IMMUNISATION COALITION

2024 COVID-19 GUIDE

FOR HEALTHCARE PROFESSIONALS

ABOUT COVID-19

Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus.[1]

The original COVID-19 virus, which is caused by the SARS-CoV-2 virus, was first identified in December 2019. It belongs to the coronavirus family which also includes viruses that cause illnesses like the common cold, MERS (Middle East Respiratory Syndrome), and SARS (Severe Acute Respiratory Syndrome). The virus is characterised by its spike proteins which it uses to enter human cells.

There have been many identified SARS-CoV-2 virus strains, variants, and sub-variants as the virus mutates and evolves over time. Omicron, a variant of the SARS-CoV-2 virus, was first identified in November 2021 and was officially designated as a variant of concern by the World Health Organization (WHO) shortly thereafter. Omicron is notable for having a large number of mutations in the spike protein of the virus which is the part of the virus that binds to human cells.

Each variant and subvariant is associated with varying levels of transmissibility, immune escape, and disease severity. Each of these is given a name and an abbreviated classification, the latest in Australia being the JN.1 variant. The epidemiology of each variant varies widely, with some strains dominating more than others as they evolve or phase out.

What's important is for people to stay vigilant, ensure they are vaccinated against the virus (particularly for at-risk individuals with underlying medical conditions), and continue to apply non-pharmaceutical practices during outbreaks.

COVID-19 CAUSE AND TRANSMISSION

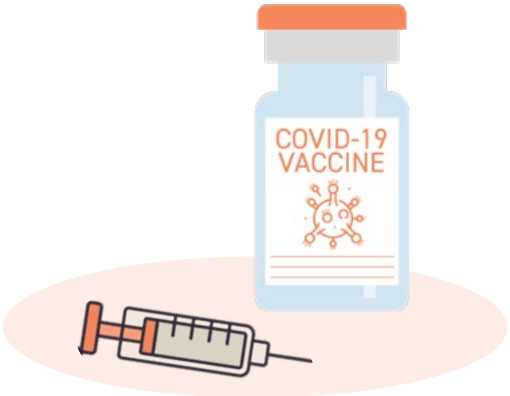
COVID-19 is a disease caused by a new form of coronavirus, first reported in December 2019. Coronaviruses are a large family of viruses that cause respiratory infections ranging from the common cold to more serious diseases.[2]

The virus can spread from person to person through:

- Close contact with an infectious person (including in the 48 hours before they had symptoms)
- Contact with droplets from an infected person's cough or sneeze
- Touching objects or surfaces (like doorknobs or tables) that have droplets from an infected person, and then touching your mouth or face.

Current evidence suggests that the most likely spread is from respiratory droplets between people from close contact with each other [3][4]

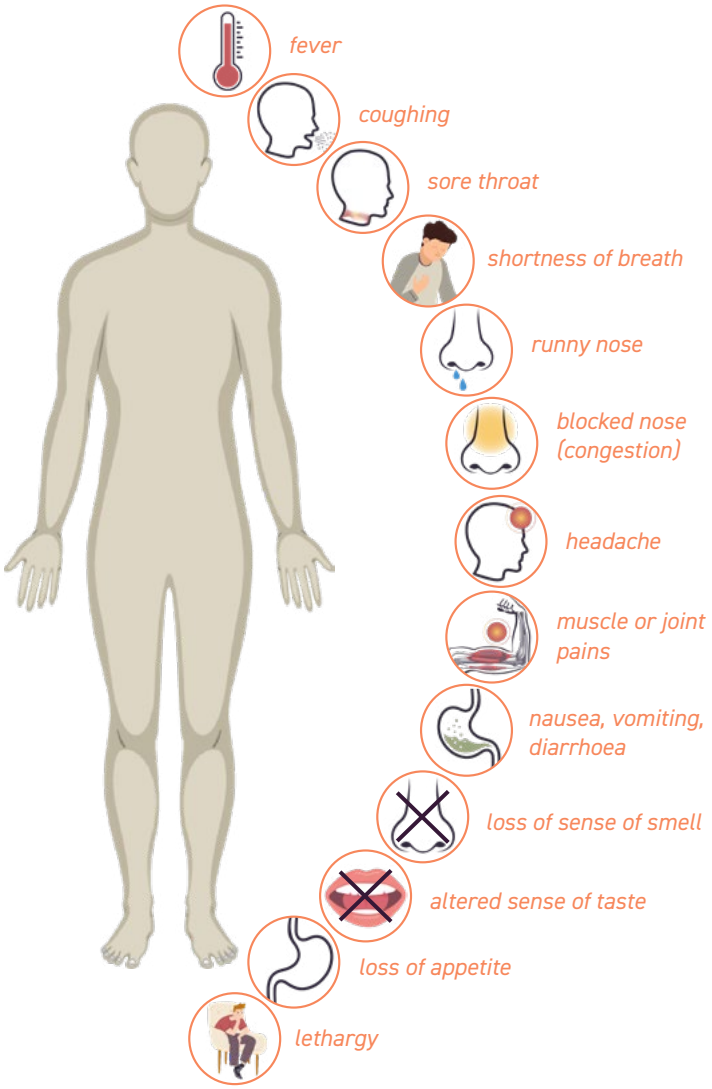
People are believed to be most infectious two days before they start showing symptoms.[5] However, even if people do not show any symptoms, they can still spread the virus to other people.



