

# Adult vaccination

## VACCINES FOR AUSTRALIAN ADULTS: INFORMATION FOR IMMUNISATION PROVIDERS

This fact sheet gives an overview of the vaccines provided for adults under the Australian National Immunisation Program and those recommended for adults in the 10th edition of *The Australian Immunisation Handbook*<sup>1</sup> available on the Immunise Australia website. The information in this fact sheet is summarised in a table which can be used as a stand-alone resource (available at [www.ncirs.edu.au/provider-resources/immunisation-schedules](http://www.ncirs.edu.au/provider-resources/immunisation-schedules)).

### Overview

- More vaccines are becoming available and recommended in *The Australian Immunisation Handbook* for use during adulthood.
- Adults may be recommended to receive certain vaccinations if they are at increased risk of disease due to factors such as age, occupation, personal behaviours or medical conditions. Some recommended vaccines are funded through the National Immunisation Program (NIP), state and territory programs or through the workplace for certain groups, while other vaccines can be purchased privately by prescription.
- Immunisation providers play an important role in promoting vaccination during adulthood and should seize every opportunity to identify and offer vaccination to eligible individuals.
- Currently, seasonal influenza vaccine, pneumococcal polysaccharide vaccine and zoster (shingles) vaccine are funded for eligible adults under the NIP.
- Zoster vaccine was introduced to the NIP in November 2016 for adults aged 70 years, with a catch-up program for those aged 71–79 years funded until October 2021. As it is a live attenuated vaccine, zoster vaccine is generally contraindicated in people who are immunocompromised.
- Influenza and pertussis vaccines are recommended for pregnant women. Pertussis vaccine is now recommended in the third trimester of every pregnancy; this is much more effective than postpartum vaccination and provides optimal protection against pertussis for newborns. Influenza vaccine can be given at any stage of pregnancy.
- It is important that Aboriginal and Torres Strait Islander (Indigenous) status is noted during consultation as the indications and eligibility for NIP-funded vaccines for Indigenous people are different to those for non-Indigenous people.
- A number of vaccines (e.g. influenza, pneumococcal, diphtheria-tetanus-pertussis, measles-mumps-rubella and others) are recommended for adults in certain age and at-risk groups.

### Recording and reporting

- The Australian Childhood Immunisation Register (ACIR) was expanded to become the Australian Immunisation Register (AIR) in September 2016. The AIR aims to capture all NIP-funded and most privately purchased vaccines given to Australians of all ages. There are separate registers for HPV (school-based) vaccinations and Q fever vaccination.
- Adverse events following immunisation should be reported to the Therapeutic Goods Administration via the established mechanism in each state or territory. AusVaxSafety, a sentinel surveillance system, also actively monitors the safety of vaccines using SMS-feedback from recently vaccinated children and adults.

## Epidemiology

Hospitalisations and deaths due to vaccine-preventable diseases occur in adults. In the 4-year period between 2008 and 2011, the Australian Institute of Health and Welfare (AIHW) National Mortality Database recorded over 700 deaths in adults due to vaccine-preventable diseases, predominantly pneumococcus, influenza and herpes zoster.

- Elderly people suffer high rates of morbidity and mortality due to infectious diseases. Influenza, pneumococcal disease and herpes zoster have their highest mortality rates in older adults.<sup>2</sup>
- For some diseases, even though the illness is less severe in adults they can still transmit the infection to others who are vulnerable.<sup>3</sup> For example, adult household contacts have been identified as the major source of pertussis infection in young infants (who are most at risk of hospitalisation and death due to pertussis). Evidence from studies of infant pertussis cases indicates that family members, particularly parents, are the source of infection in at least 50% of cases.<sup>3</sup>
- Reduced immunity in adults due to incomplete or missed childhood vaccine doses plays a role in the burden of disease. For example, measles disease outbreaks in countries without endemic measles, like Australia, have been linked to virus imported by non-immune young adult travellers.<sup>4,5</sup>
- Aboriginal and Torres Strait Islander (hereafter respectfully referred to as Indigenous) Australians have higher rates of morbidity and mortality due to a number of vaccine-preventable diseases than non-Indigenous Australians. In young Indigenous adults, rates of invasive pneumococcal disease (IPD) are 12 times greater than in their non-Indigenous counterparts.<sup>6</sup>
- Certain personal behaviours can put adults at increased risk of vaccine-preventable diseases. For example, at-risk behaviours such as injecting drug use are recorded in a large proportion of new hepatitis B cases notified in Australia.<sup>7</sup>

## What vaccines are recommended for adults?

### Influenza

Yearly seasonal influenza vaccinations are recommended for any person  $\geq 6$  months of age who would like to be protected against influenza.

