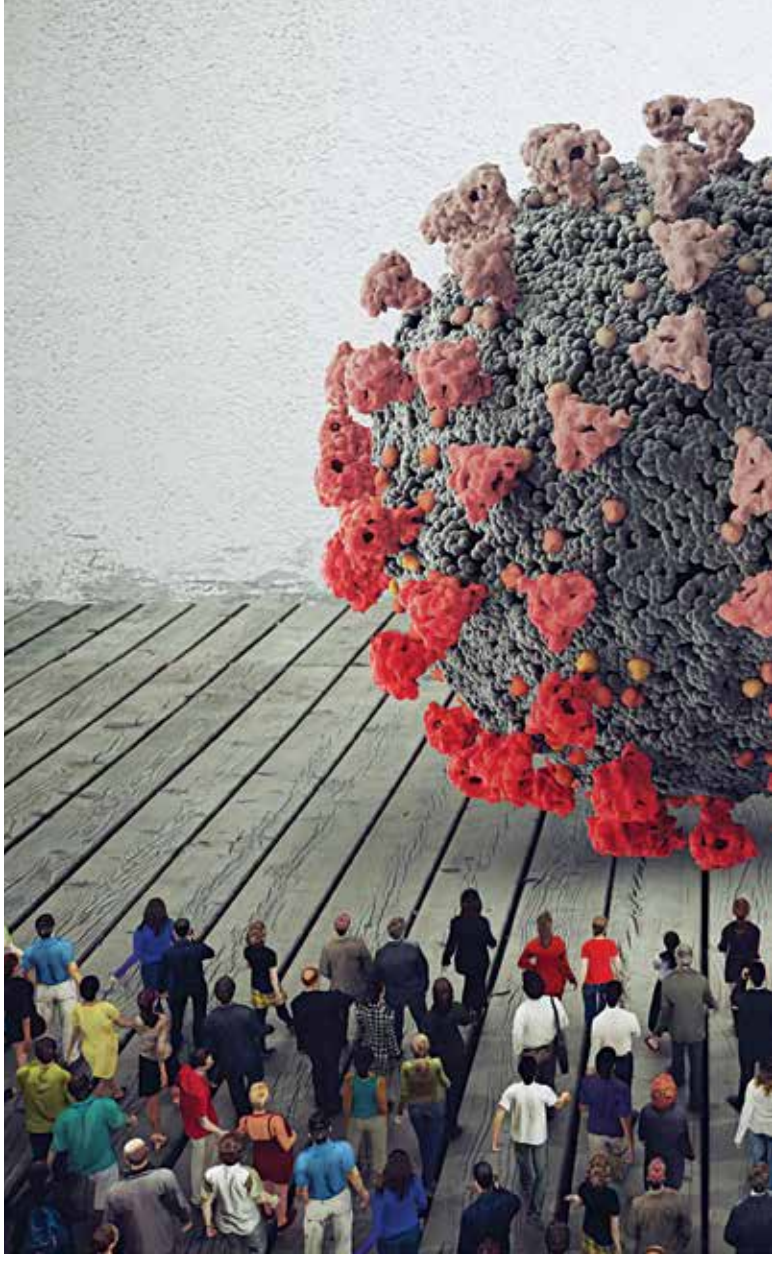
# Australia's COVID-19 vaccination program

**GEMMA REYNOLDS** MChD, BArts(Psych)
**JANINE M. TREVILLYAN** MB BS, FRACP, PhD

**The Australian Government intends to roll out up to three COVID-19 vaccines, with two already available (Pfizer and Oxford-AstraZeneca). These vaccines are expected to be safe for most Australians and to offer good protection against current virus strains. GPs are integral in the Government's vaccine roll-out strategy.**



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**DISCLAIMER:** *This article was accurate at the time of last review (24 March 2021) and includes updates on thrombosis risk to 6 April 2021. However, as information in this area is rapidly evolving, the authors and publisher refer readers to the ATAGI and Australian Government websites for the most up-to-date information.*

More than 100 million cases of COVID-19, the acute respiratory distress syndrome caused by the novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), have been reported globally. Even in Australia, where the pandemic has been reasonably well controlled, there have been more than 20,000 cases and more than 900 deaths.

