

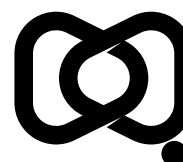


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ATAGI 2024 Annual Statement on Immunisation

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The Australian Technical Advisory Group on Immunisation (ATAGI) 2024 Annual Statement on Immunisation is the fourth 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 2023. It also signals ATAGI's priority advice on actions to address key issues for 2024 and beyond.

Summary

In 2023, the emergency response to coronavirus disease 2019 (COVID-19) was stood down and Australia began to transition to managing COVID-19 in a similar way to other respiratory viruses. The emergency responses to Japanese encephalitis (JE) and mpox were also stood down. ATAGI continued to update its COVID-19 vaccination recommendations throughout the year – as well as recommendations for other vaccine-preventable diseases (VPDs) in the Australian Immunisation Handbook – in response to new information and new vaccines. Immunisation coverage overall remained high, although the incidence of some VPDs approached pre-pandemic levels, and vaccination rates were suboptimal in some regions and population groups in Australia. Eligibility for the national herpes zoster vaccination program was substantially expanded from November 2023, using a newer and more effective vaccine.

Key highlights in immunisation in 2023

- The national COVID-19 vaccination program continued throughout 2023. The primary aim of the program continues to be the reduction of serious illness and death from COVID-19. New vaccines targeting variant SARS-CoV-2 strains came into use for most age groups.
- ATAGI recommended additional doses of COVID-19 vaccines for people most at risk of severe illness and death. ATAGI advice on COVID-19 vaccines was updated four times in 2023, based on emerging epidemiology, level of immunity in the population, and new vaccine formulations. In 2023, approximately five million additional doses of COVID-19 vaccines were administered to Australians aged 18 years and over who were previously vaccinated.
- The Australian Immunisation Handbook COVID-19 chapter was published. It contains up-to-date clinical guidance about COVID-19 vaccination and replaces the previous ATAGI clinical guidance for COVID-19 vaccine providers.
- COVID-19 and JE were stood down as Communicable Disease Incidents of National Significance (CDINS) during 2023, as was the mpox CDINS in late 2022. Vaccination against these newly emerged diseases played an important role in the overall public health response.
- The human papillomavirus (HPV) vaccination schedule under the National Immunisation Program (NIP) changed from two doses to one dose, and eligibility for catch-up vaccination under the NIP was expanded. This change makes it easier to protect young people and help eliminate cervical cancer in Australia.
- A newer and more effective recombinant (non-live) vaccine to prevent herpes zoster (shingles) became available under the NIP, replacing the live-attenuated shingles vaccine. Eligibility for NIP-funded shingles vaccine was also expanded to include a broader group of older adults and people with some specified medical conditions, including severely immunocompromised people.
- Although the NIP maintained high levels of coverage, there has been a progressive decline in uptake of some routine childhood vaccines over the three years preceding 2023, which is of some concern. Close monitoring of vaccination coverage is critical, particularly among First Nations children and priority populations. It is important to ensure continued high vaccination coverage to protect against VPDs, particularly as the COVID-19 pandemic has impacted vaccination confidence and coverage globally.
- ATAGI hosted the national immunisation technical advisory group (NITAG) from Timor-Leste to further strengthen the relationship with NITAGs in the region.
- ATAGI continued to assess and provide advice on the best strategies for preventing and controlling other VPDs, including influenza; poliomyelitis (polio); pneumococcal disease; and respiratory syncytial virus (RSV) disease.

Key challenges, priorities and strategies in the immunisation landscape in Australia in 2024 and beyond

- responding to emerging VPDs as needed by monitoring disease epidemiology, prevention and control measures, and planning response strategies for re-emerging VPDs such as measles and polio;
- continuing to provide timely advice as the COVID-19 vaccine landscape moves towards longer-term sustainable arrangements, including monitoring safety and effectiveness of new and established COVID-19 vaccines, as well as the optimal vaccination schedules for different population groups;
- maintaining community confidence in vaccines delivered as part of the NIP and in other recommended vaccines;
- addressing declines in uptake of some routine childhood vaccines in recent years and ensuring vaccination coverage remains at high levels;
- improving identification and assessment of populations which are undervaccinated and groups at higher risk of VPDs, and developing strategies to address both access barriers and social and behavioural drivers of vaccination uptake to improve timeliness of receiving scheduled vaccines for these groups;
- monitoring epidemiology of VPDs that may increase after a period of low incidence during the COVID-19 pandemic (such as pertussis) and providing advice on maximising vaccination uptake, including in key groups (such as pregnant people);
- continuing to make important updates to particular chapters of the Australian Immunisation Handbook, such as for vaccination for people who are immunocompromised, where new evidence and advice are relevant;
- monitoring and evaluating new or modified vaccination programs, including the HPV and shingles vaccination programs;
- increasing one-dose coverage of HPV vaccine for recommended population groups to 90% (World Health Organization [WHO] global strategy target) or higher;
- planning for the introduction of new vaccines, such as RSV vaccines and higher-valency pneumococcal vaccines, which have been or may be registered in Australia, in different population groups; and
- providing input into the new National Immunisation Strategy (2024 to 2029) and the establishment of the Australian Centre for Disease Control (Australian CDC).

Immunisation issues in Australia in 2023

Emerging and re-emerging vaccine-preventable diseases

In 2023, there continued to be an increased risk of reintroduction of some VPDs that no longer circulate in Australia, such as measles and polio. The two CDINS declared in 2022, JE and mpox, were stood down. ATAGI continued to monitor the epidemiology of these and other diseases both in Australia and globally; to assess vaccination coverage in relevant age or population groups in Australia; and to prepare advice to respond to changing risks and scenarios.

Japanese encephalitis

JE was declared a CDINS in March 2022 following cases notified in several eastern Australian states, and ATAGI recommended JE vaccination for people in high-risk settings in Australia.¹ Eligibility for vaccination was defined by state and territory health authorities.

No new human cases of JE were identified in Australia since December 2022. There were 41 notifications in 2022, following four notifications in 2021. On 16 June 2023, the CDINS declaration for JE was stood down due to the reduction in risk and the increased preparedness to manage any future outbreaks.²

States and territories delivered JE vaccination to people with a high risk of exposure. In 2023, there were 48,689 people who had at least one dose of a JE vaccine administered.

JE remains a nationally notifiable disease. Ongoing virus and serological surveillance and evidence on duration of protection from vaccination will be important to inform vaccine policy and other ongoing disease control and public health strategies under a One Health approach.

