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## **ATAGI 2023 Annual Statement on Immunisation**

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# Communicable Diseases Intelligence

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# ATAGI 2023 Annual Statement on Immunisation

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*The Australian Technical Advisory Group on Immunisation (ATAGI) 2023 Annual Statement on Immunisation is the third publication in this series. It highlights the key successes, trends and challenges in the use of vaccines and control of vaccine preventable diseases (VPDs) in Australia in 2022. It also signals ATAGI's priority actions for addressing key issues for 2023 and beyond.*

## Summary

In 2022, governments across Australia eased coronavirus disease 2019 (COVID-19) pandemic-related community and border control measures. This was associated with increased rates of some common VPDs, in particular influenza, as social interactions increased. There were also significant outbreaks of two newly emerged diseases, Japanese encephalitis (JE) and mpox (formerly known as monkeypox). The responses to these new Communicable Disease Incidents of National Significance (CDINS) included establishing vaccination programs against these diseases.

## Key highlights in immunisation in 2022

- The national COVID-19 vaccination program continued throughout 2022, including the expansion of vaccine eligibility to all children aged 5 years and over, and to some at-risk children aged 6 months to under 5 years. New variant-based COVID-19 vaccines also came into use.
- ATAGI recommended booster doses of COVID-19 vaccines for adults and adolescents in response to emerging evidence on COVID-19 vaccine effectiveness and new variant epidemic waves. By the end of 2022, a total of 69% of people aged 16 years and over had received 3 doses of a COVID-19 vaccine. A first booster dose was recommended for all people aged 16 years and over.
- ATAGI worked alongside other key national, state and territory governing bodies to respond to outbreaks of influenza, JE and mpox. ATAGI developed and expanded vaccine recommendations for JE and mpox, and governments delivered these safe and effective vaccines across Australia.
- The National Immunisation Program (NIP) maintained high levels of coverage, which is important to ensure continued protection against VPDs as COVID-19 restrictions are lifted.
- ATAGI provided advice to the Australian Government on the potential effectiveness and safety of moving from a two-dose to a one-dose human papillomavirus (HPV) vaccine schedule under the NIP. This underpinned changes to the program that started in February 2023.

- ATAGI began work on recommendations for several other vaccines, including pneumococcal and zoster.

Key challenges, priorities and strategies for immunisation in Australia in 2023 and beyond:

- Responding to emerging VPDs such as JE and mpox, and planning response strategies for re-emerging VPDs such as measles and polio.
- Continuing to provide timely advice as the COVID-19 vaccination program integrates into a more routine national vaccination program.
- Monitoring safety and effectiveness of new and established COVID-19 vaccines.
- Maintaining community confidence in vaccines delivered as part of the NIP and in other recommended vaccines.
- Increasing vaccination uptake for groups at higher risk of VPDs.
- Monitoring and evaluating new or changed vaccination programs including JE, mpox and HPV.
- Maintaining high one-dose coverage of HPV vaccine for recommended population groups.
- Planning for the introduction of new vaccines, likely to include respiratory syncytial virus (RSV) vaccine and higher-valency pneumococcal vaccines.

## Immunisation issues in Australia in 2022

### Emerging and re-emerging vaccine-preventable diseases in 2022

In 2022, COVID-19 border control measures were largely removed. This increased the risk of re-emerging VPDs, such as measles and poliomyelitis, entering Australia. Outbreaks of JE and mpox were declared as CDINS. As part of the public health response to emerging and re-emerging VPDs in Australia, ATAGI formed several subgroups to develop national vaccination guidance.

#### Japanese encephalitis

JE is an infection of the brain caused by the Japanese encephalitis virus (JEV) that is present in parts of South-East Asia and China. Previously, JE had not been transmitted on the

Australian mainland, apart from one episode in 1998 and one in 2004. Before 2022, only travellers to endemic JEV areas and residents of the Torres Strait Islands were routinely advised to be vaccinated against JE.

On 4 March 2022, JE was declared a national CDINS after a human case was reported in Queensland.<sup>1</sup> The virus had previously been notified at piggeries in eastern Australian states. On 24 March 2022, ATAGI expanded JE vaccine recommendations to include all people over two months of age in high-risk settings in Australia.<sup>2</sup> State and territory health departments were responsible for defining eligibility criteria for people in high-risk settings and for distributing vaccines (Imojev and JEspect).

States and territories delivered JE vaccination to people with a high risk of exposure. In 2022, at least 85,930 people completed a course

of a JE vaccine. During this time, there were 41 notified human cases of JE in Australia and five reported deaths.

### **Mpox (formerly known as monkeypox)**

Mpox is a viral disease caused by infection with the mpox virus. It is part of the same family of viruses that causes smallpox.

