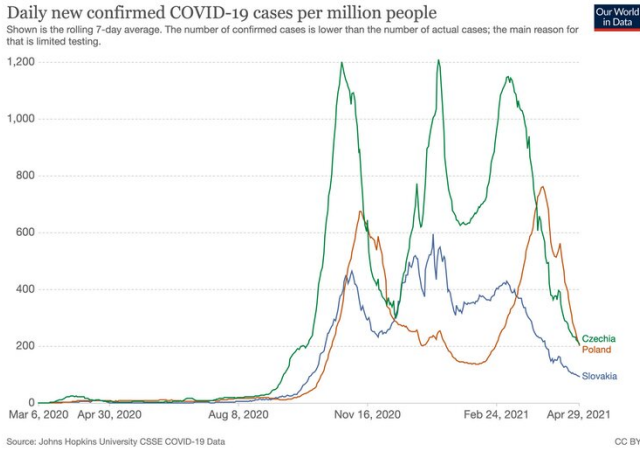


Herd immunity: can the UK get there?

4 May 2021, by Adam Kleczkowski



Number of new infections per million inhabitants in Czechia, Poland and Slovakia; a seven-day running average. Credit: Our World in Data

Now that [Britain](#) and [the US](#) are crossing the 50% threshold of their populations vaccinated with the first dose, are they reaching herd immunity and can things return to normal soon?

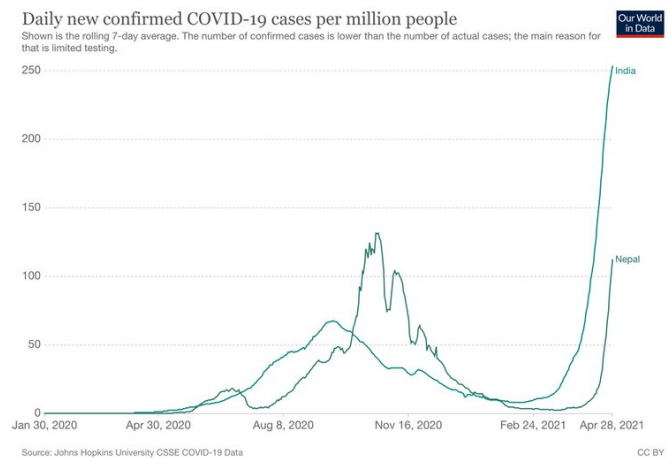
Not yet, is the short answer. And focusing on a single number [is not helpful](#). It might encourage behaviour that would lead to another wave breaking out, such as relaxing social distancing or—on the government's part—opening borders. Indeed, countries such as [the Czech Republic](#), [Poland and Slovakia](#) experienced relatively small first waves, but a massive second outbreak.

India is [particularly concerning](#). Last year, some [researchers](#) and [politicians](#) claimed that cities such as Mumbai, Delhi and Chennai [might have reached](#) herd immunity. Yet following a relaxation [in control measures](#) and [border controls](#), India and [Nepal](#) are currently experiencing a [devastating second wave](#).

So is the UK close to the point at which things can go back to normal? The vaccination drive has been

[amazingly successful](#); cases are down and, more importantly, hospitalisation and deaths are down. A [recent study](#) shows that the vaccine is successful not only in protecting people from [becoming seriously ill](#) but also in significantly reducing transmission. There is now a window of opportunity to eliminate the virus in the UK, or at least to bring it to near extinction, and to concentrate on controlling isolated outbreaks.

The most common estimates for the herd-immunity threshold for the original [coronavirus](#) strain—the so-called wild type—are at 70% or more immunity. For the new variants, the threshold is probably higher. Also, we know that vaccines have limited [effectiveness](#), which further increases the proportion of the population that needs to be treated.



Number of new infections per million inhabitants in India and Nepal; a seven-day running average. Credit: Our World in Data

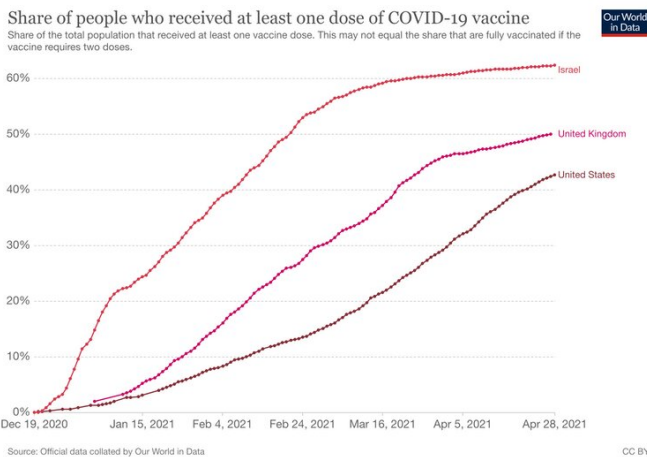
It is important to note, too, that there are [pockets of the population](#) where vaccination level is lower than the national average. These pockets are potentially a breeding ground for super-spreading events. These sorts of outbreaks, although initially small,

can lead to the establishment and subsequent spread of highly infectious variants. The danger is well illustrated by the spread of the [Brazil variant in Canada](#) or the [UK variant](#) in Europe.

With infection levels still very high globally (the number of new infections is higher now than it ever was last year) there is significant potential for [new variants](#) to emerge. Although it looks as though the mRNA vaccines (Pfizer and Moderna) are [effective against the new variants](#), the "variant of interest" in India [may be more problematic](#).

Finally, in many countries, a [significant proportion](#) of people is unwilling or unable to be vaccinated or to take precautions against infection. The vaccination levels needed to cross the line might not be achievable at all, even in the long term.

Vaccination levels, even in places like Israel where [62.4% of the population](#) has been vaccinated, are still not high enough to fully protect against future outbreaks while relaxing all regulations. The government in Israel [has lifted](#) most—but crucially not all—internal regulations. The borders are, however, still closed to non-essential travel and masks are [still worn indoors](#). Schools only reopened at 57% vaccination level.



The proportion of the population who received at least one dose of COVID-19 vaccine in the UK, the US and Israel. Credit: Our World in Data

Not safe until everybody is safe

As long as the virus is not eradicated everywhere in the world, there will always be a danger of the rise and spread of new variants. Rather than focusing on whether we reached [70%-80% of the population](#)—and the UK is not there yet—it is more useful to think of herd immunity as a process of virus suppression and elimination. However, this strategy does not necessarily mean experiencing high infection numbers or strict lockdowns.

Having driven the numbers down, the government will need to continue to keep a [combination of control measures](#) in place. They will be applied at a low level and hopefully much less intrusive than the current ones. The strategy will include a continuing [vaccination drive](#) with re-vaccination in response to new variants. Masks [will continue](#) to be worn in places where the risk of infection is high.

There will still need to be an intensive regime of tests. False negatives (where the test says you don't have the disease when you actually do have it) are of particular concern, as they can make people less careful and so can lead to outbreaks. But [false positives](#) (where the test says you have the disease, but you don't) will also need to be followed up with the more accurate PCR tests, as having too many false alarms can lead to people avoiding the procedure. Border controls such as [COVID tests](#) and [vaccine passports](#)—but hopefully not a travel ban—will help to keep the outbreaks to the minimum.

Is this a "project fear"? Not if we consider the [alternative](#) in which the health system is [overwhelmed](#) by new variants and we are back to the vicious cycle of too-late lockdowns and too-early relaxations. If done properly, this will [not be much more damaging](#) to the economy, social life and mental health than [protections against other diseases](#).

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