TheStar

Herd immunity for Covid-19 is unlikely to be achieved

Many policymakers and politicians, as well as the media, are still harping on herd immunity as if it is the holy grail in the management of Covid-19.

Some have even projected that herd immunity will be the way out of the pandemic.

But is this focus based on science?

Herd immunity, also termed population immunity, is the indirect protection from an infectious disease that occurs when a population is immune, either through vaccination, or naturally, following a previous infection.

Exposing a population, or even a segment of it, to a virus is unethical and scientifically problematic.

If the SARS-CoV-2 virus, which causes Covid-19, is allowed to spread through populations, it will lead to unnecessary infections, suffering and death.

The percentage of immune people to achieve herd immunity varies with different infectious diseases.

For example, herd immunity in measles is achieved when about 95% of a population is vaccinated.

The remaining 5% will be protected because measles will not spread among those vaccinated, thus indirectly protecting the unvaccinated.

On the other hand, the threshold for polio is about 80%.

The percentage of the population that must be vaccinated against Covid-19 to achieve herd immunity is not currently known.

When a substantial percentage of a population is vaccinated against Covid-19, there will be a reduction in the overall amount of the SARS-CoV-2 virus to spread in the whole population.

This will protect vulnerable groups who cannot get vaccinated, e.g. those allergic to vaccines.

The global scientific community and many governments increasingly believe that Covid-19 will become endemic and are making preparations for it. The reasons for this view are below.

Vaccines and transmission

The crucial factor in herd immunity is that there should be too few susceptible people who can continue to spread the virus from an infected person.

This is as those who have been infected or fully vaccinated are assumed to be unable to contract and spread the virus.

Covid-19 vaccines are effective at decreasing symptomatic disease, severe disease, hospitalisation and death.

There is also evidence that high vaccination rates reduce the spread of Covid-19.

However, the extent to which the vaccines protect people from getting infected or spreading the SARS-CoV-2 virus to others is still unclear.

The resurgence of Covid-19 in countries that have high vaccination rates, e.g. Israel, raises questions.

While the ability of any vaccine to prevent disease spread need not be 100%, there could be substantial community spread in the community of the virus if it is less.

Uneven vaccine uptake

The speed and distribution of vaccine roll-outs and uptake matter.

There are huge variations in the efficiency of vaccine roll-outs between and within countries.

Because of the large numbers of reported cases in the Klang Valley in the second quarter of this year, concerted efforts were made to vaccinate the population.

However, vaccination rates in other adjacent states lagged behind – some considerably so.

Although most infected children have mild or no symptoms, many have been hospitalised and some have died.

Children with underlying conditions are more likely to get severe Covid-19, but even healthy children can be similarly affected. Children can also spread the infection to other children and adults.

The Statistics Department estimates that 7.5 million (23%) of the 32.7 million population this year are aged below 14.

Although vaccines for children will be available soon – and assuming a decision is made to vaccinate children in our country – it will take time to vaccinate all our children.

In the meantime, many more adults need to be vaccinated.

The view that there will be herd immunity just because 80% of adults have been fully vaccinated is fallacious.

Even with 100% adult vaccination, this only comprises about three-quarters of our population.

Covid-19 has spread because of people's behaviour and/or local implementation of national policies, which have not always been consistent.

It is important to learn from the resurgence of measles and polio in Malaysia, which have been attributed to non-vaccination of migrant children and localised resistance from anti-vaxxers.

Notwithstanding the high Covid-19 vaccination rates in the Klang Valley, new outbreaks are likely to occur if the vaccination rates in surrounding states remains low.

Impact of viral variants

The longer it takes to stop, or even slow down, the spread of the SARS-CoV-2 virus, the more time variants will have to emerge and spread.

The city of Manaus in Brazil was severely affected by Covid-19, with more than 60% of its population estimated to have been infected by June 2020.

The decrease in the cases between May and October 2020 were attributed to herd immunity.

But in January (2021), there was a huge resurgence in cases after the emergence of the Gamma (previously known as P.1) viral variant.

This suggested that previous infections do not confer broad protection against SARS-CoV-2 viral variants.

