In brief

COVID-19 vaccines in Australia – AstraZeneca and Pfizer

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- Internationally, 22 vaccines have been approved for use and 5.38 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 29 August 2021, approximately 9.4 million doses of Pfizer and 9.6 million doses of AstraZeneca vaccines have been administered.\(^4\)
- Both AstraZeneca \(^5\) and Pfizer \(^6\) vaccines have been shown to:
  - reduce symptomatic disease and mortality \(^5\), \(^6\)
  - reduce the chance of onward transmission by 40-50% \(^7\)
  - reduce hospitalisation rates in ‘real world’ effectiveness studies, AstraZeneca by 80% to 95% and Pfizer by 71% to 97%.\(^8\)-\(^10\)
- For all vaccine types, death is an extremely rare adverse event.\(^11\)
- In Australia as at 29 August 2021, out of 9.6 million doses of AstraZeneca vaccine, there have been 125 reports of blood clots assessed as thrombosis with thrombocytopenia syndrome (TTS).\(^4\) There have been nine reported deaths; eight cases of TTS and one case of immune thrombocytopenia.\(^4\)
- Knowledge about how to manage TTS has developed swiftly.\(^12\), \(^13\)
- There have also been concerns with Pfizer and myocarditis. To 29 August 2021, there have been 293 cases in Australia of suspected myocarditis and/or pericarditis. There have been no reported deaths.\(^4\)
- According to the TGA, which monitors vaccine safety, the protective benefits of vaccination against COVID-19 far outweigh the potential risks.\(^4\)
- For vector vaccines such as AstraZeneca, there is evidence of long-lasting immune responses.\(^14\) 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 Pfizer vaccination.\(^15\)-\(^17\)
- To date, no vaccine has been shown to be entirely effective at preventing transmission.
- There are reports of breakthrough infections in fully vaccinated individuals. With Delta, vaccinated people – if infected - have a similar viral load to unvaccinated. This suggests that non-pharmaceutical interventions are still required.\(^18\)
- There have been some concerns about the politicization of messaging about the different vaccines and manufacturers.
The Critical Intelligence Unit maintains a living evidence table on COVID-19 vaccines which was used to inform this brief.19

References

In brief documents are not an exhaustive list of publications but aim to provide an overview of what is already known about a specific topic. This brief has not been peer-reviewed and should not be a substitute for individual clinical judgement, nor is it an endorsed position of NSW Health.
17. De-Leon H, Pederiva F. Using a physical model and aggregate data from Israel to estimate the current (July 2021) efficacy of the Pfizer-BioNTech vaccine. medRxiv. 2021:1-29. DOI: 10.1101/2021.08.10.21261856

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