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What are we waiting for?

We could reach herd immunity so much faster, says economist **Alex Tabarrok**. Here's how.

Deaths in the United States from covid-19 have been falling, but it would be premature to assume that trend will continue. The recent mutations discovered in Britain, South Africa and Brazil — which have spread to the United States — are more transmissible. "We're in the eye of the hurricane," warns Peter Hotez, dean of the National School of Tropical Medicine at Baylor College of Medicine. Death rates could increase as we enter a fourth wave that could peak even higher than the first three. We are in a race against the virus to reach V-Day, when we have vaccinated enough people to achieve herd immunity.

Simply waiting for vaccine production to ramp up is inadequate. With thousands of people dying daily, there's a strong case for stretching the doses we have now. A "first doses first" approach — that is, prioritizing first doses by delaying the second shot from three to four weeks (the period studied in clinical trials) to 12 weeks — would allow more people to get vaccinated quickly, for example. "Fractional" dosing, such as by giving half-doses, would instantly increase the vaccine supply and has been used successfully in previous epidemics. And, of course, we should authorize more vaccines, including Johnson & Johnson's and AstraZeneca's (despite one disappointing trial for the latter in South Africa), and the Novavax vaccine. We should take a closer look at Sputnik, the Russian formula, now that it has shown strong results in clinical trials. Finally, to get shots into arms we could ease up on prioritization rules, to streamline the process.

If vaccines weren't scarce, we might abide by the trial protocols and in every case follow one shot with another a month later. But a pandemic forces trade-offs. The Pfizer and Moderna vaccines, the two approved for emergency use in the United States, are each estimated to be about 80 to 90 percent effective at stopping symptomatic covid-19 once the first dose has started to take effect, around 10 to 12 days after injection. And they are about 95 percent effective a week after the second dose.

SEE **VACCINATIONS** ON **B4**

ANN CUTTING FOR THE WASHINGTON POST

Geriatrician **Asif Merchant** works in nursing homes. Why are his colleagues skipping the vaccine?

In almost two decades working in nursing homes, I've never been through a time as dire as last spring. Facilities like mine, in the greater Boston area, were working with minimal to no protective gear, very little infection-control training, limited laboratory services and constantly changing public health guidelines. Residents with covid-19 deteriorated so quickly that they'd crash right in front of me, before we even got their test results.

Staff members got sick, and others stayed home because they were scared to get sick. While many doctors stopped going into nursing homes out of fear for their own safety, my team of physicians and nurse practitioners felt it was our duty to continue seeing patients every day. The need was so great: Units that usually had one certified nursing assistant for every eight to 10 residents suddenly had one person in charge of 30 to 40; we were also short on nurses. People weren't getting their meals or personal care on time; they suffered from dehydration, bedsores and social isolation. It was a heartbreaking time. I lost more than 100 patients.

As we learned more about the virus — treatments, proper infection control — conditions improved. Then the vaccine offered our first real hope that this pandemic would eventually end. I got my shots in January, as soon as I could.

But I soon realized that not everyone shared my enthusiasm. About half the staff in the four facilities where I serve as medical director said they would not take the vaccine. This might seem shocking: We work in the medical field, and we saw some of the worst ravages of this disease up close. And yet, despite the misery we'd witnessed, my colleagues were wary of the one intervention that offered a light at the end of the tunnel.

Health authorities across the country have reported widespread vaccine hesitancy among nursing home staff. Uptake among residents is high. But a national survey of certified nursing assistants late last year

SEE **NURSING HOMES** ON **B5**

When 'solving' an environmental problem only creates more problems

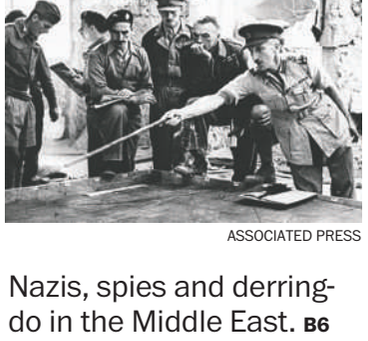
Carlos Lozada

Elon Musk's recent announcement that he will donate $100 million to whomever develops the most promising technology to remove carbon dioxide from the atmosphere is both exciting and depressing. Exciting because such incentives could galvanize new innovation. Depressing because, well, we're officially in the billionaires-hoping-for-miracle-tech-fixes stage of the fight against climate change — desperation gussied up as a call to arms.

