

The dangerous precedent of relying on vaccines alone to control emerging pathogens

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THE COVID-19 pandemic greatly accelerated vaccine technology development, and safe and effective vaccines became available faster than ever before. However, behind that success lurks an ominous prospect for the longer term future. The ideal solution for any emergent pathogen is elimination; this did not happen early during SARS-CoV-2's spread because short-term economic considerations prevented timely border closures and containment of initial clusters, and was politically impossible subsequently due to the disruption to prevailing socioeconomic systems that the necessary for it measures would cause. Vaccination offers an attractive way out but it alone would not achieve elimination without a concerted campaign towards it (meaning more economic disruption). A dangerous precedent for the handling of SARS-CoV-2 and the near-certain to emerge future pandemic pathogens might thus be set – they will be controlled with vaccines without pursuing elimination, with some level of mortality/morbidity

deemed tolerable. This will obviously greatly harm poor countries and other disadvantaged populations lacking access to medical resources, which even today suffer large casualties from preventable diseases. It also puts humanity on a pathogen control treadmill, staying on which relies on perpetually maintaining full vaccination of populations ahead of antigenic drift and on the key assumption of advanced vaccine technology always being available. That is not a warranted assumption – we currently face the converging ecological crises of climate change, resource depletion, and ecosystem collapse that are likely to lead to major future reductions in the accessibility of technological advances, as has happened repeatedly throughout history under similar circumstances. Allowing *Homo sapiens* to accumulate dangerous new pathogens due to short-term political considerations is unwise in the extreme and must be resisted by scientists and public health experts.