Mpox (formerly known as monkeypox)

Mpox was declared a CDINS in July 2022 as part of a global outbreak, and ATAGI quickly released guidelines on the use of vaccines for protection against mpox.^{3,4} The mpox CDINS was stood down on 25 November 2022.⁵

During 2023, there were 26 notified cases of mpox in Australia and no notified deaths. Notifications were highest in the 25–29 years age group and there were no notifications in people aged under 18 years. This compares with 144 notified cases and no notified deaths in 2022. Mpox became a notifiable condition from 1 June 2022 under emergency National Notifiable Disease List (NNDL) provisions and was permanently listed on the NNDL from 1 December 2022. Mpox has occurred primarily, but not exclusively, in gay, bisexual and other men who have sex with men.⁶

In 2023, there were 15,821 people who received a first dose of a smallpox/mpox vaccine for preventing mpox, and 13,863 of these people went on to receive a second dose. States and territories distributed the vaccines and refined the eligibility criteria for vaccination at a jurisdictional level. Some states expanded eligibility to include immunisation providers and healthcare workers who work with mpox vaccines or patients.

Poliomyelitis

In 2023, cases of vaccine-derived polio declined globally compared with 2022 and became more concentrated in certain geographic areas in Africa.⁷ However, the risk of international spread of vaccine-derived polio is still high, and it remains a Public Health Emergency of International Concern.⁸ ATAGI worked with the Communicable Diseases Network Australia (CDNA) in 2023 to update the 2019 Poliovirus Infection Outbreak Response Plan for Australia.

Australia continues to remain polio-free, with no cases reported in 2023. However, it is still essential to maintain high coverage of polio vaccination, particularly among population groups who are at increased risk of exposure from travelling or if the virus is introduced to Australia.

Some regions and population groups in Australia remain undervaccinated for routine vaccines, including the polio-containing vaccine. Children are scheduled to receive a fourth dose of polio-containing vaccine at 4 years of age. In 2023, among children who turned 4 years of age and were assessed at age 51 months (three months after the dose is due), 86% had received their fourth dose of polio-containing vaccine.

Measles

Since 2022, there has been a resurgence of measles in some regions globally, including the Asia–Pacific region. There remains a significant risk of measles importation into Australia through Australian and international travellers. The virus is very contagious and can be readily transmitted among Australians who are not fully vaccinated against measles. Measles was officially eliminated as an endemic disease in Australia in 2014.⁹ Since then, sporadic cases and outbreaks have been linked to overseas travel.

There were 26 cases of measles reported in Australia in 2023, compared with seven cases in 2022. Of cases reported in 2023, twenty acquired their infection overseas; five acquired their infection in Australia with known links to infected travellers; and one case acquired their infection in Australia with an unknown source. There were no measles-associated deaths notified in 2023. Although case numbers had increased in 2023, they were 77% lower than the pandemic-adjusted 5-year mean (2016–2019 and 2022) of 115 cases.

ATAGI continues to monitor the global epidemiology and maintain preparedness for a measles outbreak in Australia, and encourages timely and complete vaccination of children and people who travel overseas.

Vaccination for COVID-19

In 2023, the Therapeutic Goods Administration (TGA) provisionally approved two COVID-19 vaccines and granted full registration to six COVID-19 vaccines.¹⁰ ATAGI provided recommendations about use of these vaccines in Australia.

On 20 October 2023, the end of the COVID-19 emergency response was announced. The CDINS for COVID-19 was stood down due to the increased preparedness of state and territory health systems to manage future outbreaks.¹¹ Australia began to move to managing COVID-19 in a similar way to other VPDs caused by respiratory viruses, guided by the National COVID-19 Health Management Plan for 2023.¹²

In 2023, there were 864,562 notifications of laboratory-confirmed COVID-19. This was approximately one-twelfth the number of cases notified in 2022 (10,318,095 notifications), and 1.6 times as high as in 2021 (538,967 notifications). During 2023, the dominant SARS-CoV-2 strains were derived from Omicron sublineages or recombinants consisting of Omicron lineages, including BA.2.75 and XBB and its sublineages.¹³ There were peaks of cases in January and from May to June. Similar to COVID-19 caused by earlier strains, most severe disease occurred in older adults, with some severe cases also seen in children and adults with medical risk conditions. Vaccine effectiveness against COVID-19-related death remained high in these groups, although effectiveness waned with time since the last dose, particularly if more than six months had passed since the last dose.¹⁴

Newer COVID-19 vaccine formulations that are based on recently circulating variant strains are likely to be more effective than those based on earlier strains. The TGA developed guidance and a process for approval for these COVID-19 variant-derived vaccines, based on information on existing COVID-19 vaccines.¹⁵

COVID-19 vaccination coverage

Approximately 5 million additional doses of COVID-19 vaccine were administered to people aged 18 years and over in 2023.¹⁶ This included 523,700 people aged 75 years and over and 401,900 people aged 65–74 years who received an additional dose in the last six months as of 10 January 2024. More COVID-19 vaccination coverage data can be found in the COVID-19 vaccination rollout update.¹⁷

ATAGI recommendations on the use of COVID-19 vaccines

During 2023, ATAGI incorporated COVID-19 recommendations into the Australian Immunisation Handbook.¹⁸

ATAGI made the following recommendations on the use of COVID-19 vaccines during 2023:

- **February:** ATAGI recommended a 2023 additional dose for all adults aged 65 years and over, and some adults aged 18–64 years with increased risk of severe COVID-19.¹⁹ Other age groups were advised to consider an additional dose. Newer bivalent vaccines from Pfizer²⁰ and Moderna²¹ could be used for this additional dose in people aged 12 years and over.

- **May:** ATAGI stated a preference for bivalent vaccines over original (ancestral) vaccines for primary vaccination for people aged 12 years and over.²²
- **September:** ATAGI recommended an additional 2023 COVID-19 vaccine dose for all adults aged 75 years and over if six months had passed since their last dose.¹⁴ All adults aged 65–74 years, and some adults aged 18–64 years with increased risk of severe COVID-19, were advised to consider an additional dose if six months had passed since their last dose.
- **November:** ATAGI stated a preference for monovalent Omicron XBB.1.5 vaccines over other previous COVID-19 vaccine formulations for use in children aged 5 years and over and in adults who are recommended to receive primary or additional doses of COVID-19 vaccine.²³

COVID-19 vaccine safety

The TGA has overall responsibility for the safety of all vaccines on the Australian Register of Therapeutic Goods in Australia; this includes COVID-19 vaccines. ATAGI also closely monitors COVID-19 vaccine safety issues, and carefully assesses the benefits against the potential risks, from the program perspective.

