Let's Internationalize Moderna

and other strategies towards ending the pandemic

COVID-19 is real. COVID-19 is dangerous. Here are a set of strategies that can help individuals, communities, and governments end this pandemic.

about mRNA vaccines

The most effective vaccines against COVID-19 are mRNA vaccines, like those produced by Pfizer and Moderna. mRNA vaccines are a more controlled way of poking the human immune system than other types of vaccines.

Living things are made up of proteins, which are long chains of folded amino acids. Proteins are made in the ribosomes, based on mRNA strands sent from the nucleus. An mRNA vaccine injects custom mRNA strains into your body that will make a protein that creates an immune response. In the case of COVID-19, it turns out that all you need to do to create antibodies is create a convincing replica of the spike protein.

Viral vector vaccines, like those produced by J&J and Oxford/AstraZeneca, are almost as good in terms of effect. Instead of directly injecting mRNA, they inject a harmless virus whose DNA encodes for just the spike protein. The problem is that many of us will have existing immunity to the harmless virus. This also means that you can't get "boosted" with a second dose of a viral vector vaccine unless the vector is changed. Since it's difficult to keep finding new viral vectors, viral vector vaccines are unsuited for fighting a constantly mutating virus like COVID-19.

Traditional vaccines, which use a inactivated or attenuated strain of the virus, have proven ineffective against coronaviruses. They are not part of the ultimate solution. Furthermore, they are risky. Improperly deactivated or attenuated "vaccines" can cause the actual disease. In 1955, this actually happened with a polio vaccine(see the Cutter Incident). We suspect that much anti-vax sentiment has roots in cloudy generational memory of such incidents.

Most vaccines are like rockets— carefully designed pieces of biological machinery with many interlocking parts that must be tested carefully because their intended payload makes up only a very small portion of the package. By contrast, mRNA vaccines are like payloads sent up a space elevator. There are only two ways things can go wrong— first, if the payloads themselves turn out to be dangerous; second, if the space elevator itself somehow fails. Just like it might not be safe to send dynamite up the space elevator, it also might not be safe to inject mRNA encoding for certain proteins. The safety and side effects of each injected protein must remain up for lively scientific debate, backed up by studies and statistics.

The good news is that the second category of risk can be entirely understood and perhaps eventually eliminated. As mRNA vaccines are produced and deployed for more viruses, we will be able to isolate the effects of the mRNA injection medium from the effects of the created proteins. Therefore, the old safety standards regarding rocket-type vaccines should no longer constrain us. Completely new things are possible.

how to produce vaccines for the planet

COVID-19 is a public health problem. All our lives would be better off if as many people as possible got vaccinated against new variants as quickly as possible, and it's clear that the greedy capitalists are more concerned with extracting profits and increasing market value than preventing disease and death. To end this pandemic, we should internationalize Moderna and globally decentralize vaccine production. To further the space analogy, we need to build more space elevators in more areas of the globe.

Taking Moderna will be an interesting legal and economic problem. Maybe we compensate the shareholders by buying it out near the market value of around $100 billion. Maybe we innovate by compensating the employees instead of its shareholders(this would require new laws). But one way or the other, we know that we can take it if we gain enough public support.

Moderna is a heavily automated company. We know this because their Chief Data and AI Officer gave a talk about how heavily automated they are to Amazon Web Services, which has been uploaded to YouTube. He said that they've been using AWS users since the early days and that "our mantra is to put as much in the cloud as we can so we can leverage that shared infrastructure". This allows them to produce 1000 different mRNA candidates for testing every month from a single facility in Norwood, Massachusetts(source).

This means that if we take Moderna and open source all their software, anyone anywhere in the world can match this throughput provided they have the same machinery as Moderna does. We could openly share other company secrets, like safety protocols. We could use the Defense Production Act to ramp up production of the necessary machinery and provide it at low costs to universities/research centers around the world who want to open up mRNA production centers.

You may be wondering "why doesn't the free market take care of this?" Well, there's a couple reasons. First, it'd be really expensive for a competitor to match Moderna's software, which has been built up over a decade. Second, it'd be expensive for a competitor to match Moderna's hardware. Third, it took time for Moderna's employees to establish a social structure that allows scientists and engineers and other workers to talk to each other. Fourth, according to Gizmodo, only about a hundred experts in the world know how to make the coating of liquid nanoparticles that surround the mRNA. We're gambling that if we start to internationalize Moderna, some of those scientists will be happy to do what it takes to train more people in their suddenly critical field (at least at the right price).

Imagine a world with an mRNA production facility in every nation-state, with many nation-states having multiple production facilities. In such a world, the people of the global south would be equipped to wipe out diseases like malaria and Zika and Ebola whenever they appeared, without economic help from the global north (though scientific advice will always be welcome). In such a world, even flu vaccines could be more tailored to local conditions. In a few short years, we might be able to rid humanity of infectious viral diseases. But this can only happen if enough of us realize that they've built a space elevator, not just another rocket program.

how to convince people to get vaccinated

The idea that everyone who isn't vaccinated is dogmatically anti-vaccine is simply untrue. More accurate is that there are several tiers of vaccine hesitancy, where the tiers of "muh freedom" people and worse, anti-science conspiracy nuts are just the most vocal. But there are also those hesitant about vaccines for historical reasons, those who have legitimately tried to do their own research but haven't learned what to look for, those who are truly terrified by rare side effects of the vaccine, etc. What we really want is for these tiers to self-sort themselves into numbered buckets. Those who believe that the risk of the virus is bigger than the risk of any given mRNA vaccine will get the vaccine first.

