ARGUMENT

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# It's Time to Use Eminent Domain on the Coronavirus Vaccines

Respecting drug companies' intellectual property rights during a pandemic doesn't make medical, or economic, sense.

By **Arnab Acharya** and **Sanjay G. Reddy**

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Jonas Salk, the scientist who developed the first effective polio vaccine, when asked "Who owns this patent?", replied, "Well, the people, I would say. There is no patent. Could you patent the sun?" In a world where private companies reap the fruits of developing vaccines, many now view this attitude as quaint. But quite apart from the philosophical case, there are compelling *practical* reasons to adopt Salk's attitude, and treat all vaccine formulas that have proved effective against COVID-19, like the sun, as a global public good.

The easiest way to make vaccines truly available to all is to freely license every effective vaccine formula so that generic producers can manufacture the vaccine anywhere. This approach would overcome the short-run limits on production, which come from intellectual-property restrictions that constrain production to specific firms. Doing away with this barrier would ensure that the vaccines are produced and sold by many actors in a competitive marketplace, and made available to the public at the least cost.

The economic benefit of widespread access to vaccines, tests and treatments that can help to overcome the pandemic is potentially enormous, and dwarfs the cost of what is needed to compensate pharmaceutical companies for research and development, or for giving up monopoly privileges. The losses to the global economy from the pandemic are in the trillions but the expenses incurred for research and development have been in mere billions. Firms can be handsomely compensated for their innovative technology and, thereafter, it can be made available freely to all potential manufacturers, some of whom may well be more efficient producers.

Why then do we not pursue this approach? A central reason is that it is widely believed, especially by policy makers in rich countries, that "intellectual property rights" must be respected to provide adequate incentives for firms to engage in research and development. This supposed justification doesn't withstand scrutiny.

**Many existing public-interest vaccine initiatives, such as those** that provide advance purchasing commitments to assure firms that there will be a market for their products, do not question the conventional wisdom that temporary monopolies are necessary to compensate firms for the sizable fixed costs of drug development. But if incentives could be provided for drug development directly, state-enforced temporary monopolies wouldn't be necessary as a reward.

The COVID-19 vaccine developed by Pfizer and BioNTech offers an interesting example. The technology was developed by BioNTech, and Pfizer's role has been in administering clinical trials, seeking regulatory approvals and producing the vaccine. Pfizer, instrumental in bringing the innovative vaccine to the stage where it received emergency approval, is now poised to become the sole manufacturer.

But what if incentives and supports for innovation and manufacturing had been separated? If public incentives had been available on a sufficient scale to support and reward BioNTech's research and development, then a temporary monopoly would not have been needed. (Substantial public money was in fact given to BioNTech, and to other companies, without any apparent demand for concession of intellectual property rights.) Clinical trials could also have been separately administered by public or private organizations with relevant expertise (and indeed the trials would have likely benefited from increased credibility). The resulting technology could then have been made available to generic producers and thereby to a global public.

This is a world that could exist, but does not. Several vaccines have now come to an advanced stage of development on the expectation of sizable profit. But it is not too late to share knowledge about the vaccine with anyone interested in producing them. A consortium of governments can act in the global public interest to do just that.

Many countries already possess laws which permit governments to impose compulsory licensing on companies, or are in the process of creating them. International trade law also provides for exceptions to intellectual property rights protections in the case of public health emergencies. Governments can therefore use actual or potential legal provisions to force vaccine firms to the table to negotiate a price for giving up their existing "intellectual property."

This brings us to the economic objections to making a vaccine formula that has already been developed freely available for anyone to produce. First, it could be argued that any steps taken to "free" such intellectual property will have adverse implications for future research and development. Second, such a shift could be described as unfair, since considerable effort and expense have already been undertaken by firms, under expectations of reward through the patent system.

Both of these objections are, however, easily dealt with through a single measure: compensation to the firms for their past research and development effort in return for placing their technology in the public domain. There are a number of possible ways of determining the appropriate level of compensation. One way—a cost-based approach—would pay for the actual expenditure on research and development, and provide a substantial additional premium, to recognize the risks taken and to provide a signal that future research and development activity for other pharmaceuticals will also be rewarded at a level adequate to induce desired efforts. The second—a profit-based approach—would pay for the foregone value to firms of their temporary monopoly rights. Although it is not straightforward to estimate this value, it is possible to infer it from proxy information such as the prior stock price impact of vaccine announcements.

