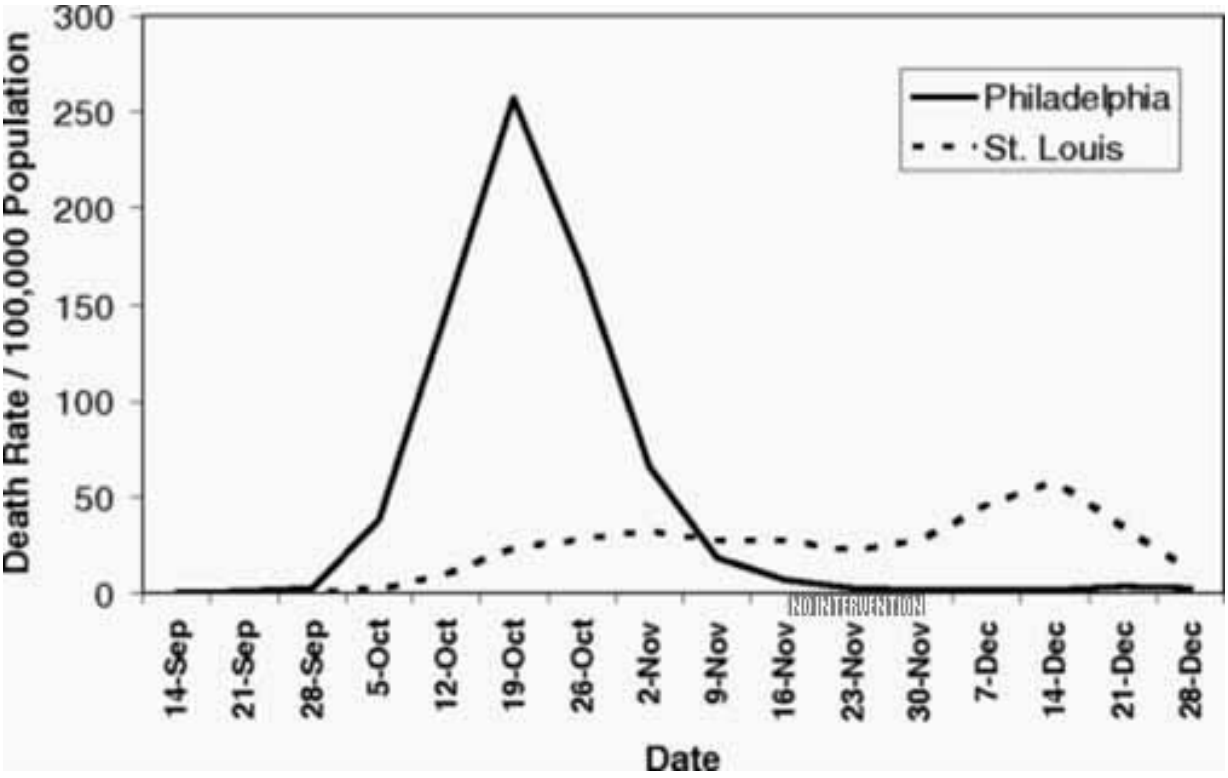
Why we have seen an unprecedented spread of COVID-19 in the USA