RESPIRATORY MEDICINE TODAY 2021; 6(1): 4-10

Dr Reynolds is an Infectious Diseases Advanced Trainee in the Department of Infectious Diseases, Austin Health, Melbourne. Dr Trevillyan is Head of Clinical Virology and HIV Services, Department of Infectious Diseases, Austin Health; and Lead in the COVID-19 Vaccination Program for the Austin Hub, Melbourne, Vic.

A successful vaccination strategy holds the promise of reducing the extraordinary medical, social and financial costs that COVID-19 has created worldwide.

More than 200 COVID-19 vaccines are currently in development. In Australia, three main vaccines are likely to be used. At the time of writing, two of these have received provisional TGA approval: the Pfizer-BioNTech vaccine (Comirnaty) and the Oxford-AstraZeneca vaccine (ChAdOx1 or AZD1222, also known as COVID-19 Vaccine AstraZeneca).[1,2] Novavax's vaccine (NVX-CoV2373) is also likely to gain TGA approval.[3] This article discusses the safety, efficacy and use of these vaccines and the Australian Government's vaccination roll-out strategy.

## Vaccine technology

The Pfizer, Oxford-AstraZeneca and Novavax vaccines all utilise the SARS-COV-2 'spike' proteins as their core immunogenic target.[4-6] Spike proteins are virus-specific surface proteins that allow SARS-COV-2 to fuse with and enter host cells.[6] The vaccines aim to prime the immune system to recognise the SARS-COV-2 spike proteins and thus prevent overwhelming infection.

## Key points

- **The COVID-19 vaccines from Pfizer, Oxford-AstraZeneca and Novavax are expected to be safe for most Australians and to offer protection against COVID-19.**
- **Children aged under 16 years and patients with known allergy to vaccine components should not receive the vaccines.**
- **Older people and people with stable medical comorbidities are recommended to be vaccinated.**
- **Pregnant women may be counselled with the assistance of decision aids, and patients with significant immunosuppression should refer to subspecialty consensus guidelines.**
- **GPs are integral to the vaccination roll-out process, which began in February 2021.**
- **Suspected adverse vaccine events should be reported to the TGA.**

### Pfizer vaccine

The Pfizer vaccine has a novel mechanism of action that has not been widely used before. It consists of a small section of messenger RNA (mRNA) that encodes the SARS-COV-2 spike protein, sitting within a protective oily bubble of lipid nanoparticles.[7] Following vaccine administration, the SARS-COV-2 mRNA is taken up by macrophages, which then produce and present the spike protein to other immune cells.[7] This mimics the immune response that would result from natural infection.

As the mRNA encodes for only the surface protein, there is no risk of macrophages producing live virus or other viral components. Like human mRNA, the mRNA contained within the Pfizer vaccine is incredibly fragile and cannot be incorporated into the recipient's genome.

### Oxford-AstraZeneca vaccine

The Oxford-AstraZeneca vaccine also uses a novel technique. In this vaccine, a small segment of double-stranded DNA (dsDNA) that encodes SARS-COV-2 surface protein is 'piggy-backed' in a nonreplicant chimpanzee adenovirus.[8] Adenoviruses usually cause a mild upper respiratory syndrome, but this specific virus, although able to enter human cells, is not able to replicate within them. After the adenovirus enters a host cell, the segment of dsDNA is transcribed into mRNA, which is used by the cell to manufacture SARS-COV-2 spike protein. This is then presented on the outside of the cell to human immune cells, eliciting the desired immune response.[8]

### Novavax vaccine

The Novavax vaccine is a protein subunit vaccine, similar to the hepatitis B and acellular pertussis vaccines. It contains purified SARS-COV-2 spike proteins produced by infected insect cells along with Matrix-M1 adjuvant.[6,9] The adjuvant is included to boost the immune response to the spike protein and contains nanoparticles of saponins from the soapbox (*Quillaja*) tree, cholesterols and phospholipids.

