In brief

COVID-19 vaccines in Australia

14 October 2021

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- Internationally, 22 vaccines have been approved for use and 6.56 billion vaccine doses have been administered.[1, 2]
- All vaccines that are approved for use have strong safety profiles and benefit to risk ratios.[3]
- In Australia, three vaccines have been approved for use and a further two have provisional determinations. To 10 October 2021, approximately 18.1 million doses of Comirnaty (Pfizer), 12.5 million doses of Vaxzevria (AstraZeneca) and 298,000 doses of Spikevax (Moderna) vaccines have been administered.[4]
- Vaxzevria,[5] Comirnaty,[6] and Spikevax[7] vaccines have been shown to:
    - reduce symptomatic disease and mortality[5-7]
    - reduce the chance of onward transmission by 40-50%[8]
    - reduce hospitalisation rates in 'real world' effectiveness studies, Vaxzevria by 80% to 95%, Comirnaty by 71% to 97%, and Spikevax by 95.7% to 98.2%.[9-13]
- For all vaccine types, death is an extremely rare adverse event.[14]
- In Australia as of 10 October 2021, out of 12.5 million doses of Vaxzevria vaccine administered, there have been 152 reports of blood clots assessed as thrombosis with thrombocytopenia syndrome (TTS).[4] There have been nine reported deaths; eight from TTS and one from immune thrombocytopenia.[4]
- Knowledge about how to manage TTS has developed swiftly.[15, 16]
- There have also been concerns with mRNA vaccines (Comirnaty and Spikevax) and myocarditis. To 10 October 2021, for Comirnaty, there have been 269 reports of suspected myocarditis alone or in combination with pericarditis, with 31 of these reports in adolescents (12 to 17 years-old). For Spikevax, there have been one report of suspected myocarditis and 13 reports of suspected pericarditis alone. There have been no reported deaths.[4]
- The protective benefits of vaccination against COVID-19 far outweigh the potential risks.[4]
- For vector vaccines such as Vaxzevria, there is evidence of long-lasting immune responses.[17] Questions remain on the longevity of immune responses induced by mRNA vaccines, with emerging evidence of a decline in antibody titres 3 - 6 months post Comirnaty vaccination.[18-20] The evidence for universal booster vaccination is weak.[21] ATAGI recommends a third dose of vaccine as part of the primary course in individuals who are severely immunocompromised.[22]
- A recent pre-print study found vaccine effectiveness against hospitalisation and death was sustained with limited waning more than 20 weeks post-vaccination with Vaxzevria or Comirnaty.[23]
- To date, no vaccine has been shown to be entirely effective at preventing transmission.
- There are reports of breakthrough infections in fully vaccinated individuals. If infected with the Delta variant, vaccinated people have a similar viral load to unvaccinated. This suggests that non-pharmaceutical interventions are still required post vaccination.[24]

The Critical Intelligence Unit maintains a living evidence table on COVID-19 vaccines which was used to inform this brief.[25]

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