

Letter 31: The Long Goodbye

June 13, 2021

Dear Daughters,

Your mother and I went to an 85th birthday party today for a very dear friend. Dozens of people ambled around, talking and generally enjoying getting out amongst others. There was no social distancing and no one wore masks, as everyone had been vaccinated. This party seems to me as clear a statement as can be made about where we, your parents, are in the pandemic: living as if it were over.

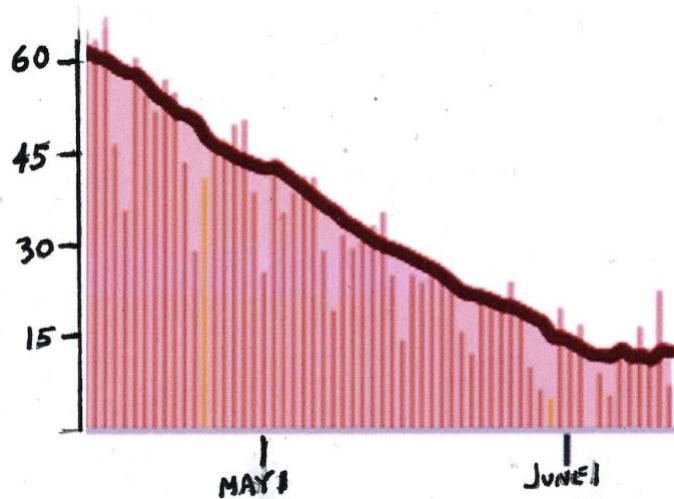
We know its not really OVER, of course. The world saw 372,000 new cases yesterday. But we in Saint Louis are beginning to act as if the danger to us and those we know is over.

America Is Becoming Vaccinated

It's easy to see why we are feeling safer. Two months ago, on April 15th, the United States had 73,764 new cases of COVID-19 in 24 hours. While far less than the 300,000 cases a day we saw three months earlier, it was still a dangerous, depressing daily case load.

Then the nationwide vaccination program began to really bite.

On April 15th, 78 million Americans had been fully vaccinated, 30% of the population. Every day in the two months following that day, as more and more people became vaccinated, fewer and fewer COVID-19 cases were reported:



Today as I write this, 174 million Americans have been vaccinated -- 62% of people 12 and older, and fully 52% of the total population. As a direct consequence, the COVID-19 case load is far lower. The graph shows the number of new COVID-19 cases reported since April 15th. It drops steadily, day after day, as more Americans become vaccinated.

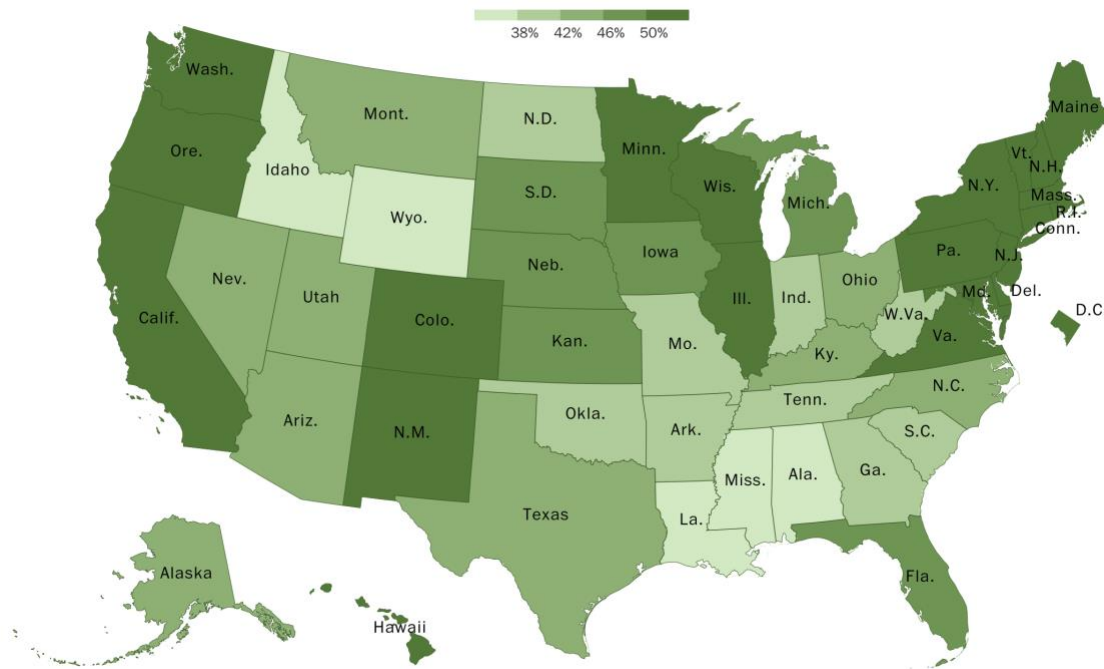
That's the big take-home lesson of this spring: Vaccination is doing its job. The probability of someone with COVID-19 passing the virus to another person has decreased sharply as more of the people around that infected person are vaccinated. Said simply, there are fewer targets for the virus to hit.