Influenza vaccination is funded under the NIP for:

- older adults ( $\geq 65$  years of age)
- pregnant women (see also [During and after pregnancy](#) below)
- any person  $\geq 6$  months of age with specific underlying medical conditions that put them at increased risk of severe influenza (see also [At-risk medical conditions](#) below)

- Indigenous Australians  $\geq 15$  years of age (as well as those 6 months to  $< 5$  years of age), regardless of medical risk factors.

Details of the current national seasonal influenza vaccination program, including the underlying medical conditions that make individuals eligible for free vaccination under the NIP, are available on the Immunise Australia website

([www.immunise.health.gov.au/internet/immunise/publishing.nsf/Content/immunise-influenza](http://www.immunise.health.gov.au/internet/immunise/publishing.nsf/Content/immunise-influenza)).

Refer also to the NCIRS fact sheets [Influenza vaccines for Australians](#) and [Influenza – frequently asked questions](#).

### Pneumococcal disease

Two types of pneumococcal vaccine are available in Australia: a 23-valent **pneumococcal polysaccharide** vaccine (23vPPV) and a 13-valent **pneumococcal conjugate** vaccine (13vPCV).

23vPPV is recommended for adults who have a condition that increases their risk of invasive pneumococcal disease (IPD; as outlined in the [Immunisation Handbook](#)).

23vPPV is funded under the NIP for:

- Non-Indigenous adults  $\geq 65$  years of age
- Indigenous adults  $\geq 50$  years of age
- Indigenous adults aged 15–49 years who have a condition that increases their risk of IPD.

In addition, 23vPPV is subsidised under the Pharmaceutical Benefits Scheme (PBS) for adults who have a condition that increases their risk of IPD (as outlined in the *Handbook*) but for whom 23vPPV is not funded under the NIP.

All adults who have a medical condition(s) that puts them at the greatest risk of IPD (i.e. any Category A conditions on [List 4.13.1 in the Immunisation Handbook](#)) are recommended to receive a dose of 13vPCV.

Haematopoietic stem cell transplant (HSCT) recipients should receive three doses. The potential introduction of an NIP-funded program that uses 13vPCV for adults is currently being evaluated.

### Zoster

A single dose of the live attenuated zoster vaccine (Zostavax<sup>®</sup>) is recommended for all adults aged  $\geq 60$  years who have not previously received a dose. This is because of the high disease burden<sup>8</sup> of herpes zoster and post-herpetic neuralgia, and demonstrated vaccine efficacy,<sup>9</sup> in this age group.

The zoster vaccine is funded under the NIP for adults aged 70 years, with catch-up for those aged 71–79 years also funded until October 2021.

Zoster vaccine is generally contraindicated in people who are immunocompromised. The benefits and risks of vaccination should be considered on a case-by-case basis

in any person who may be immunocompromised (described in the NCIRS fact sheets listed [below](#)). The decision on whether to vaccinate should be made in consultation with the patient's treating specialist (to determine the extent of immunocompromise) and/or an immunisation expert.

The exact duration of vaccine efficacy is not known; however, protection following a single vaccine dose wanes with time. The need for revaccination has not yet been determined.

Zostavax<sup>®</sup> can be given at the same time as influenza and pneumococcal polysaccharide vaccines using separate syringes and injection sites.

Zoster and varicella vaccines cannot be used interchangeably. Zoster vaccine contains approximately 14 times the concentration of live attenuated varicella-zoster virus that is in the varicella (chickenpox) vaccine.

Refer also to NCIRS fact sheets on [Zoster vaccine for Australian adults](#) and [Zoster vaccine – frequently asked questions](#).

### **Diphtheria, tetanus and pertussis (dT/dTpa)**

Diphtheria and tetanus vaccinations can be given as either diphtheria-tetanus (dT) formulation or, preferably, the adult formulation of the diphtheria-tetanus-acellular pertussis vaccine, dTpa (Boostrix<sup>®</sup> or Adacel<sup>®</sup>), which also provides immunity against pertussis.

