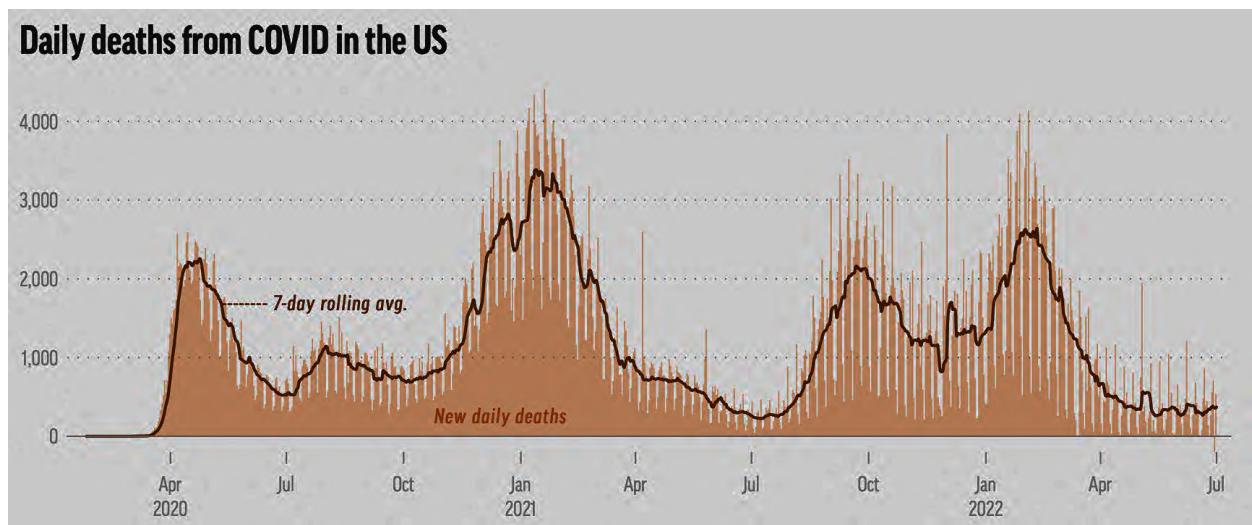


Letter 43: Winter Is Coming

September 20, 2022

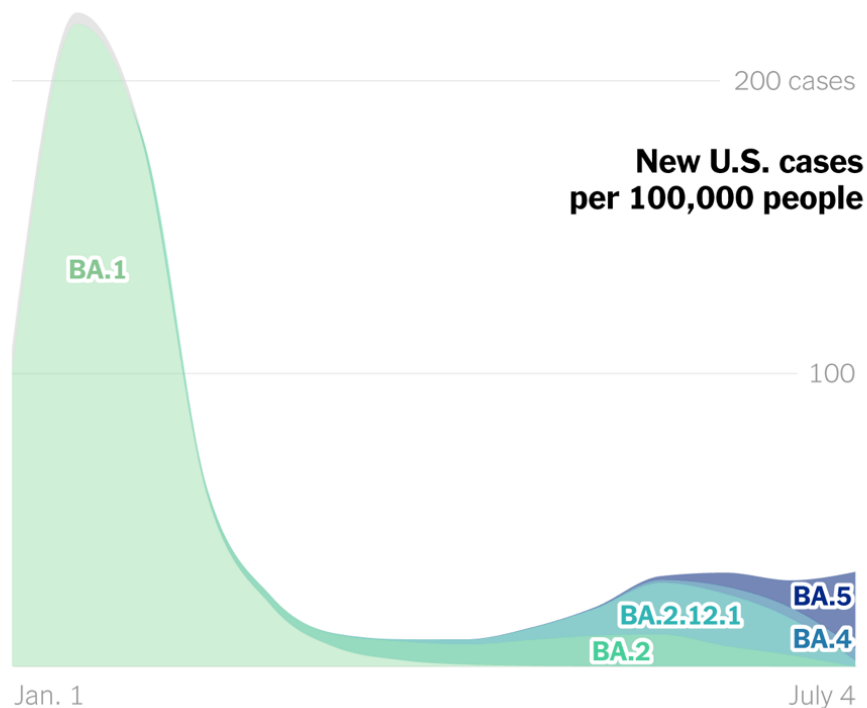
Dear Daughters,

Three months ago, when last I wrote, the pandemic was very much with us, sickening over 100,00 people a day across the country. It is still with us – 66,159 new cases were reported today. The U.S. is having an average of 320 Covid-19 deaths each day. While far fewer than the 3,500 deaths a day during the Omicron wave in January, that's still a lot of dead people, a lot of bereaved families, an enormous loss of future happiness. A sad fact, which your mother and I cannot afford to ignore, is that 85% of these deaths were people 65 or older.