We've Gone About As Far As We Can Go

So why am I not jubilant? Because, as you can see in the graph, the steady drop in new cases stops around June 1st (the second black bar at the base of the graph). In the last two weeks, the number of daily new cases has held steady at about 14,000. Now that's 60,000 fewer case than two months ago, a wonderful improvement, but still a very tough number – and its no longer getting lower.

So What's the Problem?

What is the reason vaccination hasn't continued to drive down the number of daily new COVID-19 cases? The depressing answer to this question is that a lot of Americans are choosing not to vaccinate. Why? A look at a map of “% vaccinated” suggests an answer:



While I do not feel it my place to reach political conclusions in my letters to you, it is difficult to ignore the similarity of this map to a map of the 2020 presidential election. Nearly all of the states President Biden won will reach his goal of 70% of adults having at least one shot by July 4th (roughly, the dark green states in the map). However, the governors and legislators of many states he did not win, particularly in the South, are refusing to strongly promote vaccination, with the consequence you see. Science has become politicized in ways this biologist could never have anticipated. As a scientist, I don't see room for argument: *More vaccinations = fewer COVID-19 cases = more people alive and well.*

This politicization of vaccinations is at play in our state, Missouri. The average vaccination rate across Missouri is a paltry 34%. However, even this low number is misleading. Of the 144 counties in Missouri, only 7 of them equal or exceed that 34% vaccination rate. Those 7 are all in metro areas: 3 in the St Louis area, 3 in the Kansas City area, and one containing the University of Missouri. Fully 137 Missouri counties are below that 34% average, all of them basically rural. And that's the problem in a nutshell: The rural population of the state does not support vaccination. This same pattern can be seen in many other states. Large cities are getting vaccinated, while rural areas are not.

What's Next?

What's to be done to address this urgent problem? Well, the governor of our state, while tolerating vaccination, has done little to promote it. He should be banging the drums, promoting vaccination. Indeed, the defeated presidential candidate should be too.

But that's not going to happen, is it?

Which leads me to conclude that the United States will maintain a reservoir of COVID-19 virus for years to come. A discouraging prospect, as the virus will continue to generate new variants as it sputter along in the American South. The hyper-infectious *delta* variant that has recently arisen in India is already taking hold in the United States. Our mRNA vaccines, proven 95% effective against the virus and its variants we have seen so far, are only 80% effective against the *delta* variant. The variants that will arise in the American South in future years will only be worse. Natural selection will drive the virus to be more vaccine-resistant, and no amount of placing our heads in the sand and ignoring the problem, can change that.

An End to My Letters

There is not a lot more biology to explain to you. As you can see, I have concluded that the future pandemic problems we face as a nation are political, not scientific. While I may have fierce opinions about what our elected (and non-elected) leaders are doing – and I do – I won't foist them off on you. You can make up your own minds.

So. No more Pandemic letters. What shall I worry about next? How about spiders?



Love you.

Dad