# Why Australia's vaccine boost will take time

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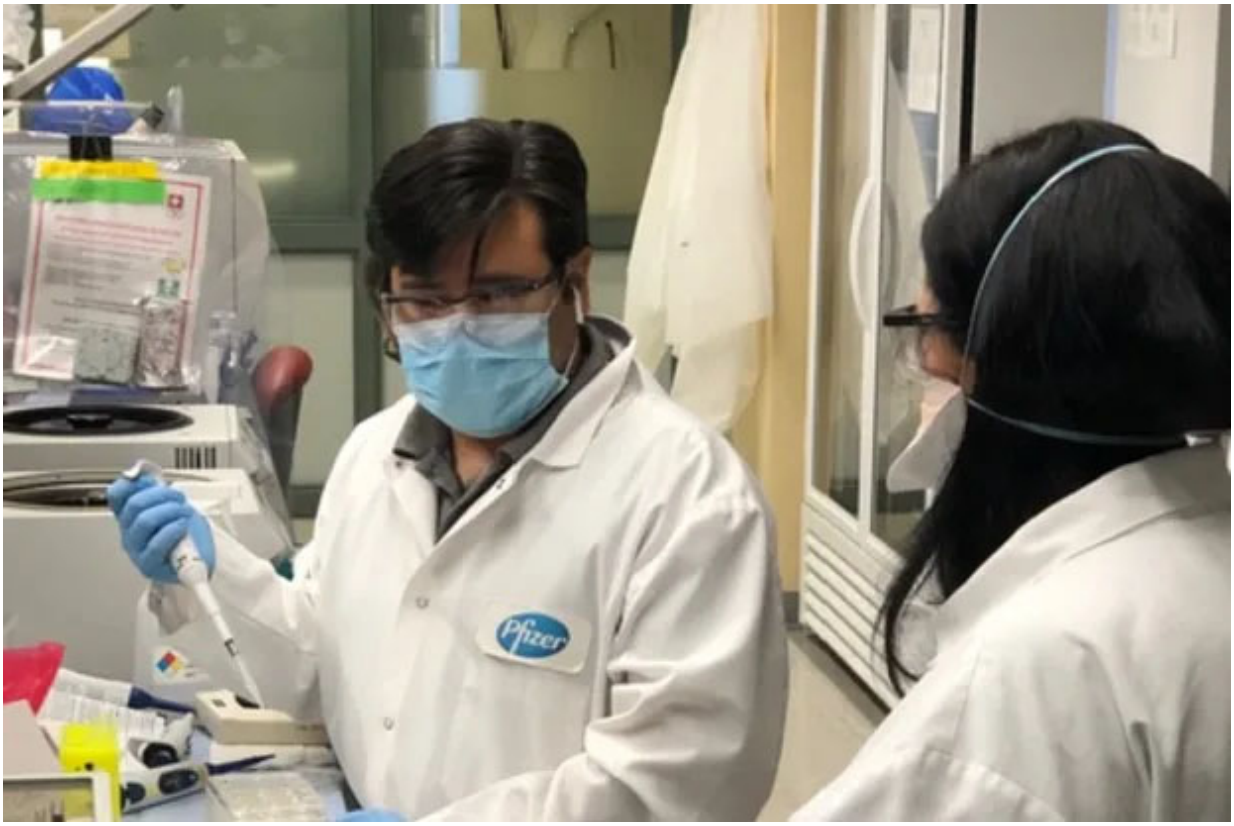
The dramatic breakthrough in Pfizer's COVID-19 vaccine candidate has raised hopes for the end of the pandemic, boosting global markets and injecting confidence into the economy, but medical experts warn its use in Australia may not be widespread any time soon.

While this is the first candidate in the world to provide proof of principle that a vaccine is possible for COVID-19, the results released are interim and the devil may be in the detail.




Scientists working on research for the vaccine candidate at Pfizer's global vaccine R&D headquarters in Pearl River, New York.

"This announcement is very encouraging. However, it will not on its own mean that we will be able to resume 'business as usual' any time soon," said Associate Professor Linda Selvey, an infectious diseases epidemiologist at the University of Queensland.

Australia secured 10 million doses of this vaccine. As two shots are required to provide protection, this would only cover 5 million people.

If approved, Pfizer expects to make 50 million doses this year. It is not known where Australia stands in the queue.

Prime Minister Scott Morrison said the results of the Pfizer vaccine trial were "very

promising".

"It's one of four vaccines that Australia is involved with," he said. "I am optimistic about next year, about the rollout of these vaccines.

"The vaccines that will be made available to Australians will be done so first and foremost that they are safe."