In May 2022, cases of mpox were identified in several non-endemic countries, including in North America and South America, and across Europe.<sup>3</sup> The first case of mpox in Australia was reported in May 2022. On 28 July 2022, mpox was declared a national CDINS.<sup>4</sup> During 2022, there were 144 notified cases of mpox in Australia, with no notified deaths.

ATAGI released guidance on the use of smallpox vaccines for protection against mpox virus infection.<sup>5</sup> ATAGI identified key population groups with a high risk of exposure and recommended they be vaccinated with either JYNNEOS or ACAM2000. These smallpox vaccines are expected to provide effective protection against mpox. JYNNEOS is the preferred vaccine for both pre-exposure and post-exposure prophylaxis against mpox. Specialist providers could access a limited supply of ACAM2000 before JYNNEOS became available in Australia.

In 2022, a total of 16,954 people completed a course of a smallpox vaccine. The vaccines were distributed via states and territories.

Cases of mpox in Australia peaked in August 2022 and have since declined, although transmission remains an ongoing issue in some countries. ATAGI will continue to monitor epidemiology in Australia and globally throughout 2023.

### **Poliomyelitis**

Australia has remained polio-free since eliminating the disease in 2000. In 2022, cases of vaccine-derived polio were identified in the United States of America (USA), Israel, Somalia, Yemen and several African countries.<sup>6</sup>

Poliovirus was also identified in wastewater in Egypt, Israel, the UK, Ukraine, the USA, the eastern Mediterranean region and central Africa. Australia is considered to be at low risk of a sustained polio outbreak due to high levels of vaccine coverage and good sanitation.

Children need four doses of polio vaccine. Getting vaccinated on time is important, so that protection from the vaccine does not wane. Of those children who received the fourth polio vaccine dose, due at 4 years of age, 35% were 1 to 3 months late for vaccination.

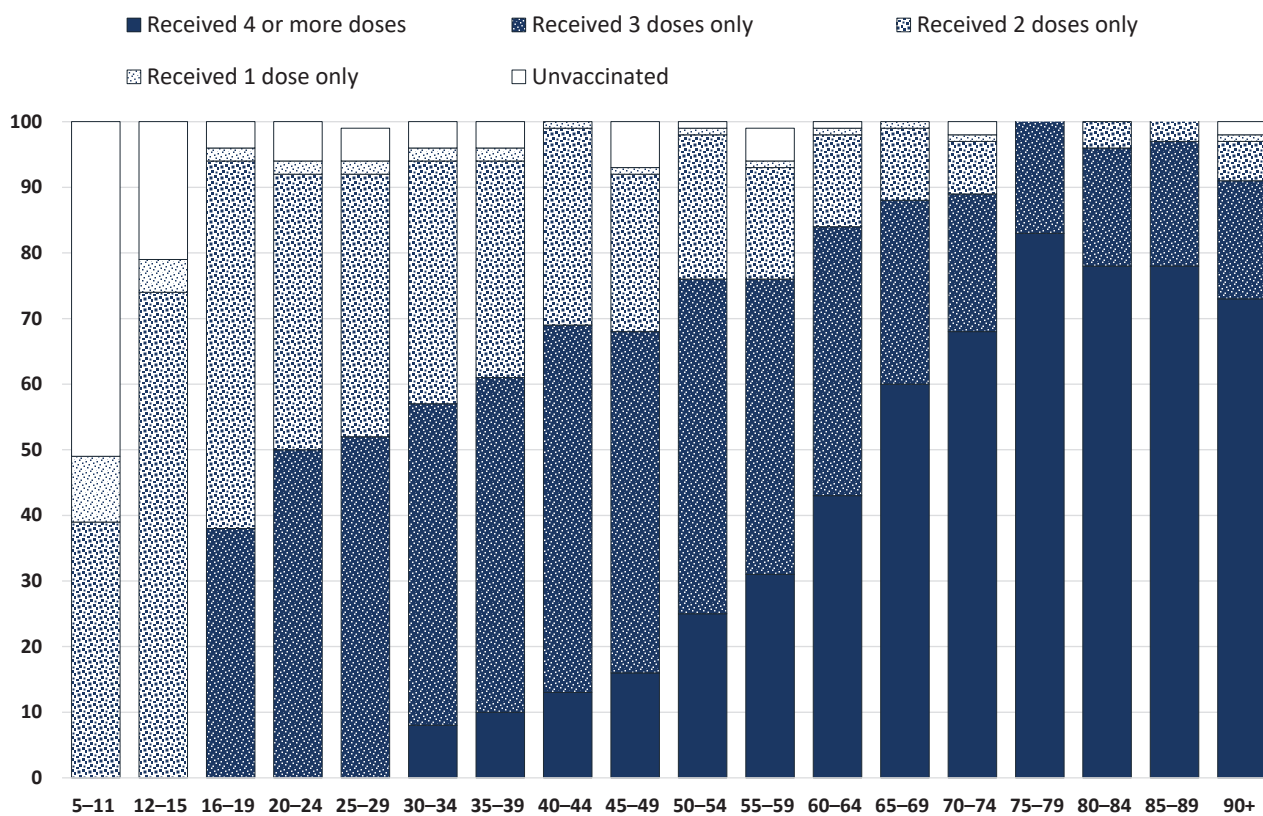
Some regions and population groups in Australia remain under-vaccinated. One of ATAGI's ongoing priorities is to increase vaccination uptake in these communities. ATAGI continues to monitor vaccination coverage and control of poliovirus in Australia and globally.