## Vaccine dosing and storage

All three vaccines have a two-dose schedule and will be more effective after the second dose. The Pfizer and Novavax vaccine doses are given 21 days apart. The Oxford-AstraZeneca vaccine doses are recommended by the Australian Technical Advisory Group on Immunisation (ATAGI) to be administered 12 weeks apart.[10] This is because post-hoc modelling data suggest increased efficacy with a 12-week dosing schedule compared with a six-week schedule.[11]

The Pfizer vaccine has complex transport and storage requirements. A –80°C freezer is needed to keep it stable.[12] It is delivered in 'packs' of 190 vials, each vial containing five to six vaccine doses.[12,13] The Pfizer vaccine can remain viable in the freezer for six months, but after thawing to refrigerator temperatures it must be used within five days.[12] To limit wastage, patient appointments for vaccination are needed.

The Oxford-AstraZeneca and Novavax vaccines can be safely stored in the standard refrigerators (2 to 8°C) commonly available in most hospitals, general practices and pharmacies.[8,9,14] The Oxford-AstraZeneca vaccine, like the Pfizer vaccine, is supplied in multidose vials.

In the case of all three vaccines, after the vials have reached room temperature for administration, they must be used within six hours.

## Vaccine efficacy

At the time of writing, phase III trial data are available for the Pfizer and Oxford-AstraZeneca vaccines, whereas data for the Novavax vaccine have been reported only in statements to the media. Detailed statistics on the efficacy of these vaccines from these trials, including analysis by age group, are shown in Table 1.[7-9]

### Pfizer vaccine

Pfizer conducted a randomised controlled trial across several countries.[7] In patients who had received two doses of the vaccine, efficacy against COVID-19 was 95%. After only one dose, efficacy was 52%, indicating early protection, beginning 12 days after the first dose. About 40% of the Pfizer trial cohort were aged over 55 years. Vaccine efficacy in this age group was 93.7%.[7]

### Oxford-AstraZeneca vaccine

The Oxford-AstraZeneca vaccine phase III trial results are more complicated, derived from pooled data from four individual trials that tested different vaccine doses and schedules across three countries.[8] Efficacy in this trial has been widely quoted as 70.4%, but this was a combination of efficacy in people who received two standard doses (62.1%) and efficacy in those who received a low dose followed by a standard dose (90%).[8] As the latter dose change was a protocol error during the trial, this dosing regimen needs to be further validated before it is implemented.[8,11]

Further complicating results was variation in the interval between doses. An analysis of follow-up trial data found that vaccine efficacy with two standard doses was 55.1% in people with a dose interval less than six weeks but 81.3% in those with a dose interval of 12 weeks or more.[11]

A single dose of the Oxford-AstraZeneca vaccine had an efficacy of 76% against symptomatic COVID-19 in the first 90 days after vaccination.[11] However, it is unclear at what point the first dose 'becomes' effective, although a recent analysis of population data from Scotland after the introduction of mass vaccination showed some efficacy against COVID-19 hospitalisation from day 7 after vaccination (70%) and peak efficacy at days 28 to 34 (94%).[15] Similar population studies after widespread vaccination in England found that a single vaccine dose conferred a 37% lower risk of emergency hospitalisation.[16] Further evidence is needed to clarify protection against asymptomatic infection.[16]

### Novavax vaccine

Media releases have reported that the Novavax vaccine had an efficacy of 89.3% in phase III trials in the UK.[9] About one-third of the cohort was aged over 65 years, but we do not yet know how effective the vaccine was in this age group.

