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Let's stop the continued self-destruction and test for Covid immunity

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Back in January, not long after the Covid-19 outbreak in Wuhan, the number of deaths ceased to follow the exponential growth scare. It took the virus longer and longer to find people to infect, which was unexpected since Wuhan (with an urban population of 9 million) is not a small village and the virus should not have found it difficult to meet and infect new hosts.

Non-exponential growth of the epidemic curve was the first clue that preexisting immunity to SARS-CoV-2 may be ubiquitous. Hundreds of outbreak graphs later, it turned out that the pandemic never behaved as if the virus was foreign to most people.

China, a country of almost a billion and half people, eventually registered less than 5,000 deaths, and South Korea (51 million people) – about 300. The obvious explanation for those negligible mortality rates - highly prevalent preexisting immunity - was widely ignored. The world chose to believe that the tough lockdown in Wuhan, along with restrictions in other parts of China, somehow eradicated the virus.

The miracle in South Korea was explained by extensive testing

and contact tracing, which wondrously succeeded, for the first time in medical history, to arrest the spread of a respiratory, often asymptomatic, infection. Over 125 million Japanese would later see about 1,500 deaths, with neither lockdown nor much testing. That was explained by order and discipline, or face masks, or bowing instead of hand shaking.

By the beginning of April, comprehensive PCR tests for Covid-19 were conducted in small confined populations, such as naval and cruise ships. The fraction of infected people often did not exceed 20 per cent. Given the rapid spread of the infection in these environments, it was far more likely that testing was conducted after the maximal rate of infection had been reached rather than, say, when the outbreak just started.

Similarly, an antibody survey in early April in the town of Gangelt, [Germany found that only 14 per cent had been infected](#). Again, preexisting immunity was the most likely explanation. Like any prevalent physiological trait, the level of preexisting immunity isn't expected to be identical in every location. An infection rate above 20 per cent was found in small groups of people, mostly living in atypical environments (jails, aircraft carriers). Nonetheless, not a single country-wide antibody survey has crossed the 20 per cent infection mark.

Recently though, a high percentage of past infection was reported in several large populations. These findings paradoxically point to a high level of preexisting immunity.

Our adaptive immune system fights infection mainly using two smart-weapons, antibodies and white blood cells called T-cells, but these act only on targets they recognize. As early as April, several studies, of a type called "Cellular immunity surveys", [found that 30 to 80 percent of people](#) who had never had

[Covid-19 infection had T-cells](#) that were able to recognize certain parts of SARS-CoV-2. Had the researchers used more parts of SARS-CoV-2, these percentages would likely have been even higher.

Why are T-cells that had never been exposed to a virus capable of recognizing it? The plausible answer is cross-reactivity.

People had been exposed to relatives of SARS-CoV-2, which are common causes of the common cold, and their T-cells memorized features they share with SARS-CoV-2.

There are several others possible sources of immunity.

Genetics, cross-reactive antibodies, and others. Governments should urgently invest efforts in conducting surveys of cross-reactive and other types of preexisting immunity.

Under normal conditions, preexisting immunity should prevent the virus from replicating in the body so that PCR and antibody tests would come back negative. However, that response might be weakened – for example by poor living conditions. In the weakened body, the infection might gain some ground before being eliminated, resulting in positive PCR and antibody tests, though symptoms would generally be mild or absent.

The risk of dying from an infection, called the infection fatality ratio or IFR, is the number of deaths divided by the number of infected (usually obtained from antibody surveys). Under normal conditions, this ratio would not change even if a large part of the population is immune: the immune would not contribute to the death count nor to the infected count (having a negative antibody test result).

When a susceptible population is weakened by poor living conditions and then exposed to the virus, more people will die and the IFR should increase. However, if a largely pre-immune

population is weakened, something strange is expected to happen: As the infection spreads, the IFR will decrease. More susceptibles will indeed die, but many more among the large, pre-immune part of that population are weakened enough to show up as positive in the antibody test. So, the death-to-infection ratio becomes significantly smaller.

Which brings us to the recent exceptions to the 20 per cent maximal infection rate. Several antibody surveys in India, one survey in Brazil and one in Peru, detected 25 to 71 per cent exposure to the infection. Indeed, in all these cases the IFR turned out to be “abnormally” low.

More than 70 per cent of the 500,000 residents of [Iquitos, Peru, and its surroundings have been infected](#). Iquitos is an extremely isolated city of mostly poor inhabitants – the typical place to find weaker preexisting immunity. Still, the estimated IFR is 0.1-0.2 per cent, remarkably small. Likewise, in the state of Maranhão, Brazil, about 40 per cent of the 7 million inhabitants were found to have antibodies and the estimated IFR was 0.17 per cent. Again, a very low value.

The IFR was 0.34 per cent in Maranhão's São Luis Island (1.5 million), but still half the country-wide IFR. The same phenomenon is seen in Delhi and Mumbai in India. Antibody surveys detected infection rates of 29 per cent and 48 per cent, but the IFR was tiny. Unlike the case of Sweden, one cannot claim that "voluntary social distancing" saved the day because the virus did spread widely in those cities.

To date, in every single case of a medium or large population for which the infection rate crossed the 20 per centmark, the IFR "magically" turned out to be significantly lower than the expected IFR in that population.

Panic aside, if most immune systems can recognize SARS-CoV-2, it makes no sense for any government to treat or model the virus as a new infection. Any rational government should urgently invest effort in conducting surveys of cross immunity and other types of preexisting cellular immunity, which cost next-to-nothing compared to the funds spent on PCR testing, contact tracing, and of course, lockdowns.

In short, it is extremely likely that most of us are at least partially immune to Covid-19. Let's accept this fact and try to quantify it. Continued self-destruction is a bad alternative.

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