### **Measles**

Seven cases of measles were reported in Australia in 2022. All infections were acquired overseas. The last reported case before 2022 was in March 2020, before international borders closed due to COVID-19. Measles was officially eliminated as an endemic disease in Australia in 2014. Since then, all cases and outbreaks have been linked to overseas travel.

The COVID-19 pandemic has significantly disrupted measles immunisation programs and disease surveillance in many countries around the world.<sup>7</sup> COVID-19 restrictions, reduced international travel, and decreased surveillance have likely contributed to a low incidence of measles since 2020. However, in 2022, there was a resurgence of measles across some World Health Organization regions, including the Asia-Pacific. There remains a significant risk of measles importation into Australia. ATAGI continues to monitor the global epidemiology and maintain preparedness for a measles outbreak in Australia.

Figure 1 : COVID-19 vaccination dose coverage by age, as percentage of estimated eligible residential population in Australia<sup>a</sup>



a Source: Weekly COVID-19 reporting, COVID-19 vaccinations (Australian Government Department of Health and Aged Care, 27 January 2023).

**Table 1. ATAGI recommendations regarding use of COVID-19 vaccines provisionally approved by the TGA in 2022<sup>a,b</sup>**

Month (2022)	Provisional approval by TGA <sup>11</sup>	Recommendation by ATAGI
January	Novavax for use as the primary course in people aged 18 years and over. Pfizer for use as a booster dose in adolescents aged 16 to 17 years.	A third primary dose for severely immunocompromised children aged 5 to 11 years. <sup>12</sup> Novavax can be used for the primary course in people aged 18 years or older. <sup>13</sup>
February	AstraZeneca for use as a booster dose in people aged 18 years and over. Moderna for use as the primary course in children aged 6 to 11 years.	A first booster dose for all adolescents aged 16 to 17 years. <sup>14</sup> Moderna for the primary course in children aged 6 to 11 years. <sup>15</sup>
March		A second booster dose for groups at higher risk of severe COVID-19. <sup>16</sup>
April	Pfizer for use as a booster dose in adolescents aged 12 to 15 years.	
May		A second booster dose for some people aged 16 to 64 years who are at increased risk of severe COVID-19. <sup>17</sup>
June	Novavax for use as a booster dose in people aged 18 years and over.	A first booster dose for some adolescents aged 12 to 15 years who are at increased risk of severe COVID-19. <sup>18</sup>
July	Novavax for use as the primary course in adolescents aged 12 to 17 years. Moderna for use as the primary course in children aged 6 months to under 6 years.	A second booster dose for all people aged 50 to 64 years. <sup>19</sup>
August	Moderna bivalent (original/Omicron) for use as a booster dose in people aged 18 years and over.	Moderna for some children aged 6 months to under 5 years who are at increased risk of severe COVID-19. <sup>20</sup> Novavax for the primary course in adolescents aged 12 to 17 years. <sup>21</sup>
September	Pfizer for use as a booster dose in children aged 5 to 11 years. Pfizer for use in children aged 6 months to under 5 years.	Moderna bivalent (original/Omicron) as a booster dose in people aged 18 years and over. <sup>22</sup>
October	Pfizer bivalent (original/Omicron) for use in people aged 18 years and over. Moderna for use as a booster dose in people aged 12 years and over.	A booster dose of Pfizer for some children aged 5 to 11 years who are at increased risk of COVID-19. <sup>23</sup>
November		Pfizer bivalent (original/Omicron) can be used as a booster dose in people aged 18 years and over. <sup>24</sup> Pfizer as the primary course for some children aged 6 months to under 5 years who are at increased risk of severe COVID-19. <sup>25</sup>

a ATAGI recommendations may change over time, due to changes in COVID-19 epidemiology and other factors. These links refer to ATAGI recommendations from the specified month in 2022. For current guidance, see ATAGI clinical guidance for COVID-19 vaccine providers.<sup>5</sup>

b Brand names for COVID-19 vaccines are: Comirnaty (Pfizer), Nuvaxovid (Novavax), Spikevax (Moderna), and Vaxzevria (AstraZeneca).

