![NUS National University of Singapore]

An engineer conducting a test for a Covid-19 vaccine at the Sinovac Biotech laboratory in Beijing in April. Under a proposed fair priority model, countries in which people have the most urgent need for a vaccine would be prioritised in the first phase of international distribution. PHOTO: AGENCE FRANCE-PRESSE

ScienceTalk

How should we decide who gets Covid-19 vaccine first?

Experts suggest giving doses to countries based on population figures, urgency of needs

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For The Straits Times

With promising news surrounding the development of different Covid-19 vaccines, many are anxiously waiting for the day when the coronavirus can be effectively eliminated.

But an effective vaccine is likely to be in short supply initially, so the question arises: Should some countries be prioritised by international distributors to receive the first batch?

Some countries may respond with "vaccine nationalism", which happens when countries prioritise their own citizens first.

Even if we accept that countries have primary obligations towards their own citizens and may legitimately weigh their people's interests more heavily, vaccine nationalism should not be absolute.

Unless a country can hermetically seal itself off from the rest of the world, absolute vaccine nationalism is going to be counterproductive to advancing a country's own interests.

As we often hear during this crisis, a global pandemic knows no borders and no country is safe unless the virus is contained everywhere.

More to the point, countries have global responsibilities.

Any attempt in vaccine nationalism that ignores those responsibilities will be difficult to justify.

Thus the question remains: What constitutes a fair international distribution of vaccine?

It is not a matter of science or public health, but of justice – what is the fairest way to distribute a scarce, valuable resource between countries?

PROPORTIONATE DISTRIBUTION

The values of equality, solidarity and international cooperation might suggest that any vaccine should first be made available as widely as possible, to every country around the world.

One such distributive model has been proposed by the World Health Organisation – initially give every country a supply of vaccines proportionate to its population.

In one tranche of distribution, all countries around the world might first receive doses sufficient for 3 per cent of their population regardless of death rates, disease spread or other factors.

So Singapore, with a population of around 5.6 million, might receive around 170,000 vaccines in the first instance, while Britain would receive around two million for its 66.6 million people.

This is not a strictly equal distribution across countries, since large countries would receive more doses of vaccines, but it is equal in that each country gets the same amount per capita.

The proportionate distribution approach may be seen as demonstrating equal moral concern for persons across countries, since all factors about their country other than population – including its infrastructure, economic development and political system – are irrelevant to initial vaccine distribution.

THE FAIR PRIORITY MODEL

An alternative is to prioritise certain countries over others.

The journal Science recently published a paper, of which we are among the co-authors, providing just such an alternative: the fair priority model.

The model has three overarching principles – benefiting people and limiting harm; prioritising the disadvantaged; and equal moral concern.

Taken together, these principles suggest an approach during the first phase of international distribution: Prioritise those countries in which people have the most urgent need for a vaccine.

Though there are a variety of economic and social harms from a widespread Covid-19 outbreak, the most substantial harm is death.

So, countries where vaccines would save the most years of life should at first be prioritised.

Once deaths have been brought relatively under control, other less urgent considerations like economic harms will be taken into account.

Thus our model conceives fair distribution in terms of three phases – saving lives, reducing economic and social deprivations, and helping countries return to full functioning.

This not only maximises the benefits of a vaccine, but also prioritises the disadvantaged by focusing first on those countries that have been made worse off by the virus, and demonstrates equal moral concern by treating the value of a life equally, no matter where that person lives in the world.

Which countries would receive the vaccine first in this model?

This will depend on detailed analysis of the impact in terms of life years saved on distribution.

If current trends persist, countries like the United States and Brazil might end up being prioritised over Singapore, since they have recorded higher deaths per capita and thus would likely save many more lives by receiving a given tranche of vaccines.

By the time a vaccine is ready, however, the situation could shift.

If Singapore suffers a severe rise in deaths per capita, it would, on the fair priority model, likely receive greater priority.

TRADE-OFFS

No matter which approach is taken, there will be trade-offs in our values.

The proportionate distribution approach is arguably in line with the norm of solidarity, emphasising that we are all affected by Covid-19 and that any effective vaccine should be shared with the whole world.

But it achieves this at the expense of the interests of those who need the vaccine most.

Some countries are suffering far worse outbreaks than others, and therefore their people would benefit much more from a potentially life-saving vaccine than others.

The fair priority model puts people's interests front and centre.

In doing so, it might be seen as objectionably punishing countries like Singapore that effectively kept death rates low, but at high economic and social costs, while wrongly rewarding countries like the US and Brazil for their drastic domestic failures.

We should keep in view, though, that vaccine distribution is not about punishment and reward – it is about alleviating the harmful effects of Covid-19.

Even if we could somehow ascertain and measure collective responsibility for virus spread, in urgent circumstances, we should distribute resources based on who needs them most, not who might deserve them more.

By way of comparison, it would be inappropriate for an emergency department to prioritise treatment of an accident victim who caused his own injury over one who was injured by a third party.

Moreover, it is only in the first phase of distribution under the fair priority model where saving lives is the most urgent consideration.

In the second phase of our model, which we can reasonably expect to follow quickly behind the first phase once the most severe death rates are brought under control, fair distribution will be sensitive as well to the economic and social costs of the pandemic on different countries.

The very substantial economic disruption from Covid-19 in Singapore may give it substantial priority in the second phase.

Whether our proposed fair priority model is adopted or a different approach taken, determining a just distributive system cannot wait until a vaccine is proven effective.

Distributive systems must be established and operationalised well in advance, so they can be rolled out without delay when the time comes.

What is the most just and fair model for distribution must now be considered and debated by stakeholders around the world.

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