Which of these approaches should be used by governments that want to "free" COVID-19 vaccines? Both. A global commission informed by all affected interests could determine the amount to be provided to individual firms. The commission would adopt a reasonable compromise between cost-based and profit-based approaches, and ensure that compensation is set at a level sufficient to reassure private firms that their future efforts, especially in any subsequent pandemic, will also be rewarded adequately – if necessary at a rate sufficient to compensate fully for lost profits – to encourage research and development. This approach recognizes the importance of incentives for

private firms but also leaves open the prospect that public initiatives could play a larger role in any future response.

Freeing the formula for a vaccine would be worth it, even if a firm were rewarded far more than the costs incurred to develop its vaccine. Consider the example of Pfizer. If governments paid the company $40 billion in compensation for lost profits—based on an estimated two billion people who might have been sold the vaccine by the company, at a price of $24 per person, with an estimated 80 percent profit rate applied to the resulting revenue (Pfizer's total revenue in 2019 was a bit more than $50 billion, and its gross profit was more than $40 billion)—the deal would still create an enormous net benefit. The International Monetary Fund forecasts a three percent difference in world GDP—amounting to around $2.5 trillion, based on a world nominal GDP of more than $80 trillion—between a baseline and more favorable global handling of the pandemic. The IMF's more favorable scenario does *not* assume a vaccine but simply better containment of the disease. Widespread access to a vaccine would therefore presumably enlarge the positive impact associated with the more favorable scenario, with the economic gain over time likely to be a very large multiple of the cost of compensating pharmaceutical companies for making a vaccine formula freely available.

Using data from the World Bank we calculate that the 29 countries with the lowest annual incomes (less than $1,050 in 2017) would incur costs totaling more than their *entire* current public health expenditure on all purposes if they were to vaccinate even two thirds of their population at the actual delivery price that has been reportedly agreed by at least one developing country for what is expected to be the cheapest vaccine available. Even if these low-income countries receive some discounted or free vaccines, other "lower middle income" countries (whose total government expenditure on all aspects of health is on average less than twice this vaccine cost per person) are sure also to experience difficulties. The WHO's COVAX facility, which many low-and-middle income countries are relying on, initially only assures doses for twenty percent of their populations. Short of steep discounts or massive increases in development assistance, the vaccines developed by major actors may not be easily affordable in many countries, at least in the short run, and because of advance contracts signed by developed countries, may not be accessible at any price.

**Despite the importance of costs, it is of still greater significance** that supplies of the best available vaccines will not increase as rapidly as they would if licenses to produce them were freely provided to all producers. If vaccine formulae were to be made freely available to all potential producers, how quickly could they "scale up" production? It is clear that separating production from drug development can relax the constraints that come from having a limited number of production sites tied to specific firms. Broader pools of capital can be drawn upon, local knowledge concerning distribution networks can be employed, and more experimentation can be undertaken with quicker and cheaper production processes. Although some of the vaccines recently developed employ pioneering technology (e.g. using mRNA delivery systems) there is no reason that there cannot be adequate oversight by the World Health Organization and by governments to ensure that high standards of production quality and safety are fulfilled.

The enforcement of intellectual property rights acts as an obstacle to using existing or potential capacity within the global pharmaceutical manufacturing sector to ramp up supplies of the vaccine. It is not at all obvious why the sophisticated generic manufacturers present in many countries, who are already responsible for a large portion of world drug supplies, would not be equal to the task, even if it requires some increase in their capabilities. As the volume of vaccines that needs to be manufactured in a short time is unprecedentedly large, it is clear that individual firms will not have the capacity to meet the current demand, and consequently, many of them have already announced that delivery will take time. Enabling a larger number of firms to participate in producing the vaccine can provide not only additional physical capacity but also management capacity needed to oversee production and distribution of vaccines across the globe.

It is vital—and not too late—to pursue a public alternative to private monopolies so as to ensure adequate production, efficient distribution and accessible pricing of a vaccine for COVID-19. This is essential not just to offer the world the fastest pathway out of the health, social and economic crisis caused by the current pandemic, but to offer it the best means out of future pandemics too.

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