## COVID-19 vaccination

In 2022, the Therapeutic Goods Administration (TGA) provisionally approved a new COVID-19 vaccine, Nuvaxovid (Novavax), and new formulations of mRNA COVID-19 vaccines (Pfizer and Moderna) for use as either primary course doses or booster doses. ATAGI then recommended how these vaccines could best be used in the Australian context. See the timeline in Table 1 for details of this work.

## COVID-19 vaccination coverage

COVID-19 vaccination coverage in Australia is high (Figure 1). From the beginning of the COVID-19 vaccination program (February 2021) to 21 December 2022, more than 64.4 million doses of COVID-19 vaccines were administered across Australia. More than 14.3 million people aged 16 years and over had received three doses: this included 69% of people aged 16 years and over, 76% of people aged 30 years and over and 93% of people aged 65 years and over. More than 5.3 million people had received four doses, including 33% of people aged 30 years and over and 70% of people aged 65 years and over. More than 900,000 children (40%) aged 5 to 11 years had received two doses.

## Other ATAGI COVID-19 activities

During 2022, ATAGI continued to develop the clinical guidance for COVID-19 vaccine providers,<sup>8</sup> resources for immunisation providers,<sup>9</sup> and resources for consumers.<sup>10</sup>

ATAGI updated these resources frequently as more vaccines were registered for use in different age groups, and as new evidence on vaccine handling, efficacy, effectiveness and safety became available. ATAGI recommendations regarding the use of COVID-19 vaccines and vaccines provisionally approved by the TGA in 2022 are presented in Table 1.

## COVID-19 vaccine safety

The TGA has overall responsibility for the safety of vaccines on the Australian Register of Therapeutic Goods in Australia, which includes COVID-19 vaccines. ATAGI also closely monitors COVID-19 vaccine safety issues, and carefully assesses the benefits against the potential risks, from a program perspective. The TGA continued to publish updates on its safety monitoring process throughout 2022 in COVID-19 vaccine safety reports.<sup>26</sup> A special subgroup of the ATAGI COVID-19 Working Group met regularly throughout 2022 to discuss vaccine safety issues.

## Overall adverse events

In 2022, a total of 1,210,362 people aged 16 years and over participated in Australia's active vaccine safety surveillance, AusVaxSafety,<sup>27</sup> after their COVID-19 vaccinations. This is one of the largest safety survey databases on any type of vaccine in use today. Of these people: 54.1% reported no adverse events, 45.9% reported at least one adverse event and 0.9% reported visiting a doctor or emergency department.

COVID-19 vaccines were successfully rolled out to children aged 5 to 12 years in 2022. A total of 234,661 children aged 5 to 12 years participated in the vaccine safety survey. Of these: 72.4% reported no adverse events, 27.6% reported at least one adverse event and 0.5% reported visiting a doctor or emergency department.

## Specific adverse events

Myocarditis and pericarditis are adverse events of special interest initially noted following the introduction of mRNA COVID-19 vaccines in 2021. In 2022, new evidence on vaccine safety showed that myocarditis and pericarditis risks were not confined to mRNA vaccines, and that increasing the dose interval may reduce the likelihood of an event. ATAGI developed guidance on myocarditis and pericarditis after COVID-19



vaccines in 2022,<sup>28</sup> in collaboration with subject matter experts. ATAGI continues to monitor the evidence and rates of these adverse events.

Thrombosis with thrombocytopenia syndrome (TTS) is a rare but serious adverse event attributed to the AstraZeneca vaccine and identified early in the vaccination program rollout. In 2022, there were no additional cases of TTS because the AstraZeneca vaccine was no longer widely used in Australia.

### No-fault COVID-19 Vaccines Claims Scheme

The COVID-19 Vaccine Claims Scheme announced by the Australian Government on 28 August 2021 allows people to claim compensation for injuries resulting from diagnosed clinical conditions likely to be caused by a TGA-approved COVID-19 vaccine or its administration.<sup>29</sup> The scheme continued throughout 2022, receiving more than 3,000 claims backdated to February 2021, when COVID-19 vaccination rollout commenced in Australia.

### Prevention and control of other vaccine-preventable diseases

Cases of certain VPDs increased in 2022 compared with 2020 and 2021, likely due to easing of COVID-19 restrictions and reopening of Australia's borders to international travel. Data in this section were extracted from the National Notifiable Disease Surveillance System with a diagnosis date of between 1 January and 31 December 2022.

#### Influenza

During Australia's international border closures, influenza activity was very low. After borders reopened in 2022, notifications of influenza dramatically increased to 306 times higher than the same period in 2021 and 1.8 times higher than the 5-year mean. There was a notable increase in cases during the usual peak winter season.