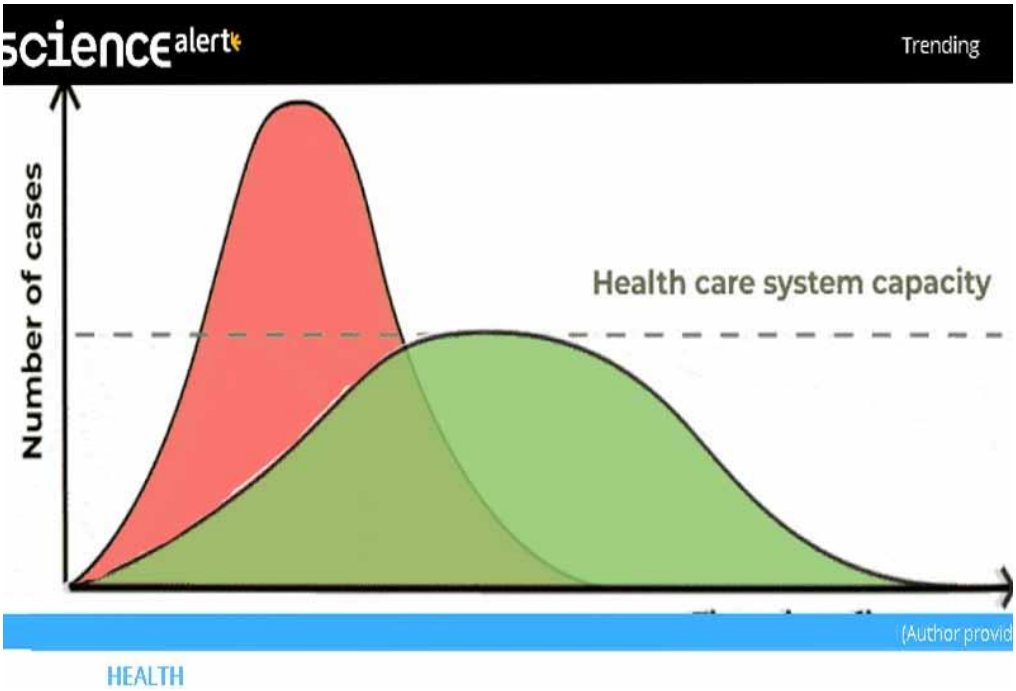
4/20/20 James A Wilson, MD

When the epidemiologists described the approach to the COVID-19, they presented the model similar to the 1918 Spanish Influenza data which showed “flattening of the curve” with social distancing. The graphic comparison, in Philadelphia, where a parade which drew 200,000 people during the Flu outbreak resulting in a rapid acceleration of the illness, overwhelming hospitals, was quite different from the effect of the same virus in Saint Louis, where social distancing was applied[i]:



A total of 675,000 US citizens died in the H1N1 pandemic of 1918

The graphic representation from the last serious pandemic a century ago demonstrated the effect of social distancing, and also showed resurgence after the controls were discontinued from 16-Nov to 30-Nov. Modern epidemiology models claim to delay the peak of infection, illness and mortality by interview, isolation of infected cases, and: quarantine of contacts compared with doing nothing. Here is a composite sketch:



Unfortunately, by the third week of March, the measures, including social distancing, had not appeared to control the accelerating spread of illness, actually following the "do nothing" red graph rather than the flattened green curve, threatening to overwhelm the capacity of hospitals to care for the seriously ill, about 15% of the total. Later we ended up with more positive COVID-10 cases than any other country in the world—and actually New York has that distinction also. What went wrong?

It appears that the assumption of symptomatic individuals primarily spreading the COVID-19 to contacts did not account for **asymptomatic people infecting thousands** of contacts. (Rand Paul was the canary in the coal mine.) The lack of available testing for COVID-19 prevented the identification of asymptomatic subjects, but social distancing was only invoked in the third week of March. We were then faced with horrendous predictions of hundreds of thousand deaths (?) and a serious lack of respiratory ventilators, masks, gloves and other personal protective equipment.

Going forward, in areas where there is minimal spread (Wyoming, North & South Dakota) a concerted effort to blanket-test the population where only one or two positives are found could demonstrate the efficacy of isolation and quarantine in small towns and cities.

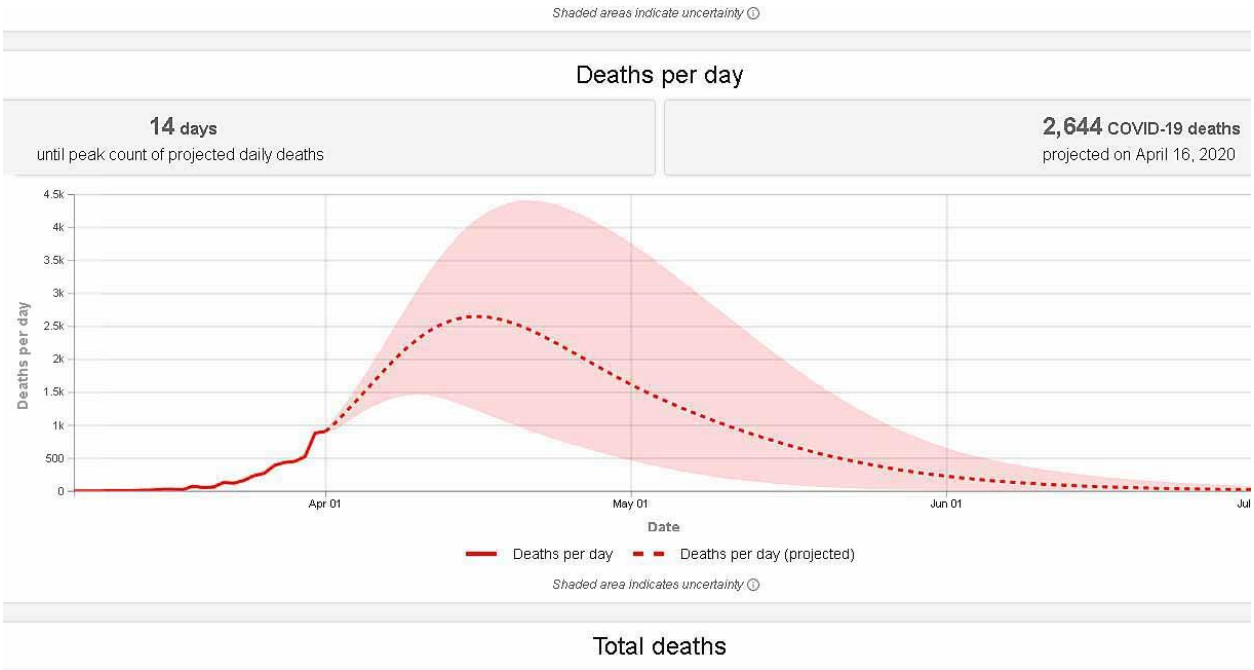
In the future, we may all be exposed to COVID-19 if it remains stable. Only when we have had the disease (with or without anticipated antiviral medication), or the expected vaccine can we put COVID-19 behind us. **Herd immunity by natural progression of the disease is unthinkable**, **so we all need to be vigilant in social distancing!**