COVID-19 SYMPTOMS

Symptoms of COVID-19 can range from mild illness to pneumonia. Some people may get very sick very quickly, and most people will recover easily. People with coronavirus may experience symptoms such as **fever, coughing, sore throat, shortness of breath.** [6]

Other symptoms can include **runny nose, acute blocked nose (congestion), headache, muscle or joint pains, nausea, diarrhoea, vomiting, loss of sense of smell, altered sense of taste, loss of appetite,** and **lethargy.**[7]



COVID-19 COMPLICATIONS

Most people will recover from COVID-19 within a few weeks, however it can cause serious complications.

Older people and those with underlying medical conditions e.g. heart disease, diabetes, obesity, chronic liver disease, severe asthma and cystic fibrosis may be more likely to develop a more serious illness.[8]

WHAT CAUSES COVID-19 COMPLICATIONS?

COVID-19 complications may be caused by a cytokine storm. Cytokines are inflammatory proteins that can flood the bloodstream after an infection such as COVID-19 triggers the immune system. The large influx of cytokines can cause damage to many organs of the body like the heart, lungs, liver and kidneys.[9]

The most common complications affect the lungs and respiratory system:

- Pneumonia: an infection that affects one or both lungs.[9]
- Acute Respiratory Distress Syndrome: the lungs become so severely damaged that fluid flows into them which inhibits the body getting oxygen into the bloodstream.[9]

OTHER COMPLICATIONS INCLUDE:

- Acute liver injury[10]
- Acute cardiac injury[11]
- Secondary infection: the body may develop another infection unrelated to COVID-19[12]
- Acute kidney injury[13]
- Septic shock[14]
- Disseminated intravascular coagulation: abnormal clotting can lead to internal bleeding and organ failure[15]
- Blood clots including those causing pulmonary embolism[16]
- Multi-system inflammatory syndrome in children: some organs in the body become severely inflamed. Symptoms include fever, belly pain, vomiting, diarrhoea, headache, rash and confusion[17]
- Chronic fatigue: Symptoms may include brain fog, severe fatigue, pain, trouble thinking or dizziness[18]
- Rhabdomyolysis[19]
- Damage to the brain: even in young people, COVID-19 can cause strokes and Guillain Barre Syndrome.[20][21]

People with severe symptoms may be hospitalised and treated in the Intensive Care Unit with mechanical devices such as ventilators. **Surviving these experiences can make them more likely to suffer from post-traumatic stress disorder, depression and anxiety.**[22][23][24]

LONG COVID

WHO defines Long COVID as the continuation or development of new symptoms 3 months after the initial SARS-CoV-2 infection with these symptoms lasting for at least 2 months with no other explanation.[25]

The symptoms may include **fatigue, shortness of breath** and **cognitive dysfunction.**

10–20% of people

with over 17 million people across the WHO European Region have experienced Long Covid during the first two years of the pandemic (2020/21).[25]

In Australia, an AIHW review found that

5–10% of COVID-19 cases

reported symptoms persisting for more than 3 months with the vast majority resolving within 12 months.[26]

The key risk factors include:
severe COVID-19 illness, comorbidities, female, mid-adult age groups[26]

2 COVID-19 vaccination doses are associated with a

13%–47% lower risk of symptoms persisting beyond 4 weeks[27]

WHO IS MOST AT RISK?

You are at a high risk of becoming very sick from COVID-19 and needing hospital treatment, if you:[28]

- Are 70 years of age or older
- Are 50 years of age or older with two risk factors including neurological disease, chronic lung disease (moderate or severe asthma requiring inhaled steroids), heart disease, obesity, diabetes, kidney disease)
- Are Aboriginal and/or Torres Strait Islander, 30 years of age or older, with one of the risk factors above
- Are 18 years of age or older, and moderately to severely immunocompromised
- Live in a rural or remote area with limited access to healthcare
- Live in a residential aged care facility
- Have complex and significant disability
- Are pregnant
- Are on immunosuppressants
- Have certain health conditions

Among patients with vaccine breakthrough COVID-19 hospitalisations, 40-44% had immunosuppression.[29][30]

The Immunisation Coalition has supported the development of the

CoRiCal Long-COVID Calculator

which provides a personalised risk assessment of developing long COVID 6 months after infection