After consumer and business confidence jumped back to pre-COVID-19 levels on Tuesday Mr Morrison said he believed the economy was on the road to recovery.

Qantas chief executive Alan Joyce said the potential vaccine was "the best news the travel industry has had all year" as stock prices of aviation and travel companies soared.

Richard Facioni, chairman of Mosaic Brands – which owns Noni B, Katies, Millers and Rivers, said the positive news would lift consumer sentiment and spirits, and give people more confidence to shop. Santos chief executive Kevin Gallagher welcomed the bump up in crude oil prices as a result of the vaccine news.

## Cold chain transport

Pfizer expects to produce up to 1.3 billion doses in the US and Europe. The vaccine will not be manufactured at its Melbourne plant.

To use this novel and fragile RNA vaccine, Australia would need to make a large "cold chain" investment to transport, store and distribute the vaccine across the country.

"There is no cold chain anywhere in the world for distribution and use of a vaccine that needs to be kept at minus 70, " says Professor Nikolai Petrovsky

The vaccine needs to be stored at minus 70 degrees Celsius. It can only last for 24

hours at 4C.

"There is no cold chain anywhere in the world for distribution and use of a vaccine that needs to be kept at -70C, " said Professor Nikolai Petrovsky, research director of Vaxine, a vaccine candidate based at Flinders University.

"The US government is spending tens of millions buying -70 freezers but I'm not sure that has been factored into Australia's planning."

Australia pharmacies and GP practices, which have regular refrigeration, would struggle to administer the vaccine. There is talk of adding a stabiliser to the product but this would require redoing the safety trials.

# Incredibly promising - but needs more detail

On Monday (Tuesday AEDT), Pfizer and partner BioNTech released a press statement with interim results from its phase three clinical study. While cleared by an independent committee, the data has not been peer reviewed or published.

Some experts suggest an early global announcement was made to avoid any parties obtaining a commercial advantage.

The interim analysis is "incredibly promising, but we do need to see the published results so we can scrutinise them in more detail", said Professor Marc Pellegrini, an infectious disease physician at the Walter and Eliza Hall Institute of Medical Research.

"At this stage, we don't know whether it is effective in preventing only the most severe cases of the disease or whether it also prevents mild cases of the disease as well.

"If it was effective in preventing people from transmitting the virus, it would be incredibly valuable.

"If it is 90 per cent effective, it will be on par with the hepatitis B vaccine, which is incredibly effective in preventing people from getting that particular virus and has been a game-changer in halting transmission of hepatitis B."

Given that distribution of this vaccine, if approved, will be limited, NSW Premier Gladys Berejiklian said she had asked the Emergency Operation Centre to make a plan to ensure the state got the priorities right so vaccines went to the most vulnerable people first, including front-line workers.

While there was a reason for optimism, as Premier she believed she had to be less optimistic: "We have to lead and govern as though we won't have that available next year".

Australia now has a stake in four vaccines: Novavax, 40 million doses; UQ and CSL, 50 million doses; AstraZeneca Oxford, a deal to manufacture 30 million doses locally; and Pfizer/BioNTech, 10 million.

But many questions remain about this smallest and most promising stake.

While the vaccine was reported to be 90 per cent effective, it is not known how

serious infections were in the remaining 10 per cent.

As the trial enrolled healthy people, there is no indication of how effective it might be in those most at risk, such as the elderly and the infirm.

Protection from this vaccine was achieved 28 days after the initiation of the vaccination process. How long it will last and whether a booster will be needed is not known.

## Known risks

Details of adverse events were not released and there was no information about whether those successfully vaccinated were just asymptomatic or were no longer infectious too.

There was no data on age, ethnicity or socioeconomic status, all of which are known to affect risk.

Nevertheless, that the vaccine appears to provide protection 90 per cent of the time is "a great result, so far", says Associate Professor Hassan Vally, an epidemiology researcher at La Trobe University.

"To put this in perspective, we have generally agreed that if we have a vaccine that is 50 per cent effective, this will be good enough to proceed with to respond to the pandemic," he said.

"We probably need to be measured in our enthusiasm until the trial has been completed, but we would rather see these sorts of early findings than hear that the vaccine was not working as well as we would have hoped."

## Work needed on logistics

Associate Professor Sanjaya Senanayake, a specialist in infectious disease from The Australian National University, said like the US election, initial results might not be indicative of the final ones.

As there had never been a commercially available RNA vaccine before, much work was needed on the logistics.

This vaccine is based on a new technology, where mRNA is introduced into the body that leads to the production of virus components recognised by the immune system.

Professor Elizabeth Hartland, director of the Hudson Institute of Medical Research, said this approach had some advantages over classical vaccine manufacture in that the product could be made and distributed more quickly.

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