high ratings.

When this is all over, look for massive confirmation bias and pyrrhic celebration by elites. There will be vain cheering in the halls of power as Main Street sits in pieces. Expect no apology, that would be political suicide. Rather, expect to be given a Jedi mind trick of “I’m the government and I helped.”

The health of the State will be even stronger with more Americans dependent on welfare, another trillion stimulus filled with pork for powerful friends, and a bailout for companies that charged us $200 change fees for nearly a decade. Washington DC will be fine. New York will still have all of the money in the world. Our communities will be left with nothing but a shadow of the longest bull market in the history of our country.