Vaccines, profits and lives that don't seem to matter.

On 1 March, Associate Press (AP)[1] identified at least three companies on three continents "whose owners say they could start producing hundreds of millions of COVID-19 vaccines on short notice if only they had the blueprints and technical know-how". Using these capacities could at least potentially accelerate the COVID vaccine strategy in developing countries. It it is unclear by how much exactly this would contribute to closing the present global vaccine gap notably in developing countries. The lifting of patent protection or fast, cheap and legally not challengeable forced licensing would be the prerequisite for using the available capacities. Forced licensing seems to be a cumbersome process. And South Africa's and India's initiative to suspend the TRIPS agreement during these pandemic which was supported by about 100 developing countries, 375 civil society organisations and the WHO was so far blocked by the Switzerland, the US, the UK and EU countries at WTO. Still it appears that trying to extend productive capacity by some form of forced sharing of intellectual property (IP) seems justified.

The continuing blockage or delays of technology transfers will slow down the roll-out of vaccines in low and middle income countries. They will probably have to wait till the needs of the countries where the vaccines were developed and where the respective intellectual property rights reside will have more or less completed their own vaccine campaigns. They have to wait unless Russia and China continue to use their own vaccines for "vaccine diplomacy" on a massive scale, or the US, Canada and Europe release some of their hoarded vaccine stocks or excess reservations of future production. But "US FIRST" policies in the global North will most likely prevent early vaccine sharing on a sufficiently big scale.

The slow-down of vaccination campaigns causes avoidable suffering and deaths. But it helps to protect healthy profits. Profits that were facilitated by heavy public and charity subsidies for the development of vaccines. According to the Lancet[2] at least 10 billion US$ of government and non-profit money were invested in the development of vaccines. Decades of indirect public subsidies such as public funding of basic biomedical research at public investments is not even factored in.

The safeguarding of Big Pharma profits has its price. Inter alia and perhaps most tangibly, it costs human lives. And not just a few. It certainly will cost more lives than the 10 year conflict in Syria and probably more than the war in Vietnam. And that would just be the most easily measureable societal loss. In addition avoidable delays of vaccinations have cost in terms of lives lost and human misery caused by the social and economic fall-out of the pandemic as well as by the overloading of health service capacities by COVID 19 cases.

Some people may need numbers to judge the severity of the situation. Here is a first approximation. A simple back-of-the envelop calculation on the number of lives lost directly due to delays in the

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[1] https://apnews.com/article/drug-companies-called-share-vaccine-info-22d92afbc3ea9ed519be007f8887bcf6

[2] See Wouters, O.J. et al. Challenges in ensuring global access to COVID-19 vaccines: production, affordability, allocation, and deployment in: The Lancet, Health Policy| Volume 397, ISSUE 10278, P1023-1034, March 13, 2021

vaccination campaigns goes as follows: if we assume a) that the non-sharing intellectual property would just delay the roll-out of the vaccine campaigns in all low income countries by about one year on aggregate and b) that these countries would experience during that year the same annual average incidence of deaths that we saw during the first year of the pandemic in Europe, the US and Canada, i.e. 125 deaths per 100000 population, then we would see a number of about 1.0 million avoidable deaths in low income countries. If the non-sharing of technology would delay the campaigns by an aggregate of one year in all low plus lower middle income countries[3] then- ceteris paribus - one would have to expect a total of 2.5 million avoidable deaths. This assumes that the pandemic in many developing countries would adopt the same developmental pattern as in industrialized countries. That may be too pessimistic as many of them seem to handle the pandemic better than richer societies. The range of the estimates is agreeably relatively wide, and built on assumptions, albeit tenable and conservative ones. A much more detailed actuarial and epidemiological study would be necessary to come come up with a better estimate. That, by the way, would be a nice joint exercise for the epidemiologists of the WHO and the actuaries of the ILO across the street in Geneva. And yet we will never know the exact number of lives that that the insistence on not sharing intellectual property will cost. However, what these rough calculations do show in any case is the potential dimension of human losses in the South that our collective conscience in the North is willing to accommodate in order to protect the profits of Big Pharma. Everyone who refuses to share intellectual property will have to understand that this will cost the lives of millions of people; fathers, mothers, grandmothers and grandfathers, and even the lives of many unlucky younger people. And it will prolong the negative economic and social fall-out of the pandemic.

The proponents of TRIPS will say that, if we fail to protect property rights, then we will reduce the incentives of Big Pharma to invest in developing life-saving drugs. This will have a cost in terms of human lives as well. These losses have to be weighed against to potential loss of lives due to the refusal to share intellectual property. However, the probability that Big Pharma stops innovating because it might lose some of its pandemic-induced windfall profits seems low. Moderna expects about 18 billion in sales this year.[4] Pfizer alone expects an additional 15 billion in revenues from the Biontec vaccine in 2021 alone.[5] That is equivalent to about 37% of its 2020 revenue and about 230% of its 2020 revenues from other vaccines.[6] Pfizer also – unusually shyly - announces that it expects a profit margin from the COVID Vaccine in the "high 20s" as a percentage of revenue[7]. Forced sharing of intellectual property would reduce these profit margins, but would not necessarily reduce them to zero as companies would need to be properly compensated. Maybe negotiating the price of such forced technology transfer could make COVAX much more effective than negotiating and subsidizing the price of an insufficient number vaccines for developing countries.

