Previous COVID infection may not protect you from the new subvariant wave. Are you due for a booster?

November 11 2022, by Nicholas Wood

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COVID cases in Australia appear to be on the increase, most likely due to community transmission of the omicron variant XBB. Meanwhile, a second omicron variant—BQ.1—is now being recorded in Australia.

Australia's Chief Health officer Paul Kelly says, "All indications are that this is the start of a new COVID-19 wave in Australia."

XBB appears to be able to spread faster than the omicron variant BA.5, but there's no definitive evidence so far it causes more severe disease. BQ.1 contains mutations that help the virus evade existing immunity. This means infection with other subvariants—including BA.5, which contributed to Australia's COVID wave mid-year—may not protect you against BQ.1.

The best protection against severe COVID, whichever subvariant is circulating, is to make sure you have had your recommended booster vaccines. So who is eligible?

Current coverage

Over 95% of Australians over 16 have had two doses. But despite a third dose being recommended for everyone over 16 years, just over 70% have had a third dose (as of November 3).

ATAGI also recommends a second booster (fourth dose) be given to those who are over 50 years, those over 16 who are residents of aged care or disability care facilities, and those over 16 who are severely immunocompromised or have a medical condition that increases the risk of severe COVID.

People aged 30 to 49 years can have a second booster if they choose.

A COVID booster dose is also recommended for people aged 5-15 who:

- are severely immunocompromised
- have a disability with significant or complex health needs
- have complex or multiple health conditions that increase the risk of severe COVID-19.

Despite the Australian Technical Advisory Group on Immunization (ATAGI) recommendation, only two-thirds of those over 65 and only one-third of over-30s have had a fourth dose.

So we have room to improve our booster dose coverage.

What booster vaccine should I get?

We now have original strain COVID vaccines and recently two bivalent COVID mRNA vaccines were provisionally approved for use as a booster vaccine in Australia.

The bivalent mRNA vaccines (one made by Moderna and the other made by Pfizer) are adapted vaccines that trigger an immune response against two different COVID variants: the original virus and the BA.1 omicron variant. The Moderna bivalent vaccine is available now and the Pfizer is coming soon.

For people aged 18 years and older, the Moderna original, Moderna bivalent, Pfizer original, or Pfizer bivalent COVID vaccines are the preferred vaccines for a booster dose.

AstraZeneca or Novavax COVID vaccines can be used as a booster dose in people aged 18 years and older who have a contraindication, or had

anaphylaxis, or myocarditis (inflammation of the heart muscle) after a previous dose of an mRNA vaccine (Pfizer or Moderna) or prefer not to have an mRNA vaccine.

The recommended interval between completing the primary COVID vaccine course (the second dose for most people) and the first booster dose is three months. The recommended interval between the first booster dose and a second booster dose (for those recommended to receive them) is three months.

Are bivalent boosters really better?

A recent clinical trial involving more than 800 participants showed antibody responses to omicron were higher after the bivalent (original and BA1) Moderna vaccine given as a fourth dose compared to the original strain Moderna vaccine.

A trial of the Pfizer bivalent (original and BA1) strain vaccine also demonstrated higher antibody responses to omicron BA1 compared to the original strain vaccine.

The safety of both bivalent mRNA booster vaccines is similar to those reported after an original booster. The most commonly reported local adverse reactions following a second booster dose of the Moderna bivalent vaccine were injection site pain (77%), fatigue (55%), headache (44%) and muscle aches and pains (40%).

The TGA relied on this clinical trial data from Pfizer and Moderna to provisionally approve both bivalent vaccines.

What about antibodies after infection?

Antibody levels after both Moderna booster vaccines (original and

bivalent) are higher in people who had previous infection compared to those with no previous infection.

It is important to study antibody responses after a booster vaccine in those who have previously had COVID disease. This is because recent serology studies (which look for antibodies in blood samples) indicate two-thirds of us have already had COVID infection.

It is recommended booster doses be administered at least three months after natural infection, as immunity from infection decreases over time and people can get reinfected.

A booster dose in those who have had three previous vaccine doses and natural infection does result in a rise in antibody levels. However, it's not yet known how effective the fourth bivalent vaccine dose is at preventing infections in those who've previously been infected.

The United States has also recommended bivalent booster vaccines, but they have recommended "updated" vaccines which contain the original strain of SARS-CoV-2 (the virus that causes COVID) and the BA.4 and BA.5 omicron variant of SARS-CoV-2.

The U.S. authorized the update vaccines on the basis of data from animal trials and did not require human trial data. Human trials are underway and results are expected soon. Following this, the companies are likely to make applications, with human trial results, to the TGA for approval.

Bottom line

The reality is COVID is not over. We are likely already entering another wave of infection, however the severity of the new variants in Australia is not yet definitively known.

A simple thing people can do to help protect themselves is to get all the vaccine doses they are eligible for. You can find the latest booster recommendations here.

Provided by The Conversation

Citation: Previous COVID infection may not protect you from the new subvariant wave. Are you due for a booster? (2022, November 11) retrieved 27 January 2023 from https://medicalxpress.com/news/2022-11-previous-covid-infection-subvariant-due.html