Consider the *simplified* worst-case extended possibility over time, which does not include modeling:

331,000,000 USA population x 85% infected x 1.5 % mortality =

4,220,250 deaths

To deal with the real data, President Trump's scientific advisors, including Dr Birx and Dr Fauci, embraced the IHME graphic using actual US data of actual deaths up to April 1, 2020. At a briefing on March 31, Dr Birx and Dr Fauci predicted that total deaths could reach 250,000—much lower than 4.2 million, but alarming to all present. The graph below indicates the range of uncertainty (in pink) from 1500 (1.5K) per day to 4400 (4.5K) at peak. The broken line indicates the current projection with maximum social distancing[ii].



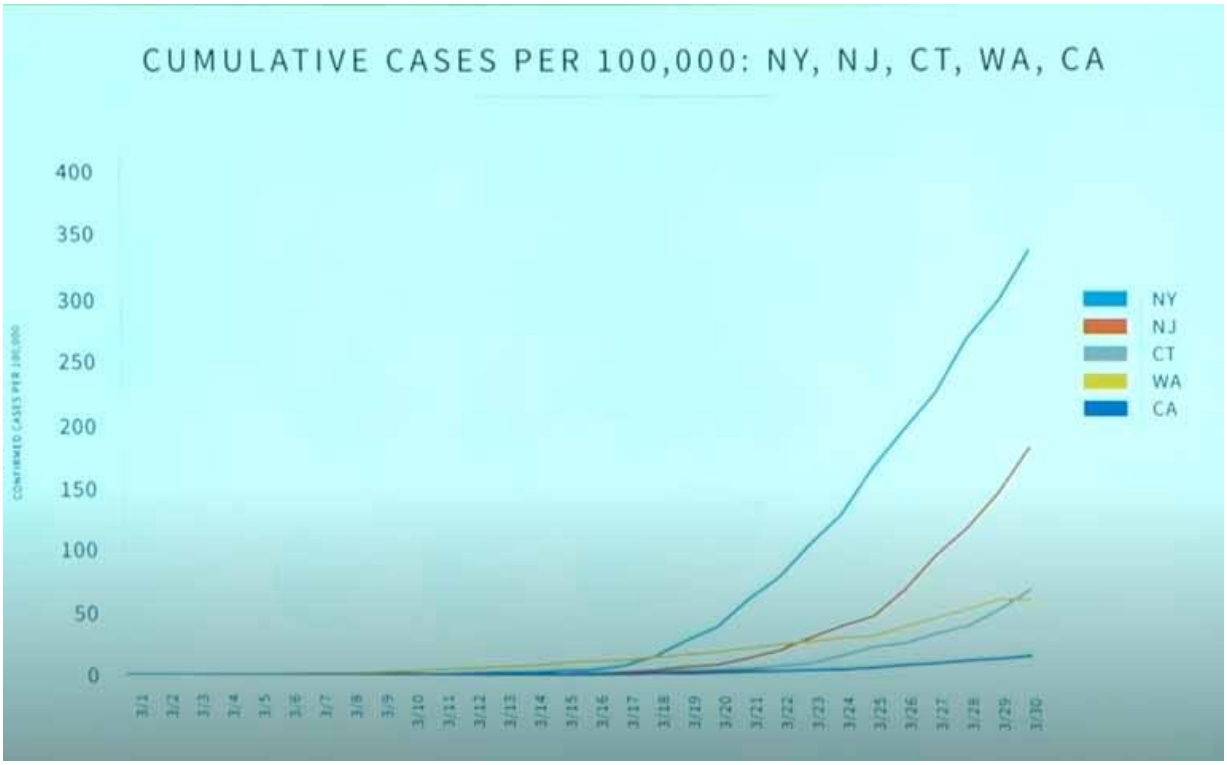
Many pundits complain that we engaged social distancing too late, but it was unknown that asymptomatic subjects could shed virus, and even now, it appears that recovered subjects may be shedding COVID-19 for a week after their symptoms are gone.[iii] Although we do not have a special lamp to identify the COVID-19 temporally, we know that it is primarily spread from the nose, mouth and hands of the infected person. Even talking with an infected person may spray your face with virus.