### Severe COVID-19

Although all three vaccines appear to protect against the development of severe COVID-19, commonly defined as COVID-19 respiratory infection requiring hospitalisation, there were few cases of severe COVID-19 in the phase III trials in either the vaccine or placebo groups.[7,8] 'Real world' data from population studies across England and Scotland suggest that with a program of vaccination with the Pfizer and Oxford-AstraZeneca vaccines, a single dose of either vaccine is at least 80% effective at preventing hospitalisation with severe disease.[15,16]

## Adverse events

Overall, the Pfizer and Oxford-AstraZeneca vaccines appear safe and well tolerated, with extremely low rates of serious adverse events. Mild adverse effects are common, with pain at the injection site and flu-like symptoms being those most reported (Table 2).[7-9,13,14]

Data have not yet been released on the adverse effects of the Novavax vaccine. However, press releases have stated it was well tolerated in clinical trials.

**Table 1. Efficacy of COVID-19 vaccines selected for use in Australia**

| Analysis | Efficacy (95% confidence interval) | | |
|---|---|---|---|
| | Pfizer-BioNTech vaccine (Comirnaty)[7] | Oxford-AstraZeneca vaccine (ChAdOx1)[8] | Novavax vaccine (NVX-CoV2373)[9]* |
| Overall efficacy at preventing symptomatic COVID-19 | • 95.0% (90.3 to 97.6%) | • 62.1 to 90%, depending on dosing regimen†<br>• Commonly reported as 70.4% (54.8 to 80.6%) | • 89.3% |
| Efficacy in older age groups | • 94.7% (66.7 to 99.9%) in 65 years and over age group<br>• 93.7% (80.6 to 98.8%) in 55 years and over age group | • Unclear (<4% aged over 70 years)<br>• No mixed-dose regimen in over 55 years age group | • Subanalysis not yet available (27% aged over 65 years) |
| Efficacy against severe COVID-19‡ | • 75% (-152.6 to 99.5%)<br>• Too few cases for analysis (one in vaccine group) | • No cases in vaccine group | • One case only in placebo group; insufficient to comment |

* Novavax data are not yet available for peer review.
† Efficacy was higher in those who received a low dose followed by a standard dose compared with those who received two standard doses.
‡ Severe COVID-19 as defined in the initial phase III trials, which required evidence of end-organ dysfunction.

**Table 2. Comparison of common adverse effects across the three vaccines[7-9,13,14]**

| Adverse effect | Pfizer-BioNTech vaccine | Oxford-AstraZeneca vaccine | Novavax vaccine |
|---|---|---|---|
| Pain at injection site | 80% | 60% | Reportedly well tolerated in clinical trials, data not yet released |
| Headache | 50% | 50% | |
| Fatigue | 60% | 50% | |
| Aches and pains | 20% | 40% | |
| Fever | 20% | 30% | |
| More common | • After second dose<br>• In younger people | • After first dose<br>• In younger people | |

### Severe adverse events

#### *Anaphylaxis*

The US Centers for Disease Control and Prevention reported that the Pfizer vaccine has an anaphylaxis rate of 11.1 per 1,000,000 vaccinations.[17] Patients who have an anaphylactic reaction to the first Pfizer vaccine dose should not be given a second dose. Patients with a history of anaphylaxis to polyethylene glycol (PEG) preservatives, which are found in medications such as doxorubicin and monoclonal therapies, should not receive the Pfizer vaccine.[17,18]

Recent independent review of data on the Oxford-AstraZeneca vaccine concluded there was no increased risk of anaphylaxis beyond what is expected with other vaccines.[19] There has been one case of transverse myelitis developing within two weeks of vaccine administration.[8]

#### *Thrombosis*

A recent question about an increased risk of thrombosis after use of the Oxford-AstraZeneca vaccine has not been supported by vaccine data, and an independent commission to the TGA recommended that the Oxford-AstraZeneca vaccine remains safe for use.[20] However, until results of ongoing investigations are available, ATAGI recommends that vaccination with any COVID-19 vaccine should be deferred for people with a history of the rare conditions cerebral venous sinus thrombosis (CVST) or heparin-induced thrombocytopenia.[21]