Notifications were highest in children aged 5 to 9 years (2,244 notifications per 100,000 population) and in children aged under 5 years (1,929 notifications per 100,000 population). The notification rate for adults aged 65 years and over was 388 per 100,000 population. More details are in the national 2022 influenza season summary.<sup>30</sup>

#### Meningococcal disease

There were 124 notifications of invasive meningococcal disease in 2022. This was 70% higher than the same period in 2021 but 40% lower than the 5-year mean.

Of the 116 cases in 2022 with available serogroup information, the most common serogroups were serogroup B (100 cases), followed by serogroup Y (9 cases) and serogroup W (6 cases). Different vaccines can prevent serogroup B and serogroups A, C, W and Y. Of the 99 cases in 2022 with vaccination status information: 5% were vaccinated against the serogroup causing disease, 55% were vaccinated, but not against the serogroup causing disease and 37% were unvaccinated.

#### Pneumococcal disease

Notifications of invasive pneumococcal disease were 40% higher than the same period in 2021 and 7% higher than the 5-year mean. Most cases were in adults aged 65 years and older and in children aged 0 to 4 years.

Serotype information was available for 81% of notified cases. The three most frequently reported serotypes were 3 (15.0%), 22F (7.6%) and 19F (7.4%). Pneumococcal vaccines available in 2022 cover serotypes 3 and 19F, so some of these cases were vaccine failures.

Vaccination status was available for 72 of the cases in children aged under 5 years. Of this group, 30 cases were considered vaccine failures, due to serotypes 3 ( $n = 15$ ), 19A ( $n = 7$ ) 19F ( $n = 7$ ), 6B ( $n = 1$ ) and 7F ( $n = 1$ ). ATAGI will continue to monitor this issue.

## Diphtheria

Notifications of community-acquired diphtheria increased in 2022. In Australia in 2022, there were three cases of pharyngeal (respiratory) diphtheria in children. These are the first confirmed cases of pharyngeal diphtheria in children in Australia since 1992.<sup>31</sup> Additionally, there were three cases of pharyngeal diphtheria in adults, compared with one case in 2021 and no cases in 2020 and 2019; there were also 24 cases of cutaneous (skin) diphtheria, compared with seven cases in 2019, nine in 2020 and six in 2021.

## Immunisation policy and practice across Australia

### Influenza

The NIP provides funded influenza vaccines to people aged 6 months to 5 years; to people aged 65 years and over; and to other groups at risk of severe disease.

In 2022, in response to rising case numbers, most states and territories, including New South Wales, Victoria, Queensland, Western Australia, South Australia and Tasmania, offered free influenza vaccination for all people aged 6 months and over.

### Human papillomavirus vaccination program

Australia has been a world leader in research and evaluation of the HPV vaccine. This vaccine has been given as a two-dose schedule (three doses in immunocompromised people) via the NIP to adolescents aged 12 to 13 years to prevent cervical and other cancers.

In 2022, ATAGI reviewed emerging evidence on the effectiveness of a one-dose schedule of HPV vaccination in adolescents. ATAGI recommended immunocompetent people aged 9 to 25 years receive one dose of the 9-valent HPV vaccine (the previous recommendation was 2 doses for people aged 9 to 19 years). In early 2023, the Pharmaceutical Benefits Advisory

Committee provided a positive recommendation for the change to a one-dose schedule. The new one-dose HPV vaccine program started under the NIP from February 2023 with routine administration to adolescents aged around 12 to 13 years. People who have not received a dose of HPV vaccine are eligible for their single funded dose (or three doses, if immunocompromised) up until age 25.

### Pneumococcal disease

Several pneumococcal vaccines that can protect against a wider range of serotypes than current vaccines are being registered and evaluated in Australia. To prepare for these vaccines becoming available in Australia, ATAGI formed a pneumococcal subgroup to review the evidence and inform the optimal pneumococcal vaccination schedule across age groups and risk conditions.

### Expanded pharmacist vaccination program

In recent years, pharmacists have played a key role in administering vaccines across Australia, including COVID-19 vaccines. As of 22 December 2022, fourteen percent of all COVID-19 vaccine doses were administered by pharmacists in community pharmacies.<sup>32</sup>

In 2022, Victoria<sup>33</sup> and New South Wales<sup>34</sup> further expanded their programs to allow pharmacists to administer several vaccines, including JE, mpox and zoster vaccines. As the scope of pharmacist-administered vaccination expands, ATAGI considers that evaluating key aspects of pharmacist vaccination programs will be essential to inform policy development.

### Changes to the National Immunisation Program

There were no changes to the NIP in 2022.

## Immunisation coverage

### Influenza vaccines

Influenza vaccination is provided free under the NIP for all children aged 6 months to 5 years; for people aged 65 years and over; and for some people aged 5 to 64 years who are at higher risk of severe disease.

In 2022, many states and territories offered free vaccination for all people aged 6 months and over in response to rising case numbers of seasonal influenza.