Any smooth object can harbor the virus for hours and sometimes days, and a sneeze can propel germs for more than 6 feet. If these objects are touched by an uninfected person, the germs can be transferred to their eyes or nose, and depending upon the concentration of the inoculum, another victim begins a 5 to 10 day episode of Coronavirus respiratory illness.

When the Diamond Princess disembarked asymptomatic subjects, they were placed in 14-day quarantine. A surprising number of them became ill with COVID-19, indicating the danger of having meals delivered by infected ship staff, and revealing the incredible infectivity of close personal contact. Norovirus infections have been problematic on cruise ships, but more of a nuisance, since they are not ordinarily lethal, and the disease is over in a matter of hours. Still, the close contact transmissibility in small spaces is similar to COVID-19, even though Norovirus can be transmitted also in food. **Only the compulsive and the socially distanced can avoid either of these germs**.

It is clear that asymptomatic contacts are wrecking the epidemiologic wisdom. The militaristic lockdown in Wuhan has been the only way shown to dramatically contain the virus and reduce its rapid spread. To identify asymptomatic carriers, extensive testing is possible in the future, but at $50 per test, 331,000,000 people would cost $16,550,000,000 (twice the cost of completing the southern border wall!) If we let everyone pay for their own test, we might identify enough asymptomatic carriers to better control the spread. Symptomatic patients still need to be tested without charge, to avoid anyone eluding isolation., but testing asymptomatic high risk nursing home residents needs to be done.[iv]

But why is New York so much more aggressively affected? Look at Dr Birx's next chart[v]:



Public transportation compresses people together. We are annoyed by body odor in a crowded subway car, but we learn to live with it in order to have rapid transit. I suggest that crowding is more common in large cities, and germs like COVID-19 are poised to exploit that. We may need to accept new limitations to commuting. California is doing something better, with earlier attention to distancing and compulsive hand-washing, but they may eventually succumb also. In Wyoming, where the population is sparse, there is minimal penetration, but given enough time, the virus will eventually be carried there. We can hide, but we can't fight--yet.

The hope of vaccination is encouraging, and the promise of potent antiviral drugs that can control mortality would allow us to return to normal activities, and treat this coronavirus like the flu. In the meantime, we need to hide, avoid, distance and protect each other by being compulsive.

Another option to dig ourselves out of this crisis is to recruit the recovered COVOD-19 survivors who are deemed healthy and no longer shedding the virus to join the work force, and especially, the medical work force![vi] This requires an available and reliable antibody serology test. This is a test many would be willing to pay for, if it is your ticket to get back to work![vii]

The value of simple masks in public was encouraged on April 2, that some of the average people in the street are infected and contagious. They wear masks in Japan and much of Asia if they have a cough—as a responsible measure to avoid transmitting germs to others. We are finally on board!

As of this writing, there are nearly 50,000 deaths in the USA, perhaps the peak of the curve. Normal curves usually have half of the deaths on either side of the curve, so we likely will experience nearly 100,000 total deaths by the end of September, with additional mortality in the future.[viii] Going back to work too soon could result in many more deaths.

Can Phase I, II and III work better that politically controlled resumption of business in the USA? Data accumulated over the next six months will tell us.

Again, note that we may all likely come in contact with the coronavirus eventually. **Better done after a vaccination. Better done with adequate antiviral therapy available. Better done when the hospitals are not crowded with COVID-19 patients.**

Do your part. Be compulsive, distanced, masked, and volunteer if you are a survivor!

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[i] **https://www.vox.com/policy-and-politics/2020/3/24/21188121/coronavirus-covid-19-social-distancing-1918-spanish-flu**

[ii] **http://covid19.healthdata.org/**

[iii] **https://www.healio.com/pulmonology/practice-management/news/online/%7B071c6a27-2c50-458f-9558-19b9f501df05%7D/patients-with-covid-19-may-shed-virus-after-symptom-resolution?page=2**

[iv] **https://www.nejm.org/doi/full/10.1056/NEJMoa2008457?query=C19&cid=DM90829_NEJM_COVID-19_Newsletter&bid=187811281**

[v] **https://www.youtube.com/watch?v=_CFVgUmaHpo [40m]**

[vii] **Link to "How to be a Superhero"**

[viii] **https://www.healio.com/pulmonology/practice-management/news/online/%7B071c6a27-2c50-458f-9558-19b9f501df05%7D/patients-with-covid-19-may-shed-virus-after-symptom-resolution?page=2**