Further, several countries have suspended use of the Oxford-AstraZeneca vaccine in people younger than 55 or 60 years because of concerns about a possible link with unusual cases of thrombosis (predominantly CVST) occurring with thrombocytopenia. At the time of writing, Australia has recorded one unusual thrombosis event in 400,000 Oxford-AstraZeneca doses administered.[22]

ATAGI is meeting regularly and aims to provide clinician and patient advice on the vaccine and thrombosis in early April. As this is a rapidly evolving space, we recommend clinicians regularly check ATAGI statements to healthcare providers regarding thrombosis risk (www.health.gov.au/news/atagi-statement-healthcare-providers-specific-clotting-condition-reported-after-covid-19-vaccination).[23]

### Reporting adverse events

The TGA will continue to monitor vaccine adverse events and encourages reporting from both consumers and health professionals (www.tga.gov.au/reporting-suspected-side-effects-associated-covid-19-vaccine).

## Vaccine recommendations for specific populations

All three vaccines were tested on relatively young and healthy populations. Following is a summary of our understanding to date of vaccine efficacy and safety in patients with comorbid medical conditions.

### People with medical comorbidities

The COVID-19 vaccines are expected to be safe for patients with stable medical

comorbidities. About 10 to 20% of trial patients who received the Pfizer and Oxford-AstraZeneca vaccines had stable comorbidities such as diabetes and pulmonary hypertension. There was no decrease in efficacy or increase in adverse events for patients with these comorbidities.[7,8] Data on medical comorbidities and vaccination from the Novavax vaccine trials are yet to be published.

### 1. Position statements and advice on immunosuppression and COVID-19 vaccination

- **Australia and New Zealand Transplant and Cellular Therapies. COVID19 vaccination consensus position statement** https://anztct.org.au/anztct-covid-19-vaccination-position-statement
- **Australasian Society of Clinical Immunology and Allergy. Allergy, immunodeficiency, autoimmunity and COVID-19 vaccination position statement** www.allergy.org.au/hp/papers/ascia-hp-position-statement-covid-19-vaccination
- **Australian Rheumatology Association. COVID-19 vaccination for rheumatology patients** https://rheumatology.org.au/members/documents/20210125 COVID vaccination for Rheum Patients-Jan21.pdf
- **Cancer Australia. COVID-19 vaccines and cancer: health professional guidance** www.canceraustralia.gov.au/affected-cancer/covid-19-and-cancer/health-professionals/covid-19-vaccines-and-cancer
- **Haematology Society of Australia and New Zealand. COVID-19 vaccination in haematology patients: an Australia and New Zealand Consensus position statement** www.hsanz.org.au/news/10054698
- **Medical Oncology Group of Australia (MOGA). COVID-19 vaccination in patients with solid tumours position statement** www.moga.org.au/all-position-statements/covid-19-vaccination-in-patients-with-solid-tumours

**People receiving immunosuppressive therapies or with immune compromise**

The COVID-19 vaccine trials largely excluded patients receiving immunosuppressive therapies, including regular systemic corticosteroids, disease-modifying antirheumatic drugs (DMARDS), monoclonal antibodies, cancer therapies and intravenous immunoglobulin. However, no increased risk of adverse events is expected among immunocompromised patients. None of the vaccines are live vaccines.

Further research is required to assess the efficacy of the COVID-19 vaccines in these populations, and particularly a patient's ability to mount protective responses following vaccination while immunosuppressed. Ongoing public health measures, including hand hygiene, mask-wearing and social distancing, are key to preventing COVID-19 infection in immunocompromised patients.

Individual advice regarding vaccine efficacy for specific subpopulations or specific immunosuppressive medications is beyond the scope of this review and requires input from multiple subspecialty stakeholders. Expert consensus statements and other sources of advice on COVID-19 vaccination for rheumatology, haematology and oncology patients are listed in Box 1, and treating specialists should be consulted.

