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# How will future generations look back on the pandemic?

by Adriano Mannino

The question of how future generations will look back on our actions is an interesting heuristic on at least two accounts. Ethically, future generations may be of overwhelming importance, given that they will vastly outnumber the present generation; and epistemically, future generations are likely to possess a clearer picture of our present situation than we do today, due to the benefit of hindsight and the historical bird's eye perspective.

If we try and survey – from our present, limited perspective – the macrostrategic situation we are facing during the Covid-19 pandemic, it is hard to overlook the immense significance of vaccines. Without the expectation of safe and effective vaccines becoming available sufficiently quickly, our containment measures might have made little sense: After being caught on the wrong foot and (very irresponsibly) hesitating to act in early 2020,<sup>1</sup> we got our act together and attempted to contain the spread of the virus. We did not aim to merely “flatten the curve” of infections but (correctly) tried to avert the virus spreading through the whole population until effective vaccines would be available. This entire strategy was premised on vaccine development progressing sufficiently fast. Looking back, future society will probably realise just how lucky we were that mRNA vaccine technology had come to fruition by 2020 – just in time. (We were also lucky, of course, that the virus did not hit us with its most aggressive variants right away.) At the same time, future generations may be shocked that we thoroughly failed to take advantage of our luck: The blueprint for Moderna's mRNA vaccine was available by mid-January 2020, right after SARS-CoV-2's genome had been sequenced. This may come to be viewed as the single most striking fact about our pandemic management: The vaccine was available the whole time.<sup>2</sup>

The reason the vaccine was not known to be effective until many months later, of course, is that the standard trials take a lot of time. But there is a way to shorten the process drastically: We could have conducted human challenge studies (HCS), in which test subjects are directly exposed to a pathogen after receiving a potentially effective vaccine. The subjects are screened for good health, receive the best medical supervision possible, and are fully informed.

Space constraints do not allow me to do justice to the ethics of HCS here,<sup>3</sup> but I do wish to note that prohibitions of *monetarily uncompensated HCS*<sup>4</sup> seem to violate at least two basic rights: well-informed participants' right to take personal health risks for humanitarian ends, and scientists' right to offer and conduct such research. If, say, a ban on monetarily uncompensated kidney donations<sup>5</sup> would constitute a serious rights violation, then the same arguably goes for bans on uncompensated HCS. (Consider also

the right to volunteer to provide emergency medical services in epidemic outbreaks, which greatly increases one's risk of being infected, or the right to pursue extreme sports for purely personal, non-humanitarian reasons.) Future generations may thus come to see our current legal ethics of HCS as tragically flawed: Not only did current regulations have disastrous consequences by delaying vaccines – perhaps by up to half a year<sup>6</sup> –, they also violate multiple basic rights and thus constitute a serious injustice.

Just like we failed to prepare for the clear possibility of a pandemic *practically* (masks, tracing apps, or emergency governance protocols were not ready), we also failed to prepare *epistemically*: e.g., we failed to think through and debate the ethics of scientific studies that would help us save millions of lives in times of crisis.

One might wonder whether, if monetary non-compensation is an essential ethical desideratum, sufficiently many people would volunteer for HCS. The answer, most likely, is yes: Very few participants are needed for HCS to be reasonably statistically powered (which is one of their advantages over experimentally vaccinating people and counting on some of them getting infected while they go about their daily lives); the history of the biomedical sciences has known many scientists, science enthusiasts, and humanitarians who volunteered to test risky treatments; and the potential benefit of receiving an effective vaccine early on may provide some non-monetary incentive.

Unfortunately, the tragedy of our vaccine policies does not end here. Additional months were lost because most states failed to order the candidate vaccines in adequate quantities. Relative to the enormous public health and socioeconomic cost of a prolonged pandemic, ordering every plausible candidate vaccine in sufficient quantity would have been very cheap. Surplus vaccines should then have been shipped to poorer countries for free. Sadly, neither humanitarian nor prudential reasons have been sufficient to make us realise that we should have made it a priority to supply the whole world with vaccines.

From the beginning of 2020, we should have gone into “war economy” mode as far as vaccine production and distribution were concerned. Even before 2020, the risk of global pandemics was obvious and should have been countered with a “Manhattan Project” of vaccine research and development. (As mentioned, we were very lucky that mRNA vaccine technology had emerged just in time. We should not be relying on luck.) Unfortunately, we still have not learned these lessons and are greatly underestimating future pandemic risks. These include zoonotic outbreaks, whose causes the international community is not addressing (e.g.: factory farming, wild animal and wet markets). They also

include lab accidents and bioterrorism, which society is largely unaware of. The fact that there is a non-negligible chance that virological research itself caused the Covid-19 pandemic does not seem to move us. But dangerous accidents or criminal acts are statistically certain to happen over the coming decades. Natural and especially artificial pathogens could kill hundreds of millions of people.<sup>8</sup> This should cause us to immediately regulate risky biotechnological research, and to embark on the aforesaid “Manhattan Project” of vaccine development and deployment. We should aim to be able to develop and deploy vaccines against a large range of novel pathogens within just a few months.

We should – and we probably would if the present were as wise or crisis-ridden as the future likely will be. Alas, I fear future generations will look back on the Covid-19 pandemic and see a small-scale catastrophe that failed to teach us the lessons we should have learned.

## Notes

1 Mukerji / Mannino 2020.

2 Wallace-Wells 2020.

3 For some elaboration, see chapter 5.3 in Mannino 2021.

4 Leading objections to monetary incentives in such contexts include that they exploit economic inequality and wrong the poor, that they render truly free choice impossible, and that they disvalue and change practices of self-sacrifice for scientific and humanitarian ends (cf. Sandel 2012). Counterarguments include that prohibiting monetary compensation is paternalistic, violates autonomy and liberty rights, and has net negative consequences. The United Kingdom has allowed a monetarily compensated HCS to start in March 2021: <https://ukcovidchallenge.com/>.

5 In the early days of transplantation medicine, kidney donations were very dangerous, and the risks associated with them continue to be significant. Regardless, there plausibly is an individual right to engage in kidney donation, even if the risk to oneself is very high.

6 Eyal / Lipsitch / Smith 2020. Subtracting several months from the vaccine licensure process would have averted on the order of one million deaths, ten million severe and long-haul Covid cases, billions of liberty rights restrictions (due to lockdown measures), and trillions of dollars of economic damage.

7 Lipsitch 2018.

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