In children aged 6 months to under 5 years, influenza vaccination coverage increased, including in First Nations children. Uptake of influenza vaccines in 2022 was also higher in several other age groups compared with 2021: in First Nations people aged 15 to 49 years (5.0% higher; eligible for free influenza vaccines under the NIP); in First Nations children aged 5 to 14 years (3.0% higher; eligible for free influenza vaccines under the NIP); and in other children aged 5 to 14 years (8.7% higher).

Vaccination is the best protection against influenza and ATAGI recommends influenza vaccination for everyone aged 6 months and older.

### Childhood vaccines

Vaccination uptake of routine childhood vaccines remained high overall in 2022. Uptake of some vaccines decreased slightly in 2022 compared with 2021, 2020 and 2019. A total of:

- 90.9% of children received their second dose of diphtheria-tetanus-acellular pertussis (DTPa) vaccine within 2 months of reaching 4 months of age in 2022, compared with 92.3% in 2021; 93.6% in 2020; and 93.7% in 2019;
- 85.3% of children received their first dose of measles-mumps-rubella (MMR) vaccine within 2 months of reaching 12 months of age in 2022, compared with 87.6% in 2021;

88.1% in 2020; and 88.7% in 2019; and

- 84.7% of children received three doses of inactivated poliovirus (IPV) vaccine in 2022, compared with 87.3% in 2021; 89.2% in 2020; and 88.8% in 2019.

### Adolescent vaccines (mainly delivered through school immunisation programs)

In 2022, the number of adolescents who received the following vaccines through school-based immunisation programs varied compared with 2021, depending on the vaccine:

- HPV vaccine: 261,936 adolescents received a first dose of HPV vaccine in 2022, which was 6.1% lower than in 2021; 6.5% lower than in 2020; and 15.5% lower than in 2019.
- dTpa vaccine: 269,560 adolescents received booster doses in 2022, which was 1.3% lower than in 2021; 4.9% lower than in 2020; and 16.1% lower than in 2019.
- Meningococcal ACWY vaccine: 241,600 doses were administered to adolescents during 2022, which was 6.5% higher than in 2021; 0.4% lower than in 2020; and 2.8% lower than in 2019.

### Vaccines for older Australians

#### Zoster (herpes zoster) vaccine

Australians are eligible to receive the Zostavax vaccine on the NIP at 70 years of age. In 2022, a total of 33.4% of adults received the vaccine in the year they became eligible – that is, following their 70th birthday. This was similar to previous years: 30.5% in 2021; 30.9% in 2020; and 31.6% in 2019. The Shingrix vaccine is also available for people aged 50 years and over, but is not funded under the NIP. In 2022, a total of 105,103 adults aged 50 years and over received the Shingrix vaccine and 201,192 received the Zostavax vaccine.

**Table 2: New vaccines registered with the TGA in 2022**

Vaccine brand name	Description	Protects against	For use in ages
Vaxelis	DTPa5-HB-IPV-Hib vaccine	Diphtheria, tetanus, pertussis, hepatitis B, polio, and <i>Haemophilus influenzae</i> type b	6 weeks and over
Vaxneuvance	15-valent pneumococcal conjugate vaccine	Pneumococcal disease	18 years and over
Verorab	Rabies vaccine	Rabies	All ages

Mandatory reporting to the Australian Immunisation Register for all NIP vaccines started on 1 July 2021. Zoster vaccine coverage may be affected by under-reporting before that time.

### Pneumococcal vaccine

All Australians aged 70 years and over are eligible to receive pneumococcal vaccination on the NIP. Aboriginal and Torres Strait Islanders aged 50 years and over are also eligible to receive pneumococcal vaccination on the NIP. In 2022, a total of 25% of adults received the vaccine in the year they became eligible. This was higher than in previous years: 17% in 2021; 2.2% in 2020; and 0.2% in 2019.

### Important changes to the Australian Immunisation Handbook

The zoster (herpes zoster) chapter<sup>i</sup> received major updates. There are new recommendations for immunocompetent people; for immunocompromised people; and for serological testing. These also include updated recommendations for use of the Shingrix vaccine.

The meningococcal disease chapter<sup>ii</sup> was updated with new recommendations for meningococcal B booster doses for people with medical conditions that increase their risk of

invasive meningococcal disease, and for laboratory workers who frequently handle *Neisseria meningitidis*.

The tuberculosis chapter<sup>iii</sup> was updated with new recommendations relating to skin testing before Bacillus Calmette–Guérin (BCG) vaccination.

The vaccination for special risk groups chapter<sup>iv</sup> was updated in line with the changes to disease chapters.

### New vaccines

Three new vaccines (other than COVID-19 vaccines) were registered with the TGA in 2022 (Table 2).

ATAGI monitors new vaccines for their potential to be included on the NIP. Vaccines recommended for the NIP must demonstrate benefits for the Australian population or for specific high-risk groups. They must also be cost-effective.