The Delta variant is now the predominant strain in many countries, including Malaysia.

The US Centres for Disease Control and Prevention (CDC) has estimated that its Ro, i.e. the estimated number of people one infected person can infect in a susceptible population, is five to eight.

This variant has been held responsible for the large surges in case numbers in many countries, even those with high vaccination rates.

It is comforting that current vaccines are still protective against severe disease, hospitalisation and deaths in people infected by the Delta variant.

However, their effectiveness is less, although a British study suggested that those fully vaccinated may still be less likely than the unvaccinated to spread the Delta variant on to others.

The Lambda variant, which spreads more easily than the Delta variant, is a worry for many, particularly as data on this variant is limited.

Higher rates of population immunity can lead to selective pressure on the virus, which would favour the development of variants able to infect the vaccinated.

Rapid and widespread vaccination can prevent this development.

However, the challenges from uneven vaccine roll-outs and uptakes have yet to be surmounted in Malaysia.

Immunity is not forever

Individuals infected by SARS-CoV-2 appear to have immunity against the virus, but how long it lasts remains an unanswered question.

It does appear that such immunity wanes with time.

As vaccines are not 100% effective, an increasing number of countries are providing booster shots.

Time will tell whether such boosters are truly needed.

The implementation of booster shots will have implications for vaccine production and delivery, as well as accentuate uneven vaccine roll-outs.

Human behaviour

As more people get fully vaccinated, it is very probable their interactions will increase.

This will impact on herd immunity as it is dependent on the number of people exposed to the virus.

For example, if an individual interacted with only one to two persons prior to vaccination, but 10 to 15 after getting fully vaccinated, would it land him back at square one?

Unprecedented times and unpredictable human behaviour pose challenges in factoring human behaviour in any modelling.

Non-pharmaceutical interventions like physical distancing, face masking and frequent handwashing have a vital and continuing role in curtailing variant spread and keeping the numbers down.

How many fully vaccinated individuals will continue to comply with the 3Cs, i.e. avoid crowded places, confined spaces and close conversations, and the 3Ws, i.e. wash, wear and warn?

The examples from some politicians, who influence many, are not encouraging.

Will their followers and the public eventually ease off their protective behaviours, which would facilitate viral spread?

Insufficient testing

It took more than 18 months for the Health Ministry to disclose that the estimated actual prevalence of Covid-19 is three times that of every reported positive case.

The disclosure revealed a fundamental flaw in Covid-19 management in Malaysia, i.e. insufficient testing, and by extension, insufficient contact tracing and isolation of positive cases.

Undetected infected individuals would continue to spread the infection in the community.

Selective ramping up of testing would go some way in addressing this problem, which impacts on herd immunity.

Being realistic

The number of positive cases in Malaysia exceeded 1.5 million on Aug 20 (2021).

It took 482, 65 and 27 days to exceed 500,000, one million and 1.5 million cases respectively.

In the global league of cumulative reported cases, Malaysia was in the 23rd position on Aug 28 (2021), up from 39th on May 31 (2021) and 85th on Nov 18, 2020.

As of Aug 20 (2021), the number of daily cases and daily deaths per million population exceeded that of India, Indonesia and the Philippines – the only Asian countries with more cases than Malaysia.

The vaccination rate is often used as the herd immunity threshold.

It should not be considered as a “we are safe” threshold, but as a “we are safer” threshold.

Even after the threshold has been exceeded, outbreaks will still occur.

Hopefully, these will be isolated.

It is time for everyone’s expectations to be more realistic.

The new normal has to be about preventing severe disease, hospitalisation and death, as well as limiting viral spread.

While Covid-19 vaccines have contributed much, it is unlikely that it will completely halt SARS-CoV-2 viral spread.

As such, the emphasis has to be on how Malaysians can live with the virus.

Covid-19 may not disappear, but the focus has to be on efforts to make its prominence wane.

In a nutshell, herd immunity will be elusive.

https://www.thestar.com.my/lifestyle/health/the-doctor-says/2021/09/14/herd-immunity-for-covid-19-is-unlikely-to-be-achieved