**People living with HIV**

Subanalyses of vaccine data for people living with HIV (PLWH) are awaited from the Pfizer and Oxford-AstraZeneca trials. At present, expert opinion supports COVID-19 vaccination for PLWH.

**Pregnant and breastfeeding women**

Pregnant and breastfeeding women were excluded from trials of all three vaccines. The Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) recommends against routine vaccination of pregnant and breastfeeding women because of the paucity of safety data. However, RANZCOG notes there are no current signals of safety concern for any of the trialled vaccines.[24,25] Overseas obstetrics societies encourage pregnant women with an immunosuppressive comorbidity such as a solid-organ transplant, congenital heart disease or requirement for dialysis to have an individualised discussion with their healthcare provider.[26] A decision aid for women who are pregnant, breastfeeding or planning pregnancy is available from the Department of Health (www.health.gov.au/resources/publications/covid-19-vaccination-covid-19-vaccination- decision-guide-for-women-who-are-pregnant-breastfeeding-or-planning-pregnancy).

**Children**

The vaccines were not trialled in children aged under 16 years and have not been approved for paediatric administration.

**Phase 1a – up to 1.4 million doses** — Ongoing

| | |
|---|---|
| Quarantine and border workers | 70,000 |
| Frontline healthcare worker subgroups for prioritisation | 100,000 |
| Aged care and disability care staff | 318,000 |
| Aged care and disability care residents | 190,000 |
| **Total** | **678,000** |

**Phase 1b – up to 14.8 million doses**

| | |
|---|---|
| Elderly adults aged 80 years and over | 1,045,000 |
| Elderly adults aged 70 to 79 years | 1,858,000 |
| Other healthcare workers | 953,000 |
| Aboriginal and Torres Strait Islander people aged 55 years or over | 87,000 |
| Younger adults with an underlying medical condition, including those with a disability | 2,000,000 |
| Critical and high risk workers including defence, police, fire, emergency services and meat processing | 196,000 |
| **Total** | **6,139,000** |

### People with allergies

People with food, nut, egg, antibiotic or latex allergies can safely receive either the Pfizer or Oxford-AstraZeneca vaccine. People with known allergies to vaccine ingredients should not receive the relevant vaccine.[18] These include PEG (Pfizer vaccine) and polysorbate 80 (Oxford-AstraZeneca vaccine).[27] A full list of vaccine excipients is available in the Product Information.[13,14]

## Emerging SARS-COV-2 strains and future vaccine directions

New variants of SARS-COV-2 are emerging. Subanalyses of the AstraZeneca vaccine studies reported 74.6% efficacy against the B.1.1.7 ('UK' or 'Kent') variant but noted that only a small number of people were infected with this variant in the initial trials (N = 34).[8] Pfizer has examined the effect of vaccine antibodies against the B.1.1.7 variant and found no difference in neutralisation effect compared with the vaccine effect on wildtype SARS-CoV-2.[28]

The B.1.351 ('South African') variant is more concerning. Pfizer reports a decrease in the neutralisation efficacy of its vaccine based on an in-vitro study of vaccine-produced antibodies against this variant.[29] AstraZeneca reports 10.4% efficacy of its vaccine based on a small population of variant-infected patients (N = 39) in the initial trials.[30]

Less is known about how the P.1 ('Brazil') variant, which was identified in January 2021, will respond to existing vaccines. Some pre-print data suggest it is less amenable to neutralisation by convalescent sera from patients infected with wildtype SARS-CoV-2.[31] The implications of this for reinfection or vaccine escape are unclear.[31]

Media statements from vaccine developers suggest it is possible to re-engineer both the Pfizer and Oxford-AstraZeneca vaccines against future COVID-19 variants.[32] However, each new vaccine will require engineering, due process and testing before it is commercially available.