The quest for technological solutions to problems created by people who were seeking technological solutions to earlier problems is the preoccupation of Elizabeth Kolbert's riveting and pessimistic new book, "Under a White Sky." I would say it flows naturally from her two most recent books, but, as Kolbert might put it, who knows what even counts as natural anymore? Still, if "Field Notes From a Catastrophe" (2006) chronicled the onslaught of climate change and "The Sixth Extinction" (2014) detailed the crushing of biodiversity beneath the human footprint, "Under a White Sky" examines the arduous efforts to stave off all that damage. Except these new efforts, in her telling, often risk making matters worse.

"Solving one set of problems introduces new ones," Kolbert warns. That is because, rather than reconsider our behavior, we prefer to seek workarounds for the symptoms and consequences of that behavior; new fixes for the ill effects of old fixes, or as

SEE **LOZADA** ON **B2**



ASSOCIATED PRESS

The Capitol video is clear. But the medium has lost its power to convince.

Recorded evidence was once decisive, says **Lucas Mann**. Now it can't settle an argument.

The video that House impeachment managers showed of the Jan. 6 insurrection is clear, and it's horrifying. The images are almost cartoonishly obvious, damning and unequivocal — showing members of the mob breaking through a door into the Capitol; telling the police, "We are listening to Trump, your boss"; prowling for Vice President Mike Pence while wearing tactical gear; and promising to return later with guns. It's the type of recorded evidence that we've long been conditioned to see as the climax of the courtroom movie, the bombshell that cuts through deceit and even argumentation, because, well, just *look* at what is clear as day.

The sense of definitiveness that recorded evidence brings is left over from a time before cellphones, when this material was hard to come by, so we thought of it as a special and incontrovertible resource. *Caught on candid camera!* If someone is captured on tape, the "caught" is not meant to be a matter of opinion.

Yet here we encounter the central disconnect of the Trump era: As much as it has been defined by misinformation, it has also been defined by more accessible recorded evidence than any time in history, and one did nothing to stop the other. We can see and hear with exact certainty what has been done wrong,

SEE **VIDEO** ON **B2**

Healthy young people are grabbing vaccines. It looks unfair. It's actually fine.

Physician Helen Ouyang says letting people go out of order is better than wasting doses

SPENCER PLATT/GETTY IMAGES

Masks and informational materials are set up outside a mass vaccination site at New York's Yankee Stadium this month. Doctors face thorny questions about what to do with any leftover doses at the end of the day.

Last month, a medical student at Tulane named Brad Johnson created a Facebook group called "NOLA Vaccine Hunters." Its aim is "to connect distribution sites that have expiring doses with motivated people who are ready to rush over to get their shot." Similar pages have popped up in different cities. A few weeks later, Johnson partnered with Doug Ward, a Web entrepreneur, to launch a "vaccine hunter" website. It compiles social media pages and online forums that crowdsource how and where people can get the coronavirus vaccine across the country — before they're technically eligible in their states.

With the help of these sites, people have circumvented the official distribution schedule, waiting outside hospitals and clinics until unused doses are offered up to whoever is nearest. They tend to be young and moderately well-off — or at least less likely to be strapped down by an inflexible job or other responsibilities, and with some chunk of free time and tech savvy. As one person in Seattle wrote on Reddit, "It's actually making me angry to imagine a bunch of healthy, work-from-home, 25 year-olds crowding around the waiting area at my pharmacy in the afternoon begging for doses."

Having some inequity at the margins of the vaccine distribution system, though, is better than wasting doses — especially when the ultimate goal is to get everyone inoculated.

Obviously, hunting for leftover doses is different from blatantly lying and manipulating the system to jump the line, as one infamous Vancouver couple did: By chartering a plane to a small community in the Yukon and claiming that they were motel workers, the wealthy couple got vaccines intended for Indigenous elders.

But other examples are far murkier. A 31-year-old man in D.C., for instance, got the vaccine when he went to a supermarket to buy groceries because the pharmacists there offered up doses left over from an opened vial. The vaccine-hunting website and Facebook groups have simply formalized and facilitated what people were already doing.