But this is not how science is currently done. Self-selection is incompatible with the gold standard of randomized controlled trials. But this is a public health crisis, not a quest to find results within a certain p-value. Everyone who has made their own risk assessment should be able to get the vaccine as soon as they want it. This is about life and death.

If we make the scientific culture shift, a tiered vaccine rollout gives us a ready-made vaccine education pipeline. The most scientifically literate members of any given community will get the vaccine first, research any side effects they feel, and start to convince the rest of their community to get the vaccine when released to the next tier.

Such a socially nuanced vaccine rollout could have avoided the whole myocarditis fiasco. Even though the data shows that the risk of myocarditis is higher from the actual virus, many are rightfully scared about the government pausing a vaccine it previously declared completely safe.

The reason behind this mistake is actually quite enlightening. For most people, Moderna is better than Pfizer. It simply produces a better immune response. But those receiving the Moderna vaccine are also at a higher risk of myocarditis. The only major difference between the two is that each dose of the Pfizer/BioNTech vaccine delivers 30 μg of mRNA, while each of Moderna's contains 100 μg (source). This means that those with heart conditions should be receiving a lower-dosed vaccine (and your friends who are worried about this should take Pfizer or J&J). The more vaccine production is decentralized, the easier this will be to organize.

It's easy to blame the ignorant and delusional for all our problems, but it's hard to fix ignorance and delusion. It's harder to admit that our absolutist approach to science and our one-size-fits-all approach to medicine are also holding us back, but these problems are more easily solved.

masks, testing, quarantines, and decentralized contact tracing

Vaccines are not the only tool we have against COVID-19. Whenever there are surges, masks, testing, quarantines, and decentralized contact tracing must all be employed by communities.

Not many people know that we can have contact tracing without tracking locations and storing them in a centralized database. Actually, the only permission necessary is Bluetooth. Nicky Case came up with a visual explainer of how this works, which Grant Sanderson adapted to video. If we enough people got this app on their phones and testing were easily accessible, then we might have a shot of stopping the spread of COVID-19 in certain areas even without vaccines.

Wherever COVID-19 is still spreading, people should wear masks indoors. The fact that N95 and KN95 masks offer protection to individuals is becoming common knowledge. But obtaining these, along with getting access to testing, is often expensive and inconvenient. Poverty often forces people to work in unsanitary conditions against their will. A more radical approach is possible; it may even be necessary.

fight poverty and empower communities through wealth redistribution

We should tax wealth and redistribute it evenly to all citizens at least for the duration of this pandemic. In doing so, we'd finally be putting the Rev. Martin Luther King Jr's vision of a program of radical wealth redistribution to end poverty into practice.

For at least 90% of the population, the wealth tax + universal base income means free money. But since that money is actually coming from somewhere (the assets of the rich, mainly stock), it won't cause the dreaded inflation that printing money does (in economics lingo, this is fiscal policy, not monetary policy). This would be a good idea even if there wasn't a pandemic, but now that we have one, it is absolutely critical.

People with more money have the flexibility to order things like antigen tests, masks, and hand sanitizer that they couldn't afford otherwise. People with more money can afford to not work in dangerous, unsanitary conditions. People with more money have more free time to look after their neighbors and do more research into what they can do personally to stop the spread in their community.

odds and ends

The reason we should take Moderna and not Pfizer's BioNTech is because it is a standalone company.

If you want to know more about what that whole ivermectin/horse dewormer thing was all about, apparently the trials from many tropical areas truly did look promising. However, the most likely explanation is that this is because ivermectin killed parasitic worms that are more common in these regions, which improved the immune system's ability in general. Here's my source.

Scientists can be wrong. Nowhere was this more evident than when, in the initial stage of the COVID-19 Pandemic, the World Health Organization tweeted "FACT: #COVID19 is NOT airborne." This was not only wrong, it was stupidly wrong. According to this article, an arbitrary mathematical cutoff blindly followed by epidemiological experts for over 60 years cost human lives— not just because people who were willing to #BelieveScience didn't wear masks at first, but also because people who were skeptical became justifiably convinced that the scientific authorities had absolutely no clue what they were talking about. What could have prevented this? Trying to communicate the mechanism behind this recommendation in a video designed for the general public. The aerosol physicists would have succeeded; the epidemiologists would have quickly realized they didn't know what they were talking about. Science works better when we try our best to dismantle knowledge silos.

our political philosophy

This is obviously a pro-vaccine perspective. However, we don't see how any anti-vaxxers could possibly object to internationalizing Moderna. We are primarily trying to get vaccines to those who actually understand their value and are actively taking on our common enemy of Big Pharma. Whether we succeed or fail, we shine a light on how the world really works.

We're optimists about human nature. We think that if each of us, anchored by our own knowledge and open to more knowledge, fight for peace and freedom freely and peacefully, we can solve any problem. We dream of a world where peace, freedom, and knowledge become values so universal that we no longer have to talk about them.

As for the political feasibility of these strategies— that's up to all of us, no? There are those fighting for freedom regarding COVID-19 while devaluing peace and knowledge; there are those fighting for peace (meaning eradication) regarding COVID-19 while devaluing freedom; there are those seeking to spread their nuanced knowledge on the topic but unable to recommend any sharp political solutions to those willing to listen. Our proposals may sound radical, but this is also simply the fastest way to get vaccines effective against Omicron and any future variants

into the bodies of even just the willing bourgeoisie. Our current system is so broken that “radical change” will benefit basically anyone and everyone.

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