## Australia's vaccine roll-out plan

The Federal Government aims for all people in Australia who wish to be vaccinated to have received a COVID-19 vaccine by the end of October 2021. The Pfizer vaccine was the first vaccine available in Australia. The Oxford-AstraZeneca vaccine is now also available and is being manufactured in Australia. The roll-out process and priority groups are outlined in the Figure.[33] Phase 1a, which began on 22 February, focuses on vaccinating high-risk people who are most likely to be exposed to COVID-19, such as quarantine and frontline health workers, as well as those most at risk, such as aged care residents.[33] Phase 1b, which includes people aged 70 years and over, younger people with underlying medical conditions or Indigenous background, other healthcare workers and critical and high-risk workers, began on 22 March. Phase 2a is currently expected to begin in May.

The individual states and territories collaborated with the Federal Government to decide on vaccine 'hubs' in regional and metropolitan areas, capable of storing the Pfizer vaccine for the Phase 1 roll-out. At a state and then local level, these vaccine hubs are co-ordinating the roll-out of thawed vaccine product to vaccine clinics and aged care and disability care facilities.

GPs are integral to the further roll-out process in several ways, from offering vaccinations at their clinics and delivering vaccinations within residential care to facilitating postvaccination care and monitoring of vulnerable patients. Practice administration, especially, will be important for organising and ensuring delivery of the second vaccine dose. Your practice may be contacted to assess its suitability for vaccine delivery. We expect that many of the GP respiratory clinics established during the pandemic will be utilised for vaccine delivery.

## Vaccine administration and monitoring

All providers of COVID-19 vaccination are required to complete an online training module (www.health.gov.au/initiatives-and-programs/covid-19-vaccines/covid-19-vaccination-training-program). Informed consent should be obtained before vaccine administration. As with other vaccines, administration of COVID-19 vaccines should be postponed in individuals with an acute severe febrile illness or acute infection. Coadministration of COVID-19 vaccine with other vaccines is not routinely recommended. A minimum 14-day interval is recommended between administration of a COVID-19 vaccine and any other vaccine, including influenza vaccine.[10]

The COVID-19 vaccine should be administered by intramuscular injection into the

**Phase 2a – up to 15.8 million doses**

| | |
|---|---|
| Adults aged 60 to 69 years | 2,650,000 |
| Adults aged 50 to 59 years | 3,080,000 |
| Aboriginal and Torres Strait Islander people aged 18 to 54 years | 387,000 |
| Other critical and high risk workers | 453,000 |
| **Total** | **6,570,000** |

**Phase 2b – up to 16 million doses**

| | |
|---|---|
| Balance of adult population | **6,643,000** |
| *Catch up any unvaccinated Australians from previous phases* | |

**Phase 3 – up to 13.6 million doses**

| | |
|---|---|
| < 18 years if recommended | **5,670,000** |

**Figure. Australia's national COVID-19 vaccination roll-out strategy.[33]**

### 2. National and state- or territory-specific information on the COVID-19 vaccination roll-out

**National:** www.health.gov.au/initiatives-and-programs/covid-19-vaccines (hotline, 1800 020 080)

**ACT:** www.covid19.act.gov.au/stay-safe-and-healthy/vaccine

**NSW:** www.health.nsw.gov.au/Infectious/covid-19/Pages/covid-vaccination.aspx

**Northern Territory:** https://coronavirus.nt.gov.au/stay-safe/vaccinations

**Queensland:** www.qld.gov.au/health/conditions/health-alerts/coronavirus-covid-19/protect-yourself-others/covid-19-vaccine

**South Australia:** www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/conditions/infectious+diseases/covid-19/vaccine

**Tasmania:** https://coronavirus.tas.gov.au/vaccination-information/covid-19-vaccination

**Victoria:** www.dhhs.vic.gov.au/vaccines-and-medications-patients-coronavirus-covid-19 (hotline, 1800 675 398)

**Western Australia:** ww2.health.wa.gov.au/Articles/A_E/Coronavirus/COVID19-vaccination-program

### 3. Resources for GPs on Australia's COVID-19 vaccination program

**Royal Australian College of General Practitioners**

- **COVID-19 vaccine information for GPs**
  www.racgp.org.au/clinical-resources/covid-19-vaccine-resources/news-and-updates/covid-19-vaccine-information-for-gps

