



[Anastasia Tsirtsakis](#)

17 Mar 2020

Coronavirus progress: Breakthrough research, first human vaccine trial

Australian researchers have published the first study on the body's immune response to coronavirus, while a human vaccine trial has commenced.



Researcher at the Peter Doherty Institute analysed blood samples taken from one of the first patients diagnosed with COVID-19. (Image: AAP)

With more than 177,000 confirmed cases of COVID-19 (coronavirus) across the globe, and over 7000 deaths at the time of publication, the medical community has welcomed a study from Australian researchers, bringing scientists one step closer to understanding the virus and the body's immune response.

A team of researchers at the Peter Doherty Institute for Infection and Immunity analysed four blood samples taken from one of the first patients diagnosed with COVID-19. The woman aged in her 40s was admitted to a hospital in Melbourne after having travelled to Wuhan, China. Her symptoms included lethargy, sore throat, dry cough and a fever. She was otherwise healthy.

The study, published in [Nature Medicine](#) on Tuesday 17 March, identified the antibodies recruited by the body to fight the illness, noting that the immune system responded to COVID-19 in the same way it would have had the patient been fighting the flu.

[Australia's coronavirus containment efforts intensify](#)

[Examining factors that worsen coronavirus severity](#)

[So you have been asked to self-isolate or quarantine. What now?](#)

‘The immune cell populations we have seen emerging before patients recover are the same cells that we see in influenza,’ laboratory head Professor Katherine Kedzierska told [the ABC](#).

Three days after the patient was admitted, they identified large populations of several immune cells which are ‘often a tell-tale sign of recovery during seasonal influenza infection’, research fellow Oanh Nguyen said.

‘So we predicted that the patient would recover in three days, which is what happened,’ Dr Nguyen said.

The team is hopeful its findings will help health practitioners plan for the type of care needed for each individual patient, as well as assist other scientists both locally and abroad in the race to find an effective vaccine.

‘Our study is an important step in understanding how our body recovers from a mild to moderate infection of COVID-19,’ Professor Kedzierska said.

‘This information will allow us to evaluate any vaccine candidate, as in an ideal world the vaccine should mimic our body’s immune response.’

The answer to whether contracting the virus gives the person immunity from repeat infection will become clearer in the coming months, Professor Kedzierska said, after checking in with patients.

Dr Michelle Tate, head of the Viral Immunity and Immunopathology laboratory at the Hudson Institute of Medical Research, told *newsGP* that while the study is interesting, ‘additional studies in a larger group of patients are warranted, particularly those that present to hospital with severe disease’.

‘Furthermore, we currently do not understand how well the immune system can respond to the virus in those at most risk, such as the elderly,’ Dr Tate added.

The researchers have said this will be their next step. They will set out to map the immune system of larger cohorts of patients, including those with severe symptoms, to see what part of the immune response is not getting activated.

The Peter Doherty Institute’s rapid response is among a number of efforts being made amid the global pandemic.

In the US, [the first human trial](#) of an experimental COVID-19 vaccine commenced on Monday 16 March at the Kaiser Permanente research facility in Seattle, Washington – the epicentre of the country’s breakout.

Four patients were administered the [mRNA-1273 vaccine](#), made using a short segment of genetic code copied from the COVID-19 virus and reproduced by scientists at the National Institute of Allergy and Infectious Diseases (NIAID) in collaboration with biotechnology company Moderna Inc.

Dr John Tregoning, an expert in infectious diseases at Imperial College London, acknowledged that it was a very fast move, but said the vaccine had been made using pre-existing technology.

‘It’s been made to a very high standard, using things that we know are safe to use in people and those taking part in the trial will be very closely monitored,’ he told [the BBC](#).

Each volunteer will receive two lots of the vaccine 28 days apart.

The trial will assess whether the vaccine is safe and evokes an immune response. However, NIAID Director Anthony S Fauci highlighted that before a vaccine can be approved by the Food and Drug Administration (FDA), two additional trial phases would be required, meaning an actual vaccine would still be 12–18 months away.

In Australia there were more than 400 confirmed cases of coronavirus at the time of publication on Tuesday 17 March, most of whom are of [people aged in their 30s and 50s](#), along with five recorded deaths.

With the number of cases having [doubled in just four days](#), Australia’s Chief Medical Officer Professor Brendan Murphy [told 2GB radio](#) that social distancing was the most important thing people could do.

‘No doubt we do, as a nation, we do have to practice much more stringent social distancing if we are going to control the community spread of this virus,’ he said.

‘We will be making a range of recommendations to government about social distancing measures for indoor events and smaller events.’

In addition to banning [non-essential gatherings of 500 or more](#), the Federal Government has called for people to limit their visits to aged care facilities and refrain from travelling to remote regions to [protect Aboriginal and Torres Strait Islander communities](#). School closures have yet to be recommended, unless there has been a confirmed case of the virus within the school.

Professor Murphy said the measures could be in place ‘for several weeks if not months’, but said there is only a low chance of people being asked to be quarantined for two weeks given the current case numbers.

As the community grows increasingly alarmed about the spread of coronavirus, RACGP President Dr Harry Nespolon warned Australians this week to be mindful of false or misleading medical ‘advice’ and updates on social media.

Model and businesswoman Miranda Kerr has come under fire for promoting a ‘Virus Protection’ guide from ‘medical medium’ Anthony William to her 12 million followers on Instagram. While a fake ‘letter’, purporting to be from Health Minister Greg Hunt and Victorian Health Minister Jenny Mikakos, has also been circulating on social media concerning school closures in Victoria.

‘I understand that people are scared, but turning to false or misleading social media content is not the answer,’ Dr Nespolon said.

‘It’s not always easy, but social media users need to critically examine this content and consider the source of the information and whether it is credible.’



RACGP President Dr Harry Nespolon.

Dr Nespolon encouraged all Australians to apply a ‘sniff test’ to posts on social media, asking themselves whether the information is reliable and trustworthy.

‘The best sources of information on COVID-19 include the [RACGP website](#) and the official health.gov.au website, not Miranda Kerr’s Instagram account,’ he said.

‘My advice is simple – wash your hands, keep them away from your face, avoid handshakes and mass public gatherings and don’t always believe what you see on social media.’

Dr Nespolon said false or misleading social media posts about the virus are [part of a larger trend](#) seeing so-called ‘experts’ making false claims that makes ‘the work of GPs harder than it needs to be’.

The RACGP President called on social media ‘influencers’ and people with large followings to self-regulate what they are posting.

‘If you aren’t a healthcare professional you shouldn’t be handing out free medical advice. Leave that to the experts,’ Dr Nespolon urged.

‘If you want to encourage people to wash their hands that is fine, but advising social media followers that they can avoid COVID-19 by not eating eggs is not helpful.’

‘No one can be sure what will be required in Australia in coming months to limit the damage of COVID-19, but I can reliably tell you that the answer doesn’t lie in listening to a “medical medium” such as Anthony William.’

National cabinet is due to meet on the night of Tuesday 17 March to discuss increased measures for the aged care sector and indoor meetings.

The RACGP has more information on coronavirus available on [its](#)

[website](#).

Log in below to join the conversation.

[coronavirus](#) [COVID-19](#) [immune system](#) [vaccine](#)

Login to comment



[Terms and conditions](#) | [Privacy statement](#) | [RACGP](#) | [shareGP](#) | [recruitGP](#) | [AJGP](#)

© 2018 The Royal Australian College of General Practitioners (RACGP) ABN 34 000 223 807