It's understandable to resent this kind of behavior, even if there's no foul play, when doses are currently allocated for only a third of the state-determined priority groups in the United States. In New Jersey, my mother, who's 67 and has lymphoma, still hasn't been able to get her first shot. As an E.R. doctor in New York, I can't say I haven't toyed with the thought of doing what my friend did for her father: His age qualified him for the vaccine in his home state, but he couldn't get an appointment there. So she signed him up for one in Manhattan, using her address.

Because the rules around what to do with leftover doses aren't clearly defined, even doctors with the best public health intentions can find themselves vilified. In late December, at the end of a vaccination event in the Houston suburbs, a new vial was opened for a patient. The doctor, Hasan Gokal, then took the vial's remaining 10 doses and drove all around the area, inoculating the elderly and the sick and those who cared for them. When he ran out of willing participants, the last vaccine went to his wife — 15 minutes before it expired. Even though she has a chronic lung condition, he didn't intend to vaccinate her; the alternative would've been throwing the last dose away. But Gokal lost his job and his reputation, and now faces a misdemeanor criminal charge of theft.

Unfair vaccine distribution — or even the perception that the system isn't fair — could erode faith in the process and the vaccine itself. But what happened to me with my second dose could have the same effect: In January, I had an appointment for my follow-up shot, but it was abruptly canceled the night before, because there weren't enough people signed up to justify opening a vial, each of which has six doses. I got a phone call telling me I had to either arrive at the hospital within an hour to get vaccinated from the supply they had on hand at that moment or wait three days. This was frustrating, and I could see why it might cause someone to abandon the process altogether. Some vaccination sites have faced this very issue, reluctant to set up shop if there is a risk of poor turnout. I chose to rush to the hospital that night.

When my hospital opened a large vaccination site in late January, I volunteered to help screen patients and treat potential allergic reactions. The massive indoor track-and-field stadium converted to a streamlined vaccine center was a sight to behold. Jubilant patients stepped forward on the red and white track lanes. In the middle of the green field, health-care workers set up stations. As soon as a vaccinator was ready for the next patient, a bright crimson paddle rose up.

Many people told me how appreciative they were. Some danced in line. I've never seen patients so happy to be at a medical facility. One woman, a tennis player in her 70s, was so excited that she had run out of her apartment without eating breakfast and nearly fainted while standing in line. Yet she begged me not to let the episode stop her from getting vaccinated: Who knew when a future appointment might become available?

I wasn't on site when it first opened, but I heard there were several extra doses available at the end of one day. It was nearly midnight. To avoid throwing them out, health-care workers frantically texted friends that they could be vaccinated if they arrived within 15 minutes. I wished the shots had all gone into the arms of elderly or other high-risk patients — the process has improved since then, with appointments opening up throughout the day and a standby list — but I'm glad they didn't end up in the trash, which was what happened early on in New York.

The logistics of administering the vaccine are not simple. Once a vial is opened, it needs to be used within about six hours. Perfectly matching supply and demand each day is challenging. Some people do not show up for appointments. Others are turned away if they report allergies that might require further investigation. While an extra dose or two might be squeezed out of each vial, it depends on the type of syringe used and the skill of the vaccinator.

Distributing daily leftover doses to medically vulnerable people would be ideal. This could be done through prioritized wait lists or relocation of doses to group living facilities. When that's not possible, whether because those on the wait list do not turn up promptly, or because of staffing limitations or some other constraint, the alternative — throwing out vaccines or canceling appointments to avoid leftovers — seems far worse.

Still, it's hard to watch people get vaccinated, knowing that if my mother lived just 40 minutes north, she too would be in line for her first shot. My colleague, who was able to vaccinate two friends through the use-it-or-toss-it approach, told me he wished he could have given the doses to his parents, who are in their 70s.

I remind myself that the point is to vaccinate as many people as we can. Experts believe that vaccinations are likely to reduce transmission of the virus; if that's the case, then every person who's vaccinated probably protects someone else, including my mother. At a minimum, it lowers hospitalization rates and ensures that those who need ventilators and intensive care will receive them.

Seeing others getting the shot is also good marketing for vaccination. This is important because while 54 percent of Americans said they definitely or probably would get the shot, and 13 percent already had, another 32 percent said they definitely or probably wouldn't, according to an AP-NORC poll released this month. The fortunate 31-year-old in D.C. who found himself vaccinated after a grocery run has since posted about his experience on social media. His video on TikTok has been watched 1.5 million times. There's a link attached to the post, with answers from the Centers for Disease Control and Prevention and the World Health Organization to frequently asked questions about the vaccine. Others who have managed to cut the vaccine line have also posted favorably about the shot on social media; such micro-influencing has been shown to increase vaccination rates.