### Vaccine safety

The TGA has overall responsibility for vaccine safety surveillance in Australia. Vaccine safety surveillance is conducted in two ways:

- Spontaneous (passive) surveillance, through which people who have been vaccinated

i <https://immunisationhandbook.health.gov.au/contents/vaccine-preventable-diseases/zoster-herpes-zoster>.

ii <https://immunisationhandbook.health.gov.au/contents/vaccine-preventable-diseases/meningococcal-disease>.

iii <https://immunisationhandbook.health.gov.au/contents/vaccine-preventable-diseases/tuberculosis>.

iv <https://immunisationhandbook.health.gov.au/vaccination-for-special-risk-groups>.

or their carers can report any vaccine side effects they have experienced.<sup>35</sup> Reports are usually made to the jurisdictional vaccine safety services, but can also be made directly to the TGA or through a healthcare provider.

- Active surveillance, through which people who have been vaccinated or their carers are contacted directly and asked whether they have experienced any vaccine side effects. The current active vaccine safety surveillance is known as the AusVaxSafety system.<sup>v</sup>

Active and passive vaccine safety surveillance activities are now integrated in most states and territories. They send all reports of serious adverse events following immunisation to the TGA.

ATAGI continues to work closely with the TGA to advise on and promote the safe use of all vaccines, including COVID-19 vaccines.

### Influenza vaccines

AusVaxSafety data demonstrate the safety of the 2022 seasonal influenza vaccines.<sup>36</sup> Of 164,554 participants in the 2022 safety survey, 82% reported no adverse event (minor or severe). One in 100 (1%) parents or carers of children aged under 5 years reported taking their child to see a doctor or going to the emergency department in the days after influenza vaccination. Less than 1% of people aged 5 years and over reported seeing a doctor or going to the emergency department in the days after influenza vaccination.

### IFNAR1 gene deficiency

IFNAR1 deficiency is a rare inherited condition that affects some people of western Polynesian heritage. The deficiency in the IFNAR1 protein can lead to a weakened immune response and a higher risk of adverse reactions to live attenuated viral vaccines. ATAGI reviewed the

evidence on IFNAR1 deficiency in 2022 and updated relevant chapters in the Australian Immunisation Handbook.

### Japanese encephalitis vaccines

A 2022 study found that both JE vaccines administered in Australia between 2015 and 2020, JEspect and Imojev, were safe and well tolerated.<sup>37</sup> Using data from SmartVax,<sup>vi</sup> the study found that in 5,389 immunisation records of JE vaccines, adverse events were reported in 7.6% of people receiving Imojev and 5.9% of people receiving JEspect. ATAGI will continue to monitor the safety of JE vaccines following their expanded use in Australia due to the outbreak.

### Mpox vaccines

AusVaxSafety data showed no serious safety concerns with JYNNEOS, which can be injected either into the surface layers of the skin (intradermally) or into the tissue between the skin and underlying muscle (subcutaneously). As of 12 December 2022, the responses to the safety survey in 2022 reported no adverse events after dose 2 for 60% with the intradermal route (2,001 participants) and 66% with the subcutaneous route (710 participants).<sup>38</sup>

Vaccines administered via both routes were safe, with fewer than 1 in 100 people reporting that they sought medical care in the days after receiving JYNNEOS.

### Challenges and priorities for immunisation in Australia in 2023 and beyond

This document highlights the key successes, trends and challenges in the use of vaccines and control of VPDs in Australia in 2022. In 2022, COVID-19 pandemic control measures were eased in Australia and globally. ATAGI continued to provide timely advice on vaccination against COVID-19. In 2022, COVID-19 vaccine

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v <https://ausvaxsafety.org.au/>.

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vi <https://www.smartvax.com.au/>.

eligibility was expanded to all children aged 5 years and over and to some at-risk children aged 6 months to under 5 years. ATAGI recommended booster doses of COVID-19 vaccines for adults and adolescents, including the use of variant-based vaccines as a booster dose in people aged 18 years and over.

Some rates of VPDs increased in 2022 compared to 2021, including influenza, meningococcal and pneumococcal. This was likely due to easing of COVID-19 restrictions and reopening of Australia's borders to international travel. Immunisation uptake remained high. Two newly emerged diseases, JE and mpox, were declared CDINS following outbreaks in Australia. ATAGI developed and expanded

vaccine recommendations for JE and mpox, and governments delivered these safe and effective vaccines across Australia.

ATAGI recommended moving from a two-dose to a one-dose schedule for the HPV vaccine. This was introduced on the NIP in February 2023. ATAGI commenced work on recommendations for several other vaccines. This included incorporating a new pneumococcal conjugate vaccine and a updating recommendations for Zoster into the Australian Immunisation Handbook.