The TGA, with the International Coalition of Medicines Regulatory Authorities (ICMRA), released a statement on the safety of COVID-19 vaccines, which by the end of 2023 had been in use for more than two years.²⁴ Evidence from the more than 13 billion vaccine doses given worldwide showed that COVID-19 vaccines have a very good safety profile in all age groups, and the benefits of the approved vaccines far outweigh the possible risks. Contrary to some misinformation that has been spread, extensive data indicate that COVID-19 vaccines did not contribute to excess mortality during the pandemic. Evidence also suggests that long COVID is less likely to develop in people who have been vaccinated.²⁵

The TGA continued to publish updates on its safety monitoring process throughout 2023 in COVID-19 vaccine safety reports.²⁶

Overall adverse events

In 2023, a total of 150,470 people aged 12 years and over participated in Australia's active vaccine safety surveillance, AusVaxSafety,²⁷ after their COVID 19 vaccinations. Together with millions of safety surveys from the previous two years, this is one of the largest safety survey databases on any type of vaccine in use today. Of these people: 70% reported no adverse events following immunisation; 30% reported at least one adverse event (the majority of which were consistent with the mild and transient side effects that are known to occur from vaccination, such as soreness at the injection site); and 0.3% reported visiting a doctor or emergency department. It is important to note that these events may or may not be related to the vaccine given, but are closely monitored to ensure no safety issues emerge.

A total of 688 children aged 5–11 years participated in the vaccine safety survey. Of these: 85% reported no adverse events following immunisation; 15% reported at least one adverse event; and 0.6% reported visiting a doctor or emergency department (which may or may not be related to the adverse event).

In 2023, people aged 5–18 years were only recommended to have an additional dose of COVID-19 vaccine if they were immunocompromised or at risk of severe COVID-19 disease.

No-fault COVID-19 Vaccine Claims Scheme

The COVID-19 Vaccine Claims Scheme 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.²⁸ Such serious injuries are very rare. The scheme continued throughout 2023 and was due to end on 30 September 2024. ATAGI emphasises the importance of evaluating this scheme and assessing the feasibility of continuing it beyond September 2024.

Prevention and control of other vaccine-preventable diseases

During the COVID-19 pandemic in 2020, public health control measures resulted in a substantial decrease in incidence of many VPDs. However, the incidence of some VPDs increased in 2023 compared with 2022, returning to or exceeding pre-pandemic levels in some instances. Some notable changes are highlighted in this section, based on data extracted from the National Notifiable Diseases Surveillance System with a diagnosis date between 1 January and 31 December 2023.

Pandemic-adjusted five-year mean

Many comparisons in this section use the pandemic-adjusted five-year mean, which uses notification data from the five years 2016–2019 and 2022. This adjusts for the substantially lower notifications of many VPDs during the main years of pandemic-related public health controls in 2020 and 2021 and allows more meaningful comparisons of epidemiological data.

Influenza

In 2023, there were 288,957 notifications of laboratory-confirmed influenza. This was 1.2 times as high as in 2022, and 1.5 times as high as the pandemic-adjusted five-year mean (189,634 notifications). There was a notable increase in cases during the usual peak winter season in 2023.²⁹

Notified incidence was highest in children aged 5–9 years (3,231 notifications per 100,000 population) and children under 5 years of age (2,283 notifications per 100,000 population). The notification rate for adults aged 65 years and over was 569 per 100,000 population.

Of total notifications in 2023, sixty-two percent were influenza A (59% unsubtype, 2% H1N1 and 1% H3N2); 36% were influenza B; fewer than 1% were influenza A and B co-infection; and 2% were untyped. No cases of influenza B Yamagata lineage were identified in 2023.

There were 437 laboratory-confirmed influenza-associated deaths notified in 2023. However, this figure is an underestimate of the true number of influenza-associated deaths, as some people who die may not be recognised to have influenza or to have laboratory test confirmation.

Vaccination with the 2023 seasonal influenza vaccine reduced the likelihood of general practice attendance with influenza by 64% and reduced hospitalisation with influenza by 68%. More details are in the national 2023 influenza season summary.³⁰

Meningococcal disease

There were 142 notifications of invasive meningococcal disease in 2023. This was 14% higher than in 2022 (125 notifications) and 43% lower than the pandemic-adjusted five-year mean (249 notifications).

Of the 134 notifications in 2023 with available serogroup information, serogroup B was the most common (84%; $n = 112$), followed by serogroup Y (9%; $n = 12$) and serogroup W (7%; $n = 10$). In 2023, the proportion of notifications that were serogroup B was similar to that observed for over a decade in Australia,³¹ before the surge of serogroup W cases between 2015 and 2020.³² There were ten deaths due to meningococcal disease, with seven due to serogroup B, two due to serogroup W and one due to serogroup Y. Eight of these deaths occurred in adults (age range 27–93 years) and one occurred in an infant aged under 12 months. Different vaccines can prevent disease caused by serogroup B (MenB vaccine) and serogroups A, C, W and Y (MenACWY vaccine).

Vaccination status was available for 114 of the 134 notified cases with available serogroup information. Of the 97 serogroup B cases in 2023 with vaccination status information, four cases were vaccinated with two doses of MenB vaccine; three cases had received one dose of MenB vaccine; and 90 cases had not received any doses of MenB vaccine.

Pneumococcal disease

There were 2,272 notifications of invasive pneumococcal disease in 2023. This was 22% higher than in 2022 (1,858 notifications) and 17% higher than the pandemic-adjusted five-year mean (1,942 notifications).

Rates were highest in children aged 0–4 years (24.7 per 100,000 population) and adults aged 65 years and over (17.8 per 100,000 population).

Serotype information was available for 85% of notified cases. The most frequently reported serotypes were serotype 3 (24%) and serotype 33F (9.1%) among cases aged under 5 years, and serotype 3 (17%) and serotype 22F (9.4%) among cases aged 5 years and over. Serotype 3 is included in both the 13-valent pneumococcal conjugate vaccine (13vPCV) and the 23-valent pneumococcal polysaccharide vaccine (23vPPV), whereas serotypes 22F and 33F are included in 23vPPV but not in 13vPCV. Of the total notifications among children aged under 5 years, 5.1% were known to be unvaccinated.