I wish the process could be precise, a direct correlation between risk and order: People would line up for shots, sorted by age and medical problems, tight links on a chain. The operation would be equal across the country. My mother would be vaccinated already.

As with most public health undertakings, it's not perfect. Yet as both an E.R. doctor and my mother's daughter, I am grateful for each and every person who gets vaccinated — even if it's seemingly out of turn.

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Take vaccine fears seriously, even when they sound irrational

NURSING HOMES FROM **B1**

YUKI IWAMURA/REUTERS

A nursing home resident receives the coronavirus vaccine at the King David Center for Nursing and Rehabilitation in Brooklyn in early January. Around the country, some nursing home staffers are wary of the vaccine.

found that nearly 72 percent didn't want to be vaccinated. The governor of Ohio reported in late December that around 60 percent of his state's nursing home staffers had elected not to take the vaccine yet. Last month, a union representing nursing home staff in Maryland and D.C. estimated that up to 80 percent of its members opted not to be vaccinated in the first push at their facilities. One Miami health system found that only half its employees wanted to get vaccinated immediately; about 15 percent said they were not interested in getting vaccinated at all.

Those statistics are much less surprising when you consider who works in nursing homes. A lot of the certified nursing assistants I work with are people of color. Their mistrust has deep roots: The United States has a long, ugly history of doctors experimenting on Black people without regard for their consent or needs. And working with the elderly — another population our society marginalizes and neglects — has done little to shore up my colleagues' faith that the government is acting in their best interests. Nursing homes were among the first and hardest-hit settings in this pandemic, and we never had enough N95 masks or even simple surgical face coverings. So when nursing home employees are informed that they'll be among the first to get the vaccine — that they're in the highest-priority group — they're skeptical. It doesn't help that many of the most widely available educational materials about the vaccine are produced only in English, shutting out my co-workers who primarily speak Spanish or Haitian Creole.

I started running town halls, in person and over video, to talk to the staff in various Massachusetts nursing homes about the vaccine. Some people come with questions about their specific situations: autoimmune conditions, allergies to food or medicine, pregnancy. I've heard more lurid worries, too. Some people thought the shot had a GPS tracker in it that would allow the government to follow their movements. Others claimed that the vaccine changed your DNA and that any future children could inherit the mutation.

No matter how outlandish some fears seem, I can't shrug them off. People's concerns aren't totally random; it's counterproductive to just dismiss them. Instead, I try to figure out where their understanding went wrong and to offer an explanation for that misunderstanding. For example, vaccines definitely don't contain GPS-enabled chips, but the Pfizer boxes carrying the doses do have a tracking device so that we can follow shipments to our facilities. After I show the staff videos of the boxes and their bar codes, that seems to assuage their fears. I also talk about the differences between RNA and DNA — people often confuse the two, I say, but the vaccine won't affect the latter.

Some people have more general concerns: Did some stringent standard fall by the wayside to speed up the development and approval process? A nurse asked me: "So, Dr. Merchant, was there any point in time when you didn't want to take the vaccine? And at what point did that change?" It helped, I think, that I could answer honestly: Yes, I was skeptical, especially in the spring of 2020. It seemed like President Donald Trump was making unrealistic promises about the timeline for a vaccine and the whole development and approval process might be politicized. But as more data emerged about the vaccines' efficacy, and as I read up on their safety, the more I trusted the science behind them.

I also talk about why I took the vaccine: I see covid-19 patients every day. I got the shot to protect myself, of course, and to protect my family members — especially my parents, who are elderly and live at home with me. I also want to keep my nursing home residents and co-workers safe; I have a responsibility to my community. And, I add, I'm tired of all the precautions that have become life-or-death necessities in the pandemic. We all want normalcy. Vaccine uptake is our ticket there.

These conversations are incredibly time-consuming — hours that I could've used elsewhere, seeing to patients — but they're worth it. Usually, at the end of the town halls, at least a couple of staff members will say they now feel more comfortable with the vaccines. Others say that they'll at least consider taking it, or that they don't want to be the first in line but they'll get the shot the next time it's available to them. When you talk to people, when you take them seriously, you can change their minds. I really believe that. I have to believe it.

As told to Post editor Sophia Nguyen.

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