**Australian Government Department of Health**

- **Information for COVID-19 vaccination providers**
  www.health.gov.au/initiatives-and-programs/covid-19-vaccines/information-for-covid-19-vaccination-providers
- **COVID-19 vaccination training program**
  www.health.gov.au/initiatives-and-programs/covid-19-vaccines/covid-19-vaccination-training-program
- **COVID-19 vaccination – Phase 1b rollout**
  www.health.gov.au/resources/publications/covid-19-vaccination-phase-1b-rollout
- **COVID-19 vaccination decision guide for women who are pregnant, breastfeeding or planning pregnancy**
  www.health.gov.au/resources/publications/covid-19-vaccination-covid-19-vaccination-decision-guide-for-women-who-are-pregnant-breastfeeding-or-planning-pregnancy
- **Subscribe to COVID-19 weekly updates for GPs**
  www.health.gov.au/using-our-websites/subscriptions/subscribe-to-covid-19-weekly-updates-for-gps

**Australian Technical Advisory Group on Immunisation (ATAGI)**

- **Clinical guidance on use of COVID-19 vaccine in Australia in 2021**
  www.health.gov.au/sites/default/files/documents/2021/03/covid-19-vaccination-atagi-clinical-guidance-on-covid-19-vaccine-in-australia-in-2021_0.pdf
- **Updated ATAGI statement for healthcare providers on a specific clotting condition being reported after COVID-19 vaccination**
  www.health.gov.au/news/atagi-statement-healthcare-providers-specific-clotting-condition-reported-after-covid-19-vaccination

**Therapeutic Goods Administration (TGA)**

- **Reporting suspected side effects associated with a COVID-19 vaccine**
  www.tga.gov.au/reporting-suspected-side-effects-associated-covid-19-vaccine

deltoid muscle.[10] Patients should be kept under close observation for at least 15 minutes afterwards. As with any vaccine, appropriate medical treatment should always be readily available in case of an anaphylactic reaction. For convenience, an appointment for the second vaccine dose can be booked at six or 12 weeks (depending on the vaccine received).

If required, antipyretics and analgesics can be taken after vaccination for management of vaccine-related side effects such as fever and myalgia. Clinicians should be alert for 'red flag' features of CVST or other thrombosis, including any new, severe, persistent headache or other significant symptoms such as severe abdominal pain with onset four to 20 days after administration of the Oxford-AstraZeneca vaccine.[23] For any COVID-19 vaccine, as for all vaccines, they should be alert for any persistent, unexpected or severe adverse event after vaccination.

National data collection is important for ensuring fair vaccine delivery and for monitoring adverse events. Practitioners administering vaccines will be responsible for entering data into the Australian Immunisation Register, as well as for reporting adverse events.

## Useful information during the roll-out

The vaccine roll-out is an emerging space. Up-to-date information will be provided by government health websites. We encourage readers to visit the state or territory and federal COVID-19 websites frequently for the most accurate information (Box 2). Other resources for GPs on Australia's vaccination program are listed in Box 3.

## Conclusion

Australia has agreements to purchase three of the more than 200 COVID-19 vaccines currently in development. At the time of writing, the vaccination program is rolling out two of these, the Pfizer and the Oxford-AstraZeneca vaccines. These vaccines are expected to be safe for most Australians and to offer good protection against current virus strains. GPs can make an important contribution to the vaccine roll-out process through administering vaccines and monitoring patients. The COVID-19 vaccine space is changing rapidly, and the most up-to-date information will be available through the resources listed above. **RMT**

## References

A list of references is included in the online version of this article (www.respiratorymedicinetoday.com.au).

COMPETING INTERESTS: Dr Trevillyan has received speaker fees from Gilead Health Sciences unrelated to this project. Dr Reynolds: None.

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**GEMMA REYNOLDS** MChD, BArts(Psych); **JANINE M. TREVILLYAN** MB BS, FRACP, PhD

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