ATAGI has been reviewing the optimal use of various pneumococcal vaccines and schedules, including consideration of newly registered extended-valency vaccines, as well as conducting a detailed epidemiological assessment and modelling. This review is expected to be completed in 2024.

Diphtheria and tetanus

There were 12 notifications of diphtheria, all of which were cutaneous infections, affecting two children and ten adults. These case numbers were 61% lower than in 2022 (31 notifications, including 25 cutaneous infections and six pharyngeal infections), and 8% lower than the pandemic-adjusted five-year mean (13 notifications). There were no diphtheria-associated deaths in 2023.

There were four cases of tetanus in 2023 (age range 20–89 years), compared with one case in 2022 and the pandemic-adjusted five-year mean of 3.6 cases. Of the four cases, there was one tetanus-associated death, in a person aged over 80 years whose vaccination status was unknown.

Pertussis

The total number of pertussis notifications in 2023 (2,400 notifications) was about five times as high as in 2022 (481 notifications), although this was 79% lower than the pandemic-adjusted five-year mean (11,488 notifications). There were 1,545 notifications of pertussis in the fourth quarter of 2023, compared with 520 in the first quarter, 212 in the second quarter and 123 in the third quarter.

The highest notification rates were seen in people under 15 years of age. Of the 2,399 cases with age data reported, the notification rates were highest in children aged 5–14 years (33.1 per 100,000 population); infants aged under 6 months (29.1 per 100,000 population); infants aged 6–11 months (23.7 per 100,000 population); and children aged 1–4 years (12.2 per 100,000 population). No deaths from pertussis were notified during 2023.

Immunisation policy and practice across Australia

Changes to the National Immunisation Program

From 6 February 2023, the HPV vaccine schedule for young people aged 12 to 13 years changed from two doses to one dose.³³ The recommendation for immunocompromised young people remained unchanged at three doses. Eligibility for the ongoing NIP-funded catch-up program for people who missed their HPV vaccination was extended to people up to and including 25 years of age (previously 19 years of age).

From 1 July 2023, Vaxelis was added to the NIP as an alternative vaccine for use against diphtheria, tetanus, pertussis, hepatitis B, polio, and *Haemophilus influenzae* type b (DTPa-hepB-IPV-Hib) in children.³⁴

The NIP-funded MenB vaccine catch-up program, for First Nations children until they turn 2 years of age, was due to end in June 2023. This catch-up program has now been made ongoing.³⁴

From 1 November 2023, the national shingles vaccination program changed to replace the previous live-attenuated vaccine (Zostavax) with a non-live vaccine (Shingrix).³⁵ Eligibility of NIP-funded Shingrix was also expanded to include all adults aged 65 years and over; First Nations peoples aged 50 years and over; and people aged 18 years and over with some severely immunocompromising medical conditions that increase their risk of shingles.

State-based meningococcal vaccination programs

In 2023, Queensland announced that a MenB vaccination program for children under 2 years of age and adolescents aged 15 to 19 years would start in 2024, delivered through healthcare providers and a school program.³⁶

Since 2018, South Australia has had a MenB (Bexsero) vaccination program for children aged 6 weeks to 12 months of age, and for adolescents in year 10 as part of the school vaccination program.³⁷ A study evaluated the program three years after implementation,³⁸ with results published in 2023.³⁹ It found that the multicomponent recombinant MenB vaccine (Bexsero) maintained effectiveness against disease in infants and adolescents over a median period of 3 years. The vaccine also provided some protection against gonorrhoea: two doses were found to be about 33% effective in preventing gonorrhoea in teenagers. Proteins targeted by the MenB (Bexsero) vaccine are present in both *Neisseria meningitidis* and *N. gonorrhoeae*.

State-based influenza vaccination programs

In 2023, Western Australia offered free influenza vaccination for all people aged 6 months and over in May and June.⁴⁰ Queensland offered free influenza vaccination for all people aged 6 months and over in July and August 2023,⁴¹ with this program to continue in 2024.⁴² Other jurisdictions continued to fund influenza vaccination for some at-risk groups additional to those covered under the NIP, such as healthcare workers.

National influenza vaccine coverage did not increase in 2023 and remained suboptimal. See the 'Immunisation coverage' section for more information.

Expanded pharmacist vaccination program

In 2023, states and territories further expanded their programs to allow pharmacists to administer a wider range of vaccines, as well as administer more state-funded and NIP-funded vaccines.⁴³ Queensland also lowered the minimum patient age for whom pharmacists are allowed to administer vaccines, from 5 years of age to 2 years of age.⁴⁴

In 2023, the Australian Government announced that, from 1 January 2024, community pharmacies will be funded through the NIP to administer NIP vaccines to people aged 5 years and over through the National Immunisation Program Vaccinations in Pharmacy (NIPVIP) program.⁴⁵ Previously, patients had to pay the administration cost for NIP-funded vaccines. The vaccines that pharmacists may administer depends on the legislation of the state or territory.⁴³

With the expansion of national funding for pharmacist-administered NIP vaccines, ATAGI considers that evaluating key aspects of pharmacist vaccination programs is essential to inform policy development.

Immunisation coverage

Influenza vaccines

Children aged 6–59 months have the highest rate of influenza hospitalisation in the population, and children in this age group are recommended to receive NIP-funded influenza vaccine. In 2023, there were 30.3% of children in this age group who received at least one dose of influenza vaccine, compared with 34.1% in 2022. For First Nations children in this age group, coverage was 23.1% in 2023, compared with 24.5% in 2022.

The lowest influenza vaccination coverage is in children aged 5–14 years (see Table 1). This age group plays an important role in transmission of influenza in the community. Vaccination in this age group can provide both direct and indirect (herd) protection.⁴⁶

Overall, the coverage of influenza vaccine in 2023 was similar to that in 2021 and modestly lower (by 4% to 9%) than in 2022 for each age group, including those aged 65 years and over (see Table 1). In 2022, most jurisdictions provided temporary funded influenza vaccination for people who were not NIP-eligible, and there were also numerous community promotional campaigns for vaccination.

First Nations people over 5 years of age also had similar patterns in influenza vaccine coverage across various age groups over the three years to the end of 2023 (see Table 1). All First Nations peoples aged 6 months and over are eligible for NIP-funded influenza vaccines.