COVID-19 PREVENTION

COVID-19 cannot be controlled by one approach alon: a combination of wearing a mask, education, hygiene (particularly washing hands), social distancing, vaccination and antiviral treatments continue to be recommended.[30]

VACCINATION RECOMMENDATIONS:

ATAGI recommends a dose of COVID-19 vaccine for adults aged ⩾75 years every 6 months.[32]

ATAGI recommends the following groups receive a dose of COVID-19 vaccine every 12 months, and can consider a dose every 6 months, based on a risk-benefit assessment:

- Adults aged 65—74 years
- Adults aged 18—64 years with severe immunocompromise

The following groups can consider a COVID-19 vaccine every 12 months, based on a risk-benefit assessment:

- All other adults aged 18—64 years
- Children and adolescents aged 5—<18 years with severe immunocompromise

Table 1: Timing of further COVID-19 vaccine doses by age group and risk status[32]

Age	With Severe Immuno-compromise [#]	]Without Severe Im-munocompromise [#]
⩾75 years	Recommended every **6 months**	Recommended every **6 months**
65-74 years	Recommended every **12 months** & can consider a dose every **6 months**	Recommended every **12 months** & can consider a dose every **6 months**
18-64 years	Recommended every **12 months** & can consider a dose every **6 months**	Can consider a dose every **12 months**
5-17 years	Can consider every **12 months**	Not recommended
<5 years	Not recommended	Not recommended

[#] See the Australian Immunisation Handbook for definitions and examples of severe immunocompromise

Table 2. COVID-19 vaccines registered and available for use in Australia in March 2024, by age groups[32]

Vaccines	Omicron XBB.1.5 Vaccines (PREFERRED)				Bivalent Vaccines	Original (Ancestral) Vaccines	
	Comirnaty Omicron XBB.1.5 *6 month – <5 years formulation*	**Comirnaty Omicron XBB.1.5** *5– <12 years formulation (light blue cap)*	**Comirnaty Omicron XBB.1.5** *⩾12 years formulation (dark grey cap)*	**Spikevax Omicron XBB.1.5** *(pre-filled syringe)*	**Comirnaty Bivalent Original / Omicron BA.4/5** *(grey cap)*	**Comirnaty Original** *6 months – <5 years formulation (maroon cap)*	**Comirnaty Original** *5 – <12 years formulation recommend (orange cap)*
⩾12 years	X	X				X	X
5–11 years	X		X	X	X	X	
6 months to <5 years	*	X	X	X	X		X

Ages at which a vaccine is registered and available

X *Vaccine is not available for that age group*

* *Registration approved but supply not available at time of publication*

COVID-19 VACCINE EFFICACY

ADULTS

COVID-19 booster protects against omicron severe disease.[33]

An Australian-first COVID-19 vaccine effectiveness study has shown that receipt of a booster (third) COVID-19 vaccine dose provided 65% greater protection against hospitalisation/death from Omicron than two vaccine doses.

The study findings confirm that the COVID-19 vaccine schedule used in Australia protects against severe disease from Omicron SARS-CoV-2 infection.

For adults aged 70 years and older, the benefits were especially great with a significant reduction in hospitalisation or death from COVID-19. For every 192 adults aged 70 years and older who received a third dose, at least one hospitalisation or death was prevented. The benefits of a third dose were also significant in adults aged 40–69 years.

A data linkage study conducted in Victoria, Australia, assessed the relative effectiveness of three and four doses of the COVID-19 vaccine in preventing severe outcomes, such as hospitalisation and death, during an Omicron-dominant period from 1 June 2022 – 1 March 2023.[34] The study included 1,070,113 individuals aged 65 and older who had received at least two doses of the vaccine. Key findings include:

Third dose: within two weeks of administration, the relative vaccine effectiveness (rVE) of a third dose was 40% (95% CI: 0% to 64%) against severe outcomes compared to two doses.

Fourth dose: within two weeks of administration, the rVE of a fourth dose was 66% (95% CI: 60% to 71%) against severe outcomes compared to 2 doses.

The study found that the additional protection provided by the third and fourth doses waned over time.

The highest level of protection was observed within the first two weeks following administration, with the effectiveness decreasing gradually over subsequent months.

CHILDREN

A 2023 systemic review and meta-analysis on safety and efficacy of vaccines against COVID-19 in children aged 5–11 years found that after two doses, vaccine effectiveness against omicron infections was 41.6%, against symptomatic COVID-19 was 36.2%, and against COVID-19-related hospitalisations was 70.8%.

