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Vaccines that are under 100% effective can curb outbreaks

Rei Kurohi

A Covid-19 vaccine that is effective for just 50 per cent to 75 per cent of people should be good enough to keep the outbreak in check here, if everyone is vaccinated.

In fact, 70 per cent efficacy would be very good because even recovery from the infection will not give a patient 100 per cent protection, said Professor Ooi Eng Eong, deputy director of Duke-NUS Medical School's emerging infectious diseases programme.

"Whether Covid-19 gives you life-long protection or short-lived protection, that is something that is being debated.

"Anecdotally, there is still that tiny minority that, despite having had a natural infection in the past, they go on to get it again.

"Not everyone will have that, but that basically tells you that there is no such thing as 100 per cent protection. So, having 70 per cent actually is good," he said at a Covid-19 webinar hosted by The Straits Times.

A vaccine that is 70 per cent effective means three out of 10 who receive the vaccine will still be susceptible to the virus.

But Prof Ooi said it would be good enough as vaccines do not just work at the individual level.

Those who are protected will also protect others around them who are not immune simply by not becoming carriers, he pointed out, adding that this is the concept of herd immunity.

Under normal circumstances, he explained, one infected person will pass the virus to two or three people because of the contacts they make in their daily lives.

With physical distancing, these contacts are removed, so a person would pass the virus, on average, to fewer than one other person, and the outbreak would die, he said.

"Now, in a vaccinated population, even if you don't stop the social con-



tacts, one person will come in contact with three people and can potentially pass it on, but two of those people are already immune, so you can only pass it on to one," he added.

"That would have a big impact on reducing the outbreak and keeping it well below the kind of transmission needed for the virus to cause these pandemics."

Vaccines are typically more effective among young people, but Covid-19 tends to be more severe among older patients.

Asked if older people are more likely to remain vulnerable even after being vaccinated, Prof Ooi said

it would be good enough for the younger people to be "solidly immune" as they would then not pass the virus to seniors.

Herd immunity is so effective that it has helped humanity eradicate smallpox, Prof Ooi noted.

"You just have to vaccinate 80 per cent of the population and the virus will not have the chance of causing epidemics," he said.

"Likewise, how we keep measles, mumps, rubella (MMR) and all that at bay so far is to keep a high level of our population vaccinated.

"Not 100 per cent, but about 95 per cent of the population is vac-

nated with the MMR vaccine. The 95 per cent will protect the remaining 5 per cent."

Singapore, therefore, does not need to have 100 per cent immunity to Covid-19 in its population, he said, adding that the country just needs enough people to be immune to stop the virus from replicating.

"Given that this virus spreads from one person to three others, I suspect 50 per cent to about 75 per cent efficacy, if we vaccinate everyone, will be sufficient to completely eliminate outbreaks in Singapore."

rei@sph.com.sg

ST senior health correspondent Salma Khalik moderating The Straits Times Covid-19 webinar yesterday, which featured three experts.

ST PHOTO: KUA CHEE SIONG

About vaccines

Q&A

Q Not all vaccines are 100 per cent effective. If one is about 70 per cent effective, would that be good enough?

PROFESSOR OOI ENG EONG:

70 per cent effectiveness is actually very good. You know, even a natural infection would not give you 100 per cent protection from a second infection.

Whether Covid gives you life-long protection or short-lived protection, that is something that is being debated... The way the vaccine works is it isn't just at the individual level.

So, the person who falls into the 70 per cent and is protected against infection, that is great, they won't get it. But actually, they go on to protect the others who don't actually develop immunity, and that is this whole concept of herd immunity.

Q When a vaccine is found, who should get it first?

PROFESSOR DALE FISHER:

Once we get a vaccine, we are not going to suddenly get enough for the whole country. So, we might have to discuss: Do we vaccinate older people or those that are immune-suppressed, or do we vaccinate those that are looking after them?

Nearly all the nursing home outbreaks, for example, are a result of a staff member introducing it (the virus). So, this is an important discussion because you might think, let's just vaccinate all the immune-suppressed and the elderly, but that may not be the most rational thing... I would certainly like to vaccinate all the people that work in a nursing home.