Table 1: Influenza vaccination coverage (%) at end of year, by age group and First Nations status, Australia, 2021 to 2023

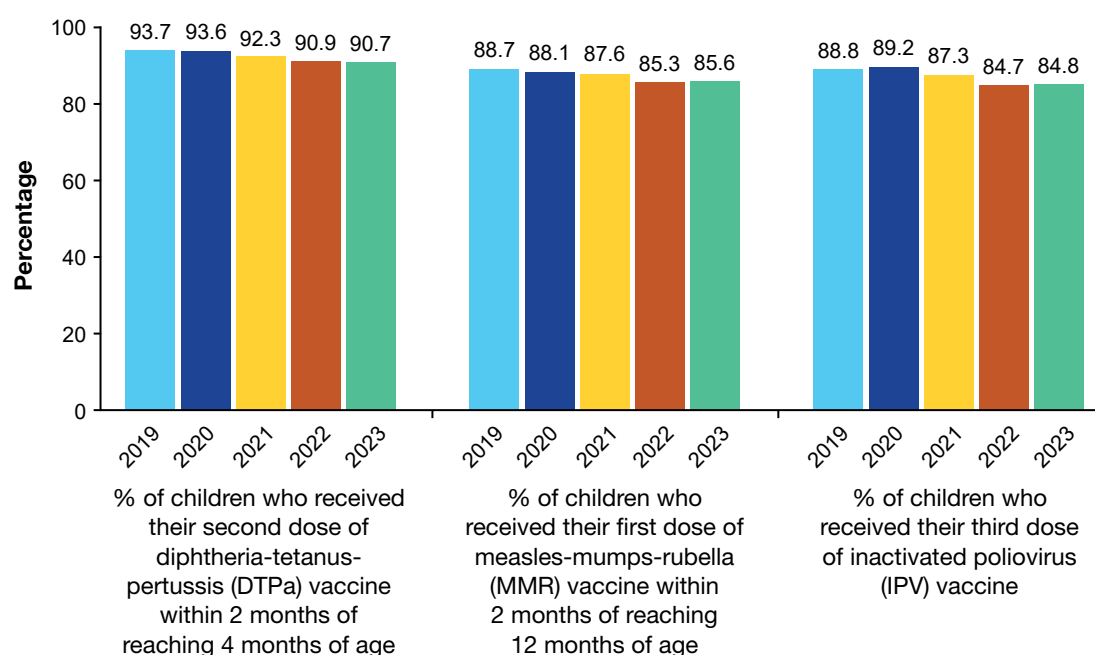
Age group	2021		2022		2023	
	All	First Nations peoples	All	First Nations peoples	All	First Nations peoples
6–59 months	26.5	22.5	34.1	24.5	30.3	23.1
5–14 years	14.5	15.5	23.2	18.5	16.4	15.1
15–49 years	22.8	21.0	29.5	26.0	23.1	21.2
50–64 years	38.2	43.5	46.8	51.4	37.4	42.2
≥ 65 years	64.9	65.5	69.8	70.2	64.3	64.1

Effective prevention of influenza in the community relies on attaining high influenza vaccination coverage before the influenza season begins. However, at 30 June 2023, coverage in children aged 6–59 months was 22.9%, which was 7.4% lower than it was at the end of the year. For other age groups, coverage at 30 June 2023 was 2.8% to 3.6% lower than at the end of 2023 (13.3% coverage for people aged 5–14 years at 30 June 2023; 20.3% for people aged 15–49 years; 34.4% for people aged 50–64 years; and 60.7% for people aged ≥ 65 years).

Childhood vaccines

Uptake of routine childhood vaccines remained high overall in 2023, but timely uptake of some vaccines decreased slightly in 2023 compared with previous years (Figure 1).⁴⁷

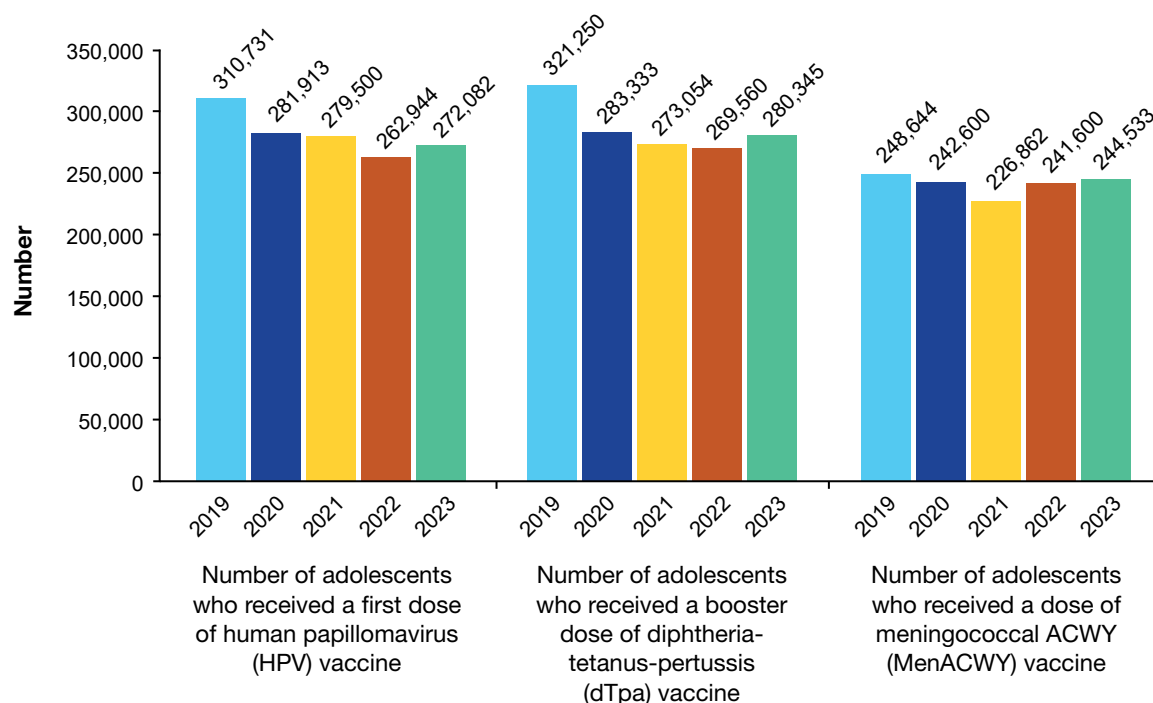
Figure 1: Timely childhood vaccination (%), Australia, 2019 to 2023



Adolescent vaccines (mainly delivered through school immunisation programs)

In 2023, the number of adolescents who received the HPV, dTpa and MenACWY vaccines varied compared with previous years, depending on the vaccine (Figure 2).

