

Ten million reasons to vaccinate the world

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Andrea Ucini

The pandemic

Our model reveals the true course of the pandemic. Here is what to do next

Leaders

THIS WEEK we publish our estimate of the true death toll from covid-19. It tells the real story of the pandemic. But it also contains an urgent warning. Unless vaccine supplies reach poorer countries, the tragic scenes now unfolding in India risk being repeated elsewhere. Millions more will die.

Using known data on 121 variables, from recorded deaths to demography, we have built a pattern of correlations that lets us fill in gaps where numbers are lacking. Our model suggests that covid-19 has already claimed 7.1m-12.7m lives. Our central estimate is that 10m people have died who would otherwise be living. This tally of “excess deaths” is over three times the official count, which nevertheless is the basis for most statistics on the disease, including fatality rates and cross-country comparisons.

The most important insight from our work is that covid-19 has been harder on the poor than anyone knew. Official figures suggest that the pandemic has struck in waves, and that the United States and Europe have been hit hard. Although South America has been ravaged, the rest of the developing world seemed to get off lightly.

Our modelling tells another story. When you count all the bodies, you see that the pandemic has spread remorselessly from the rich, connected world to poorer, more isolated places. As it has done so, the global daily death rate has climbed steeply.

Death rates have been very high in some rich countries, but the overwhelming majority of the 6.7m or so deaths that nobody counted were in poor and middle-income ones. In Romania and Iran excess deaths are more than double the number officially put down to covid-19. In Egypt they are 13 times as big. In America the difference is 7.1%.

India, where about 20,000 are dying every day, is not an outlier. Our figures suggest that, in terms of deaths as a share of population, Peru's pandemic has been 2.5 times worse than India's. The disease is working its way through Nepal and Pakistan. Infectious variants spread faster and, because of the tyranny of exponential growth, overwhelm health-care systems and fill mortuaries even if the virus is no more lethal.

Ultimately the way to stop this is vaccination. As an example of collaboration and pioneering science, covid-19 vaccines rank with the Apollo space programme. Within just a year of the virus being discovered, people could be protected from severe disease and death. Hundreds of millions of them have benefited.

However, in the short run vaccines will fuel the divide between rich and poor. Soon, the only people to die from covid-19 in rich countries will be exceptionally frail or exceptionally unlucky, as well as those who have spurned the chance to be vaccinated. In poorer countries, by contrast, most people will have no choice. They will remain unprotected for many months or years.

The world cannot rest while people perish for want of a jab costing as little as \$4 for a two-dose course. It is hard to think of a better use of resources than vaccination. Economists' central estimate for the direct value of a course is \$2,900—if you include factors like long covid and the effect of impaired education, the total is much bigger. The benefit from an extra 1bn doses supplied by July would be worth hundreds of billions of dollars. Less circulating virus means less mutation, and so a lower chance of a new variant that reinfects the vaccinated.

Supplies of vaccines are already growing. By the end of April, according to Airfinity, an analytics firm, vaccine-makers produced 1.7bn doses, 700m more than the end of March and ten times more than January. Before the pandemic, annual global vaccine capacity was roughly 3.5bn doses. The latest estimates are that total output in 2021 will be almost 11bn. Some in the industry predict a global surplus in 2022.

And yet the world is right to strive to get more doses in more arms sooner. Hence President Joe Biden has proposed waiving intellectual-property claims on covid-19 vaccines. Many experts argue that, because some manufacturing capacity is going begging, millions more doses might become available if patent-owners shared their secrets, including in countries that today are at the back of the queue. World-trade rules allow for a waiver. When invoke them if not in the throes of a pandemic?

We believe that Mr Biden is wrong. A waiver may signal that his administration cares about the world, but it is at best an empty gesture and at worst a cynical one.

A waiver will do nothing to fill the urgent shortfall of doses in 2021. The head of the World Trade Organisation, the forum where it will be thrashed out, warns there may be no vote until December. Technology transfer would take six months or so to complete even if it started today. With the new mRNA vaccines made by Pfizer and Moderna, it may take longer. Supposing the tech transfer was faster than that, experienced vaccine-makers would be unavailable for hire and makers could not obtain inputs from suppliers whose order books are already bursting. Pfizer's vaccine requires 280 inputs from suppliers in 19 countries. No firm can recreate that in a hurry.

In any case, vaccine-makers do not appear to be hoarding their technology—otherwise output would not be increasing so fast. They have struck 214 technology-transfer agreements, an unprecedented number. They are not price-gouging: money is not the constraint on vaccination. Poor countries are not being priced out of the market: their vaccines are coming through COVAX, a global distribution scheme funded by donors.

In the longer term, the effect of a waiver is unpredictable. Perhaps it will indeed lead to technology being transferred to poor countries; more likely, though, it will cause harm by disrupting supply chains, wasting resources and, ultimately, deterring innovation. Whatever the case, if vaccines are nearing a surplus in 2022, the cavalry will arrive too late.

A needle in time

If Mr Biden really wants to make a difference, he can donate vaccine right now through COVAX. Rich countries over-ordered because they did not know which vaccines would work. Britain has ordered more than nine doses for each adult, Canada more than 13. These will be urgently needed elsewhere. It is wrong to put teenagers, who have a minuscule risk of dying from covid-19, before the elderly and health-care workers in poor countries. The rich world should not stockpile boosters to cover the population many times over on the off-chance that they may be needed. In the next six months, this could yield billions of doses of vaccine.

Countries can also improve supply chains. The Serum Institute, an Indian vaccine-maker, has struggled to get parts such as filters from America because exports were gummed up by the Defence Production Act (DPA), which puts suppliers on a war-footing. Mr Biden authorised a one-off release, but he should be focusing the DPA on supplying the world instead. And better use needs to be made of finished vaccine. In some poor countries, vaccine languishes unused because of hesitancy and chaotic organisation. It makes sense to prioritise getting one shot into every vulnerable arm, before setting about the second.

Our model is not predictive. However it does suggest that some parts of the world are particularly vulnerable—one example is South-East Asia, home to over 650m people, which has so far been spared mass fatalities for no obvious reason. Covid-19 has not yet run its course. But vaccines have created the chance to save millions of lives. The world must not squander it.