Can patients get reinfected with COVID-19 after recovery?

On the whole, there's very minimal indication of large number of people actually having COVID-19 twice. Reports indicating that people had been infected twice tended to be tracked back to testing errors. However, there have been isolated cases.

Several cases of people becoming reinfected with COVID-19 have come to light after researchers in Hong Kong on 24 August 2020 reported what appears to be the first confirmed case of reinfection in a 33-year-old man. The 33-year-old Hong Kong man who was first infected by SARS-CoV-2 in late March and then, four and a half months later, seemingly contracted the virus again while traveling in Europe.

After the Hong Kong case was reported, other researchers have been coming forward with their own reports. One in Belgium, another in the Netherlands, and one in Nevada, US. If there are looming fears of COVID reinfection, there naturally arise immediate doubts over how far a vaccine could probably work – if a person's antibodies or immunity aren't strong enough to ward off future infections. Does it mean a COVID vaccine won't really be that effective? The answer has huge implications for the spread of the disease, as well as misinformation that could contribute to fear and panic in the community.

What do you need to know?

Types of immunity to COVID-19?

While so far confirmed cases of coronavirus reinfection are very rare, they seem to support the findings that natural immunity wears off — sometimes, in just a few months.

The World Health Organization commenting on the Hong Kong case said the "numbers [of reinfection] are very, very small". "We will probably see other documented cases. But it seems to be not a regular event we would have seen many more cases," WHO spokesperson Dr Margaret Harris told reporters in Geneva.

For infectious disease experts, reinfections can be expected even as they caution against drawing broad conclusions. Researchers indicate people who get COVID-19 develop healthy immune response filled with both antibodies and T cells – just like what happens after other viral infections. But the body's immune response could gradually decline over months after the infection has been cleared, making people vulnerable again. Antibodies are molecules that can block pathogens from infecting cells, whereas T cells are a type of white blood cells that kill infected cells.

4 types of immunity

Sterilizing immunity is a unique immune status, which prevents effective virus infection into the host. This means that the first time you get infected, the possibility of getting reinfected again is very slim. In general terms, measles fits into this category, although there are rare reports of people contracting measles more than once.

The bad news is that viruses that infect via the mucus membranes of the nose and throat, like SARS-2 (the virus that causes COVID-19), typically don't induce sterilizing immunity. Results from a study on rhesus macaque monkeys suggest experimental vaccines protect the lungs from severe disease but don't block replication of the virus in the upper airways. This means that people can still be infected with SARS-CoV-2.

Functional immunity is when infected individuals who experience mild symptoms of COVID-19 can induce immune memory in their B and T immune cells to recognize and fight the virus. Under this scenario, those who are reinfected might not develop symptoms or might have a mild, cold-like infection. But it is still unknown whether this can induce long-lasting immune memory that might contribute to herd immunity, and the only way to be certain about this is to follow people over time, in a longitudinal study, to see if those responses diminish over time.

Herd immunity is a form of indirect protection from infectious disease that occurs when a sufficient percentage of a population has become immune to an infection, whether through vaccination or previous infections, thereby reducing the likelihood of infection for individuals who lack immunity. For herd immunity to be effective we need a high percentage (perhaps more than 60%) of people to be immune at any one time to disrupt chains of transmission. This can't happen if reinfection is occurring.

Waning immunity is when the body's immune defence against COVID-19 may be short-lived. There is emerging evidence that patients infected with the novel coronavirus make protective antibodies as part of their immune system's defences, but these appear to last only a few months. The man from Hong Kong could be an example of this phenomenon but more tests are needed to verify it.

Not the end of the line for vaccines

The case of COVID striking again is evident of COVID immunity not lasting for long and antibodies starting to wane after a while. But it does not mean the end of the road for vaccine work. If anything, the case for reinfection makes a stronger case for devising rules and regulations for vaccine administration like will we require a booster shot, will repeated doses be needed or not – like the yearly flu vaccines.

There' s a lot of research still needed to support the dangers of reinfection and any vaccine which is registered for use will be able to work to provide base-level immunization. The reported Hong Kong reinfection makes a strong case for vaccine trials to go through thorough research and the job to be not rushed.

How can I report on this issue?

Discussions on social media, talkback radio and other forums may indicate that your audience is concerned about this topic. But with many questions still unanswered, it can be challenging to cover this issue. So what can you as journalists do to ensure that you report accurately and responsibly on re-infected cases?

1. Only use official sources

Many rumours are circulating about people that have been reinfected with COVID-19. Do not report on rumour, speculation or theories. Only refer to official government sources of information such as the Ministry of Health in your country.

2. Ask the right questions

If there are official reports about reinfection in your context ask:

What is the time between recovery and re-infection?

The timing of the test is crucial. If symptoms of re-infection emerge in a short time, for example 7-14 days from when the patient is discharged from hospital, it is possible that there was an error in the earlier tests that declared the patient had recovered. This is called a false negative. A false negative is an incorrect test result generated by a faulty or incorrectly performed test. It shows no presence of a disease when, in reality, it is present.

The World Health Organization's guidelines are to test recovered patients twice with an interval of at least 24 hours before they are discharged from hospital. Two consecutive tests can rule out false negatives, but hospitals under immense pressure might not follow these guidelines. Most of the tests used to determine if a person is fully recovered from COVID-19 involve taking a swab sample from the nasopharyngeal region. The nasopharyngeal region is at the base of your skull, above the roof of your mouth. Health-care professionals are trained to safely take swab samples from the area. However, patients may still have the virus in deeper parts of the respiratory system where the swab test does not reach. This is another reason for false negatives, according to the WHO.

What types of tests have been done?

The common test used to determine if a person is infected with SARS-CoV-2 uses a swab, but there are other ways medical professionals can test for the virus. SARS-CoV-2 can be detected in a patient's sputum, blood or stool samples. Understanding if other tests have been used will also indicate how thorough the testing regime has been.

3. Don't add to fear or stigma

People may face fear and stigma after recovering from COVID-19. In some serious cases, we have seen recovered patients receive online death threats and hate messages on their phones. Do not contribute to this prejudice in your reporting. Always maintain a patient's privacy (even when they have recovered) and never name them or use identifying information in your reporting unless you have full consent.

The WHO has the following guidelines for journalists to reduce social stigma associated with COVID-19:

- Facts, not fear will stop the spread of novel coronavirus (COVID-19)
- Share facts and accurate information about the disease
- Challenge myths and stereotypesChoose words carefully
- Correct misconceptions, at the same time as acknowledging that people's feelings and subsequent behavior are very real
- Promote the importance of prevention, lifesaving actions, early screening and treatment