Figure 2: Number of adolescents vaccinated,^a Australia, 2019 to 2023



^a Note: the HPV vaccine changed to a one-dose schedule in February 2023. Data only include adolescents who received HPV or dTpa when aged 11 to 14 years, and adolescents who received MenACWY when aged 14 to 18 years.

Vaccines for older Australians

Zoster (herpes zoster) vaccine

Before 1 November 2023, adults were eligible to receive the Zostavax vaccine on the NIP at 70 years of age, and people aged 71 to 79 years were eligible for catch-up vaccination with Zostavax. From 1 November 2023, adults were eligible to receive Shingrix on the NIP at age 65 years and older, or at 50 years and older for First Nations people.

In 2023, among adults turning 71 years of age, coverage of zoster vaccination (having received 1 dose of Zostavax or 2 doses of Shingrix) was 41.0%. This coverage level was similar to previous years: 41.3% in 2022; 38.7% in 2021; and 36.9% in 2020. In 2023, Shingrix vaccine was received by 359,242 adults aged 65 years, and 134,467 adults aged 70 years and over received Zostavax (of which 48.7% were catch-up vaccination doses among adults aged 71 to 79 years).

Pneumococcal vaccine

Since July 2020, all people aged 70 years and over, and First Nations people aged 50 years and over, are eligible to receive a dose of pneumococcal conjugate vaccine on the NIP. In 2023, among adults who turned 71 years of age, the coverage of 13vPCV was 37.6%. This was higher than in previous years: 33.8% in 2022; 23.9% in 2021; and 7.8% in 2020.

Important changes to the Australian Immunisation Handbook

The COVID-19 chapter was added.ⁱ This was a major update to provide a complete COVID-19 disease chapter to replace the previous COVID-19 vaccine clinical guidance, which was in place for the emergency phase of the pandemic. Subsequent updates included recommendations for further doses of COVID-19 vaccine and recommendations for a single primary dose of COVID-19 vaccine.

The respiratory syncytial virus (RSV) chapter was added.ⁱⁱ This was a major update to provide information on recommendations for use of RSV immunisation products. Recommendations include use of RSV vaccines in adults and in pregnant people, and use of long-acting RSV monoclonal antibodies in infants and young children.

The pneumococcal disease chapter was updated to incorporate clinical guidance and interim recommendations for extended-valency vaccines (Vaxneuvance, a 15-valent PCV [15vPCV] and Prevenar 20, a 20vPCV).ⁱⁱⁱ These vaccines have been registered by the TGA but are not currently funded under the NIP.

The HPV chapter was updated to incorporate the change from a 2-dose to 1-dose schedule for young adults.^{iv} Guidance was also updated on opportunities to offer catch-up HPV vaccination in adults and on situations where vaccination may need to be considered for children aged under 9 years old.

The zoster (herpes zoster) chapter was updated to reflect new recommendations and the listing of Shingrix vaccine on the NIP for eligible groups.^v

The meningococcal disease chapter was updated to expand the recommendation for meningococcal vaccination to include people with acquired complement deficiency due to complement inhibitor therapy (including but not limited to eculizumab or ravulizumab).^{vi}

The rabies and other lyssaviruses chapter was updated with guidance on an option for a two-dose pre-exposure prophylaxis schedule, and to incorporate a newly available rabies vaccine (Verorab).^{vii}

The cholera chapter was updated with guidance on the new live-attenuated oral cholera vaccine (Vaxchora).^{viii}

The diphtheria,^{ix} tetanus,^x pertussis,^{xi} hepatitis B,^{xii} poliomyelitis,^{xiii} and *Haemophilus influenzae* type b (Hib)^{xiv} chapters were updated to reflect the addition of the hexavalent vaccine Vaxelis on the NIP, and to update guidance on co-administration of Vaxelis with other vaccines.

The catch-up vaccination chapter was updated to reflect changes to catch-up vaccination with HPV and zoster vaccines in people aged 10 years and older, and changes to age indications for 15vPCV.^{xv}

i <https://immunisationhandbook.health.gov.au/contents/vaccine-preventable-diseases/covid-19>.

ii <https://immunisationhandbook.health.gov.au/contents/vaccine-preventable-diseases/respiratory-syncytial-virus-rsv>.

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

iv <https://immunisationhandbook.health.gov.au/contents/vaccine-preventable-diseases/human-papillomavirus-hpv>.

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

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

vii <https://immunisationhandbook.health.gov.au/contents/vaccine-preventable-diseases/rabies-and-other-lyssaviruses>.

viii <https://immunisationhandbook.health.gov.au/contents/vaccine-preventable-diseases/cholera>.

ix <https://immunisationhandbook.health.gov.au/contents/vaccine-preventable-diseases/diphtheria>.

x <https://immunisationhandbook.health.gov.au/contents/vaccine-preventable-diseases/tetanus>.

xi <https://immunisationhandbook.health.gov.au/contents/vaccine-preventable-diseases/pertussis-whooping-cough>.

xii <https://immunisationhandbook.health.gov.au/contents/vaccine-preventable-diseases/hepatitis-b>.

xiii <https://immunisationhandbook.health.gov.au/contents/vaccine-preventable-diseases/poliomyelitis>.

xiv <https://immunisationhandbook.health.gov.au/contents/vaccine-preventable-diseases/haemophilus-influenzae-type-b-hib>.

xv <https://immunisationhandbook.health.gov.au/contents/catch-up-vaccination>.

New vaccines and potential vaccination programs

The TGA registered five new vaccines in 2023 (Table 2).

Table 2: New vaccines registered with the TGA in 2023

Vaccine brand name	Description	Protects against	For use in ages
Comirnaty Omicron XBB.1.5	mRNA vaccine	COVID-19	6 months and over
Comirnaty Original/ Omicron BA.4-5	mRNA bivalent vaccine	COVID-19	12 years and over (booster dose)
Spikevax Bivalent Original/ Omicron BA.4-5	mRNA bivalent vaccine	COVID-19	12 years and over (booster dose)
Spikevax XBB.1.5	mRNA vaccine	COVID-19	12 years and over
Vaxchora	Live-attenuated oral vaccine	Cholera	2 years and over

For more information on the current status of COVID-19 vaccines in Australia, see the TGA COVID-19 vaccines regulatory status.¹⁰

Respiratory syncytial virus

Respiratory syncytial virus (RSV) became a nationally notifiable disease in July 2021. There were 127,944 cases notified in Australia in 2023. Incidence rates were highest in infants and children aged 0–4 years, and in adults aged 85 years and over.