Boosters Have Not Protected Us

It appears the majority of those who have died in 2022 have had Covid-19 shots, and many of them have also had boosters. Your mother and I have religiously taken the series of Covid-19 boosters as they have become available, but without a lot of confidence that they would protect us. These boosters, you see, were simply more of the same vaccine we had been taking all along, a mRNA vaccine targeted at the gene sequence of the spike protein of the original virus which came from China. That original virus has not been around Missouri for a long time now, or anywhere else in the United States. That virus has a far different spike protein than the Omicron variant of Covid-19 that first appeared here nine months ago. It is this Omicron virus that we face today in every state of the Union.



A series of variants of Omicron have swept across our country this summer. A very clear case of evolution by natural selection, each new version of Omicron has been better able to evade the immune protection provided by our vaccine. This should come as no surprise, as our vaccines were developed not for Omicron, but for a strain of the virus no longer found in the United States. Today almost all new U.S. Covid-19 cases in the United States are a sub-variant of the Omicron variant known as BA.5.

Finally, A Booster Aimed At the Virus We Face

So what can we elderly folk, very much in danger still, do to protect ourselves? That question has chewed at me for months. This week I got my answer: The release of a Covid-19 booster shot that is different than the ones we have been taking and will really work. Why? Because it is targeted at the Covid-19 variant that actually endangers us, Omicron subvariant BA.5. The reformulation of the vaccine was a very straightforward proposition, removing the gene sequence of the original spike protein and inserting in its place the BA.5 spike protein gene. The rest of the vaccine remains the same – only this key bit is changed. Both Pfizer and Moderna managed the switch with no problem, and their new boosters didn't require extensive field testing because we know the basic vaccine to be completely safe. The change in the booster only shifts the target.



A Bivalent Booster

Another very good thing about this new booster shot is that the people who formulated it were very forward-thinking. To explain this, I want to direct you girls to my previous four letters – what in all of them do I see as the greatest future danger we face from Covid-19? Spillover! I worry that Covid-19 will infect some animal species, and evolve within that species to a very different form, which might then circle back to infect us. Covid-19 has already infected white-tailed deer all across the country, and passed back from deer to human.

Here is where the booster formulators were thinking clearly about this risk:

1. *Considering Spillover Potential.* The version of Covid-19 that has infected white-tailed deer across the United States is the virus that first spread among humans across U.S. in the summer of 2020, a version very like the original strain from China. (How do we know this? By sequencing the virus found in infected animals. Isn't science neat?)
2. *Identifying a problem.* We can expect that any spillover variant we face in the future, however different, will be much more like that original strain than like any Omicron subvariant. So a booster targeting Omicron BA.5 will not likely offer spillover protection.
3. *Formulating the Problem.* We need both protection from Omicron BA.5 and from a future spillover variant.
4. *Solving the Problem.* Produce a “bivalent” booster containing equal portions of newly-formulated vaccine (targeting Omicron BA.5) and existing vaccine (targeting the original version of Covid-19 -- not perfect spillover protection, but our best shot).



Your Parents Leap In

The first day the new bivalent booster became available at our CVS pharmacy your mother and I got our shots. My arm hurt a bit for a day (much as it did for my flu shot last month), but there have been no other bad effects. I urge each of you to get this bivalent booster as soon as you can. For the first time in many months you can have real protection.

Many folk, including some “experts,” are announcing loudly on the internet and on morning television that the Covid-19 pandemic as we have known it is more or less over. Rather than facing an imminent danger, we now must learn to live with a virus that will always be around. To be safe, we will just need to get an annual booster shot, much as we do now for flu. Responding to these comments, Dr. Fauci said last week that he strongly disagrees, as the Omicron variant we face today still causes serious illness among the elderly and immune-compromised.

In this, I feel Dr. Fauci to be exactly right. While you girls, after getting the new booster, may relax a bit, your parents are older and far more at risk of serious illness from Covid-19. Over 300 Americans will die of Covid-19 today, most of them very like your mother and I. With this clearly in mind, your mother and I will continue to wear masks in public spaces where we might expect to encounter lots of people (supermarkets, hospitals, airports, museums, theaters and the like), but finally, after giving the new booster a few weeks to take hold, We ARE GOING OUT TO DINNER! Even then, we will seek outdoor seating. Your parents will stay careful, but feel more hopeful we will survive to dote on our grandchildren.

Dad