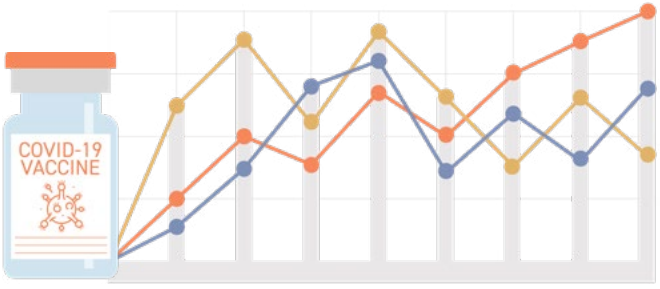
A third booster dose increased effectiveness against omicron infections to 55% and against symptomatic COVID-19 to 61%. The safety data showed no significant increase in the risk of serious adverse events or myocarditis, although some uncertainties remain due to limited data. The findings suggest that mRNA vaccines are moderately effective in protecting against COVID-19 in children and support their continued use in public health vaccination strategies.[35]

PRE-EXPOSURE PREVENTION

Evusheld (tixagevimab and cilgavimab) received provisional approval on 24 February 2022 for the prophylactic pre-exposure prevention of COVID-19 in adults and adolescents aged ›12 years, weighing at least 40kg,

- Who have moderate to severe immune compromise due to a medical condition or receipt of immunosuppressive medications or treatments that make it likely that they will not mount an adequate immune response to COVID-19 vaccination
- Or for whom vaccination with any approved COVID-19 vaccine is not recommended due to a history of severe adverse reaction (for example., severe allergic reaction) to a COVID 19 vaccine(s) and/or COVID-19 vaccine component(s).[31]

Tixagevimab and cilgavimab are monoclonal antibodies that stick to the spike protein on the COVID 19 virus and stop it from getting into the lungs. *Evusheld* is available on private script.



COVID-19 VACCINE SAFETY

AUSVAXSAFETY

As of 15 April 2024[36][37] 6,09,976 safety surveys completed:

- 56.3%% of participants reported no adverse event
- 43.7% of participants reported at least one adverse event
- 0.9% of participants reported visiting a doctor or emergency department

MYOCARDITIS AND PERICARDITIS AFTER COVID-19 VACCINES

mRNA vaccines[38]

- A small increased risk of myocarditis and/or pericarditis has been observed in people following vaccination with an mRNA vaccine compared with unvaccinated people.
- The risk was higher with *Moderna original* than with *Pfizer original*. There is no suggestion that rates are higher following the latest vaccine formulations compared with the original vaccines.
- Pericarditis and myocarditis after COVID-19 vaccines have been mostly reported in males under 40 years of age, and mostly after the second dose. However, these conditions do occur in people of all genders,, at any age, and after any dose.
- The recommended interval of 8 weeks between dose one and dose 2 of an mRNA vaccine may reduce the risk of these conditions, compared with a shorter interval.

Non-mRNA vaccines[38]

- Myocarditis and/or pericarditis can occur after *Novavax* at a similar rate to the mRNA vaccine, according to global reports. Myocarditis has been reported in approximately 4 in every 100,000 doses in Australia. Pericarditis has been reported in 13 in every 100,000 doses but is more common in men aged 18-49 years with a rate of 270 per million doses.
- A*straZeneca* was associated with a small increased risk of myocarditis and pericarditis, though this risk appeared lower than with *Moderna* or *Pfizer*.

HOW IS COVID-19 TREATED?

Doctors will need to review patients' medications and their current medical conditions to decide if a COVID-19 treatment is suitable for them. The types of COVID-19 treatments that are suitable will also depend on the severity of their COVID-19 illness.

Basic in-hospital treatment options include oxygen for severely ill patients, ventilation for patients who are critically ill and the use of *Dexamethasone* or other corticosteroids. Antivirals, immune modulators and monoclonal antibodies have also been used.

COVID-19 Antiviral Medication

Antiviral medications can help prevent severe COVID-19 if taken within five days of symptom onset.[39]

There are two COVID-19 oral antiviral treatments available for the treatment of COVID-19:

- Nirmatrelvir and Ritonavir (*Paxlovid*)
- Molnupiravir (*Lagevrio*)

These are available for eligible people who are vulnerable to severe disease such as older people, those with comorbidities, people who are immunosuppressed with a script from a GP.

Paxlovid

Paxlovid has provisional approval for the treatment of coronavirus disease 2019 (COVID-19) in adults 18 years of age and older, who do not require initiation of supplemental oxygen due to COVID-19 and are at increased risk of progression to hospitalisation or death.[40]

Lagevrio

Lagevrio (molnupiravir) has provisional approval for the treatment of adults with COVID19 who do not require initiation of oxygen due to COVID-19 and who are at increased risk for hospitalisation or death.[41]

Available on Pharmaceutical Benefits Scheme (PBS):

COVID-19 oral antiviral treatments nirmatrelvir and ritonavir (*Paxlovid*) and molnupiravir (*Lagevrio*) are available through the PBS for eligible patients.

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