ATAGI has been conducting a detailed review of the epidemiology of RSV disease in Australia and has been assessing several new RSV vaccines, including some that were registered in 2023 in the United States and Europe for use in older adults, and in pregnant people to prevent RSV disease in infants. In 2023, the TGA started evaluation of three RSV vaccines: Arexvy (GSK, subsequently approved for use in older adults in January 2024);⁴⁸ Abrysvo (Pfizer, subsequently approved for use in pregnant people and older adults in March 2024);⁴⁹ and mRESVIA (Moderna, subsequently approved for use in older adults in March 2025).⁵⁰ In February 2024, ATAGI provided clinical advice on the use of Arexvy vaccine to prevent illness and severe complications associated with RSV in older adults.⁵¹ ATAGI is also closely monitoring all preventive immunisation strategies for RSV, including long-acting monoclonal antibodies. In March 2024, ATAGI released guidance on the use of nirsevimab for the prevention of severe disease due to RSV in infants. Both the Arexvy and nirsevimab statements were subsequently incorporated into the new RSV chapter in the Australian Immunisation Handbook.^{xvi}

Pneumococcal disease

Two pneumococcal vaccines were registered by the TGA in 2022: Vaxneuvance (15vPCV) and Prevenar 20 (20vPCV). In 2023, the Australian Immunisation Handbook was updated with interim recommendations for these vaccines, but they were not funded under the NIP in 2023.

During 2023, ATAGI monitored for developments in clinical trials for other pneumococcal vaccines with extended valency, including 21vPCV, 24vPCV and 25vPCV.

Combination vaccines for COVID-19 and influenza

Combination mRNA vaccines that target several respiratory viruses in a single vaccine, including COVID-19 and influenza, are under development.

ATAGI will continue to monitor the development of combination vaccines for respiratory viruses, as well as other new vaccines for protection against a range of infectious diseases.

xvi <https://immunisationhandbook.health.gov.au/contents/vaccine-preventable-diseases/respiratory-syncytial-virus-rsv>.

Vaccine safety (not including COVID-19 vaccines)

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 or their carers can report any vaccine side effects they have experienced.⁵² 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, known as the AusVaxSafety system,^{xvii} through which people who have been vaccinated or their carers are contacted directly and asked whether they have experienced any vaccine side effects.

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

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

Influenza vaccines

AusVaxSafety data demonstrate the safety of the 2023 seasonal influenza vaccines.⁵³ Of 215,455 participants in the 2023 safety survey, 82.7% reported no adverse event following immunisation. Just over 1 in 100 parents or carers of children aged under 5 years (1.1%) reported taking their child to see a doctor or going to the emergency department in the days after influenza vaccination. Fewer 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. These medical visits may or may not be due to the vaccination, but close monitoring of these occurrences allows early detection of any potential safety signals.

Mpox vaccines

Safety surveillance of mpox vaccine through AusVaxSafety ended on 17 April 2023. Safety data collected from more than 15,000 people who had received the JYNNEOS mpox vaccine showed no serious safety concerns.⁵⁴ JYNNEOS can either be injected into the outer layer of the skin (intradermally) or into the tissue between the skin and underlying muscle (subcutaneously). As of 17 April 2023, the responses to the safety survey in 2023 reported no adverse events after dose 2 for 65% of recipients with the intradermal route (3,635 participants) and 68% of recipients with the subcutaneous route (2,040 participants).⁵⁴

Vaccines administered by both routes were safe, with fewer than 1 in 100 people reporting that they sought medical care in the days after receiving JYNNEOS. These data provide a short-term assessment of safety, rather than long-term adverse events.⁵⁵

It is uncertain whether JYNNEOS is associated with a risk of myocarditis or pericarditis.⁵⁶ Data from overseas vaccine safety assessments did not suggest an increased risk of myocarditis or pericarditis after vaccination with JYNNEOS compared with placebo controls.⁵⁷

Recombinant zoster vaccine (Shingrix)

The recombinant (non-live) zoster vaccine, Shingrix, has been used in the NIP since November 2023. Preliminary AusVaxSafety data collected from 12,447 Shingrix vaccine recipients showed no serious safety concerns with Shingrix as at 1 January 2024.⁵⁸ Fewer than 1% of people who received Shingrix on its own, and fewer than 0.5% of people who received Shingrix with another vaccine, reported seeing a doctor or going to the emergency department in the days after vaccination.

TGA safety update on live vaccines

On 4 May 2023, the TGA published a safety update on live vaccines and their contraindications to remind healthcare professionals that live vaccines should not be given to people who are pregnant or significantly immunocompromised.⁵⁹ This is particularly the case for the live-attenuated herpes zoster vaccine (Zostavax) and the live-attenuated JE vaccine (Imojev).

xvii <https://www.ausvaxsafety.org.au/>.

Challenges and priorities for immunisation in Australia in 2024 and beyond

This document highlights the key successes, trends and challenges in the use of vaccines and control of VPDs in Australia in 2023. Maintaining rapid policy advice for emerging and re-emerging VPDs is a key challenge for ATAGI. In 2023, the emergency responses to JE and mpox were stood down. The emergency response to COVID-19 was also stood down and Australia began to transition to managing COVID-19 in a similar way to other respiratory viruses. Another key challenge is monitoring safety and effectiveness of new and established COVID-19 vaccines, including those based on more recent variants. ATAGI recommended an additional 2023 COVID-19 vaccine dose for people most at risk of severe illness and death. In November 2023, ATAGI stated a preference for monovalent Omicron XBB.1.5 vaccines over other previous COVID-19 vaccine formulations for people who are recommended to receive primary or additional doses of COVID-19 vaccine.

Other key challenges include maintaining community confidence in Australia's vaccination program and continuing to improve uptake of vaccines in all recommended age groups and risk groups. In 2023, immunisation coverage overall remained high, although the incidence of some VPDs, including influenza and pneumococcal disease, approached pre-pandemic levels, and vaccination rates were suboptimal in some regions and some population groups within Australia.