[3] Without India, the Philippines and Vietnam, who are assumed to gain quick access to domestically or foreign produced vaccines.

[4] see https://www.theguardian.com/commentisfree/2021/mar/17/rich-countries-hoarding-vaccines-us-eu-africa

[5] https://www.ft.com/content/0f1ab138-401d-40ff-824f-f6879704f10e

[6] https://investors.pfizer.com/investor-news/press-release-details/2021/PFIZER-REPORTS-FOURTH-QUARTER-AND-FULL-YEAR-2020-RESULTS-AND-RELEASES-5-YEAR-PIPELINE-METRICS/default.aspx

[7] https://investors.pfizer.com/investor-news/press-release-details/2021/PFIZER-REPORTS-FOURTH-QUARTER-AND-FULL-YEAR-2020-RESULTS-AND-RELEASES-5-YEAR-PIPELINE-METRICS/default.aspx

If deemed politically necessary, one could exclude profits made in industrialised countries from the effects of property sharing to stop the appetite for research going down to zero. Then - after forced technology sharing - the returns on vaccine research efforts would have to be earned largely in industrialized countries. It is safe to assume that in that case - given Pfizer's experience in 2021, for example - pharmaceutical companies would not likely be deterred from further vaccine research even if overall revenues and profit margins would be somewhat reduced. Even a fraction of the revenues and profits of Pfizer et al. would most likely suffice to maintain research efforts of established companies or lure new companies into biomedical research.

But let us assume - for the sake of the argument - that the complete pharmaceutical industry would nonetheless reduce its investments – for one year - in innovation across its entire product range in retaliation for forced sharing of intellectual property. A rough estimate[8] shows that an unlikely contraction of the entire innovative research of the global pharmaceutical industry of between 10 and 20% would be needed to lose as many lives as the non-sharing of the COVID vaccine technology. These lives would most likely be predominantly Northern lives. Sadly, in international political decision making processes Southern lives lost during the pandemic may matter less than Northern lives.

However, there is a way to prevent – at least in the future - the loss of lives due to reduced "appetite" of big pharma for innovation from happening should it really occur. If we regard a certain number of lifesaving pharmaceuticals as public goods – which we should - then they should be developed and produced in state- owned enterprises, or should be licensed by state-owned enterprises. Sweden, India, China and others have shown that state-owned enterprises can successfully develop and supply pharmaceuticals. This could be less efficient than production in the private sector (although that is by no means certain) but with the US$ 5 billion in profits that Pfizer alone is making in one year from the Biontech vaccine we could finance a lot of inefficiency. With the 33 billion US$ that public budgets pay to Pfizer and Moderna alone in revenue in 2021 alone, public sector enterprises could probably produce about between 3.3 billion and 17 billion doses of vaccines depending on whether the AstraZeneca or the Biontec technology is used. The upper bound of that range would be enough to vaccinate the global population. But we might have to increase the investments by some margin to be on the safe side. If if we had to double investments, compared to the global economic, social and human cost of the pandemic, the dimension of public resources required to establish credible public sector competitors for big Pharma are "peanuts".

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[8] On a global level average life expectancy increased between 2009 and 2018 on average by about 0.37% per annum. If we assume that about one third of that improvement can be attributed to pharmaceutical innovations, and that between 10% and 20 % of such innovations would no longer take place as reaction during one year due to the forced sharing of intellectual property during a year then we would lose worldwide between one and two million lives after some considerable time lag. The one third assumption is a conservative assumption as the impact of pharmaceuticals on the increases of life expectancy is estimated to be around 35% for the US. In developing countries socio-economic determinants of health must be expected to have a much bigger influence than 65% and hence worldwide the impact of pharmaceutical innovation on life expectancy may be smaller. See Jason D. Buxbaum, Michael E. Chernew, A. Mark Fendrick and David M. Cutler: Contributions Of Public Health, Pharmaceuticals, And Other Medical Care To US Life Expectancy Changes, 1990-2015 Health AffairsVol. 39, No. 9: Medicare Payment Incentives, Medicaid & More

In the short run we should let the companies who today say that they can produce under license hundreds of millions of doses at short notice, try to produce - either under forced licenses or through the suspension of TRIPS. If that does not go smoothly or has too high costs, we have a long-term fall back option. We should not allow the sacrificing of lives in less developed regions on the altar of profits in Europe and North America. The risks involved in ethically correct behaviour seem manageable.

Michael Cichon

Former Director and Chief Actuary,

Social Security Department, International Labour Office (ILO)