**Table 3: Key challenges for prevention and control of vaccine-preventable diseases through immunisation**

- Maintaining rapid policy response for emerging and re-emerging VPDs such as JE, mpox, measles and polio.
- Improving uptake of vaccines in risk groups in the context of pandemic-related vaccination fatigue. During 2022, vaccine sentiment monitoring showed that community intentions to vaccinate have decreased, particularly for those considering receiving a third COVID-19 vaccine dose.<sup>39</sup>
- Maintaining community confidence in Australia's vaccination program, despite the spread of misinformation.
- Ensuring equitable access to NIP-funded vaccines for First Nations communities and other priority populations.
- Monitoring safety of new and established COVID-19 vaccines, and effectiveness against new variants of concern.
- Monitoring safety, effectiveness and the best schedule for newly introduced vaccine programs such as JE and mpox.
- Continuous monitoring for the entry of high-consequence VPDs into Australia due to increasing travel, including from areas with reduced vaccination coverage due to the COVID-19 pandemic.
- Maintaining high one-dose coverage of HPV vaccine through the school-based program after changes to the NIP HPV vaccination schedule.

**Table 4: ATAGI's priority actions for 2023**

### Ongoing priorities

- To advise on immunisation policies that improve access to NIP-funded vaccines for priority population groups, as well as reliable systems to capture uptake in these groups. Priorities for consideration include:
  - hepatitis B vaccination for non-immune adults from First Nations communities;
  - pneumococcal vaccination for younger adults from First Nations communities (aged under 50 years);
  - expanding eligible medical risk conditions for receiving NIP-funded influenza vaccines; and
  - catch-up measles vaccination for non-immune people born since 1966.
- To strengthen the evaluation of evidence and continue publishing evidence-based immunisation recommendations through the Australian Immunisation Handbook.<sup>a</sup> This includes continuing to work closely with the National Health and Medical Research Council to streamline its endorsement of Handbook recommendations.
- To continue to work with international partners, including national immunisation technical advisory groups of other countries.
- To support the development of evidence-based immunisation resources that are culturally sensitive and appropriate for unique First Nations communities.
- To scope vaccines on the horizon for potential inclusion in the NIP. These may include newer influenza, herpes zoster and pneumococcal vaccines; and new RSV vaccines and group B Streptococcus vaccines. NIP vaccines must show benefits for the Australian population or high-risk population groups, and be cost-effective.

### Specific priorities for 2023

#### COVID-19 immunisation program

- To continue to provide timely advice as the COVID-19 vaccination program integrates into a more routine national vaccination program. To continuing to advise on optimal vaccination schedules in light of new variants of concern and changing epidemiology.

#### Routine vaccination in Australia

- To advise on ways to improve uptake of influenza vaccine, given the increasing disease burden.

<sup>a</sup> <https://immunisationhandbook.health.gov.au/>

- To continue to advise on the optimal schedule for existing vaccination programs in Australia, such as the program for pneumococcal disease.
- To maintain high coverage for routine vaccinations such as measles, diphtheria and polio, given re-emergence of these diseases globally.

#### **Emerging and re-emerging vaccine-preventable diseases**

- To advise on implementation of vaccine programs for emerging and re-emerging diseases, including JE, mpox and poliomyelitis.

#### **Horizon scanning, monitoring and evaluation**

- To plan for the introduction of new vaccines, including RSV vaccine.
- To evaluate the new one-dose schedule for the HPV vaccination program.
- To monitor and evaluate newly established vaccine programs, including JE and mpox.

This document also indicates the key challenges for prevention and control of VPDs in 2023 and beyond (Table 3). These include monitoring newly introduced and amended vaccine programs as well as responding to emerging and re-emerging VPDs.

ATAGI's ongoing priority actions and specific priorities for 2023 are summarised in Table 4. These include continuing to provide recommendations for immunisation strategies that enhance the availability of NIP-funded vaccines to groups at increased risk of VPDs. ATAGI will monitor and evaluate emerging and re-emerging VPDs, upcoming vaccines that are being developed and new and amended vaccine programs in Australia.

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## Appendix A.1: about ATAGI

The Australian Technical Advisory Group on Immunisation (ATAGI) advises the Minister for Health and Aged Care on the National Immunisation Program and on other immunisation issues.

ATAGI's vision is to protect the Australian population from vaccine-preventable diseases (VPDs). This is shown in ATAGI's strategic intent.<sup>40</sup>

ATAGI's purpose is to provide evidence-based advice to the Minister for Health and other key policymakers on immunisation policies, immunisation programs, and future research priorities. This includes identifying and prioritising gaps in the immunisation landscape to improve the impact of immunisation programs; to raise confidence in immunisation programs, as well as the vaccines used in the programs; and to boost equity in access to, and outcomes of, immunisation programs.

ATAGI also develops and publishes the Australian Immunisation Handbook.