Monitoring safety and effectiveness for updated NIP vaccine programs, such as HPV, zoster and pneumococcal vaccination programs, is also a key challenge and is needed to help maintain confidence in vaccines as outlined above. ATAGI recommended moving from a two-dose to a one-dose schedule for the HPV vaccine, a change which was introduced on the NIP in February 2023. Eligibility for the national herpes zoster vaccination program was substantially expanded from November 2023, using a newer, safer and more effective inactivated vaccine, Shingrix.

ATAGI commenced work on recommendations for several other vaccines. This included incorporating a new cholera vaccine and a new NIP hexavalent vaccine Vaxelis into relevant disease chapters, and updating recommendations for HPV, pneumococcal, and Zoster into the Australian Immunisation Handbook. ATAGI continued to assess and provide advice on the best strategies for preventing and controlling other VPDs, including influenza, poliomyelitis (polio), and pneumococcal disease, and assessing a number of new preventative products targeting RSV.

ATAGI's ongoing priorities for 2024 include continuing to provide recommendations for immunisation strategies that enhance the availability of NIP-funded vaccines to groups at increased risk of VPDs and monitoring and evaluation of emerging and re-emerging VPDs, upcoming vaccines that are being developed and new and amended vaccine programs in Australia. ATAGI's specific priorities for 2024 include continuing to advise on optimal uses of COVID-19 vaccination; to advise and monitor routine vaccination for VPD control in Australia; to monitor and advise on new vaccine developments for VPDs of interest; and to collaborate and engage with key stakeholders and other committees relevant to immunisation, both nationally and internationally.

The key challenges for prevention and control of VPDs, in 2024 and beyond, can be summarised as:

- maintaining rapid policy advice for emerging and re-emerging VPDs, such as measles, pertussis and polio, as required, noting that outbreaks of measles and pertussis are probable in Australia in 2024;
- maintaining community confidence in Australia's vaccination program;
- continuing to improve uptake of vaccines in all recommended age groups and risk groups;
- ensuring equitable access to and improved coverage of NIP-funded vaccines for First Nations communities and other priority populations;
- monitoring safety and effectiveness of new and established COVID-19 vaccines, including those based on more recent variants;
- monitoring safety and effectiveness for updated NIP vaccine programs, such as HPV, zoster and pneumococcal vaccination programs;

- increasing one-dose coverage of HPV vaccine through the school-based program, aligning with the WHO-recommended global strategy target of 90% for recommended population groups;⁶⁰ and
- continuing to monitor 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.

ATAGI's ongoing priority actions and specific priorities for 2024 are summarised in Table 3. 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.

Table 3: ATAGI's priority actions for 2024

Category	Subcategory	Priority action
Ongoing priorities		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
		Advise on developing strategies to improve vaccination uptake for recommended groups, especially priority populations and those at highest risk of VPDs
		Advise on improving identification and assessment of populations (such as some culturally and linguistically diverse communities) who are undervaccinated, and developing strategies to remove barriers to vaccination uptake, improve awareness of and confidence in vaccination, and improve timeliness of receiving scheduled vaccines
		Strengthen the evaluation of evidence and continue publishing evidence-based immunisation recommendations through the Australian Immunisation Handbook. This also includes continuing to work closely with the National Health and Medical Research Council to streamline its endorsement of Handbook recommendations
		Continue to work with regional and international partners, including via exchanges with NITAGs of other countries
		Support the development of evidence-based immunisation resources that are culturally sensitive and appropriate for unique First Nations communities
		Support and provide advice on the feasibility of expanding the no-fault vaccine claims scheme, which has been operational for COVID-19 vaccines, to potentially include all vaccines on the NIP
		Advise on improvements to health technology assessment methods and processes that facilitate listing of safe and cost-effective uses of vaccines on the NIP
		Scope vaccines on the horizon for potential inclusion in the NIP. These may include newer vaccines for influenza, pneumococcal disease, RSV, and combination vaccines for several respiratory diseases

Category	Subcategory	Priority action
Specific priorities for 2024	National COVID-19 vaccination program	Continue to advise on optimal uses of new COVID-19 vaccines and vaccination schedules for various population groups
	Routine vaccination for VPD control in Australia	Support continued high and timely uptake of routine infant vaccines
		Monitor the coverage trends for declines in uptake of some routine childhood vaccines and ensure continued high vaccination coverage for protection against VPDs after the COVID-19 pandemic and its impacts
		Advise on ways to improve uptake of influenza vaccine, given the decreased and suboptimal uptake in recent years and influenza remaining a common disease with serious health and economic consequences to the community
		Monitor the epidemiology of VPDs that may resurge after a period of low incidence during the COVID-19 pandemic (such as pertussis) and provide advice on maximising vaccination uptake in target populations
		Continue important updates to some chapters of the Australian Immunisation Handbook, including vaccination for people who are immunocompromised
		Continue to advise on the optimal schedule for certain vaccines, such as for pneumococcal disease
	Horizon scanning, monitoring and evaluation	Advise on new vaccine developments for VPDs of interest – particularly RSV, with development of Australian Immunisation Handbook recommendations for protection in both infants and older Australians
		Monitor and advise on new vaccines that become available in Australia, including higher-valency pneumococcal vaccines and combination vaccines that protect against several respiratory diseases
		Advise on monitoring and evaluation of changed immunisation programs, including HPV, zoster and pneumococcal vaccination programs
	Collaboration with key stakeholders and other committees	Continue to engage with key stakeholders and other committees, and to update and expand engagement where relevant
		Continue to advise and assist other Australian agencies in work on data linkage and integration, such as the Australian Immunisation Register linked to the Person Level Integrated Data Asset (AIR-PLIDA) Project, to monitor and evaluate vaccination programs and enhance the assessment of vaccination coverage and understanding of potential barriers for vaccine uptake among special populations
		Provide input into the new National Immunisation Strategy (2024 to 2029) and work with the Australian Centre for Disease Control to improve Australia's response and preparedness for public health emergencies relating to VPDs

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Appendix A: About ATAGI

The Australian Technical Advisory Group on Immunisation (ATAGI) advises the Minister for Health on the National Immunisation Program (NIP) and 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.⁶¹

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 in the vaccines used in the programs; and to boost equity in access to, and outcomes of, immunisation programs.

The National Centre for Immunisation Research and Surveillance (NCIRS) provides technical support to ATAGI and the Australian Government Department of Health, Disability and Ageing. ATAGI works with NCIRS to develop and publish the Australian Immunisation Handbook.