A booster dose of a **tetanus-containing** vaccine is recommended, though not funded under the NIP, for adults:

- ≥50 years of age who have not received a tetanus-containing vaccine in the previous 10 years (but have previously completed a primary course)
- with tetanus-prone wounds if more than 5 years has elapsed since a previous dose (tetanus immunoglobulin may also be required as outlined in the [Immunisation Handbook](#)).

A single booster dose of a **pertussis-containing** vaccine is recommended for adults:

- ≥65 years of age who have not received a dose in the previous 10 years
- in close contact with infants <6 months of age, if more than 10 years has elapsed since the previous dose.

While some adults would have received multiple dT-containing vaccines in their lifetime, others may have not received any since childhood. Multiple vaccinations with dT-containing vaccines can result in local reactions at the site of injection but are generally safe.

Refer also to the NCIRS fact sheet on [Pertussis vaccines for Australians](#).

### **Measles, mumps and rubella (MMR)**

For greatest protection against measles, mumps and rubella, adults who were born after 1966 should have received two doses of MMR vaccine as they may lack natural immunity to measles, mumps and rubella.

Some adults may be not immune or only partially immune to measles, mumps and rubella because they were not captured in the Australian Measles Control Campaign in the late 1990s and the subsequent Young Adults MMR program in 2001.<sup>10,11</sup>

It is important to check the measles, mumps and rubella vaccination status of adults, especially women of child-bearing age (see [During and after pregnancy](#)).

Some states and territories fund MMR vaccine for adults.

### **At-risk groups with specific vaccination recommendations**

#### **During and after pregnancy**

Except for pertussis and inactivated influenza vaccines, vaccination during pregnancy is not routinely recommended in Australia. Live viral vaccines, such as MMR and varicella, are contraindicated during pregnancy.

If a woman is planning pregnancy, it is advisable to review her vaccination history, in particular for hepatitis B, rubella and varicella. Immunity to rubella (and to varicella, if the woman has no clear history of vaccination or disease) should be established via serological screening before pregnancy, as outlined in the [Immunisation Handbook](#).

#### **Pertussis**

- Pertussis vaccination is recommended in the third trimester (optimally between 28 and 32 weeks) of *every* pregnancy. This provides protection to the newborn in the first months of life due to the transfer of antibodies against pertussis in utero. Pertussis vaccination of pregnant women at least 7 days before delivery has been shown to prevent pertussis in 91% of infants <3 months of age.<sup>12</sup> Currently pertussis vaccination for pregnant women (using dTpa vaccine) is funded by individual states and territories, not the NIP.
- If a pregnant woman does not receive pertussis-containing vaccine while pregnant, a dose should be given as soon as possible after birth to reduce the likelihood of passing pertussis to the newborn while they are most vulnerable.
- Any adult household contacts and carers (e.g. fathers, grandparents) of infants <6 months of age should receive a dTpa vaccine at least 2 weeks before beginning close contact with the infant, if more than 10 years has elapsed since a previous dose.

## Influenza

- Seasonal influenza vaccination is funded under the NIP for pregnant women and can be given at any stage during pregnancy. It is particularly important for women who will be in their second or third trimester during the influenza season.
- Influenza vaccines have a good safety profile in pregnant women and have been demonstrated to prevent influenza complications in the women themselves and in their infants.<sup>13-15</sup>

Refer also to the NCIRS fact sheet on [Vaccinations during pregnancy](#).

### Aboriginal and Torres Strait Islander people

Due to the higher rates of influenza and IPD in Indigenous adults compared to non-Indigenous adults, the eligibility criteria for NIP-funded vaccinations against these diseases differ for Indigenous adults (see [Influenza](#) and [Pneumococcal disease](#) above). Every effort should be made to identify Indigenous Australians in all immunisation clinic and primary care settings to ensure appropriate vaccines are given at the correct age.

### At-risk medical conditions

Pre-existing chronic diseases or comorbid conditions can increase a person's risk of acquiring some vaccine-preventable diseases and developing serious complications of these diseases.

- Influenza vaccination is recommended for people with certain underlying medical conditions that increase their risk of serious influenza disease and complications, including, but not restricted to, chronic respiratory conditions, cardiac disease, neurological conditions, obesity (BMI  $\geq 40$ ), chronic liver disease and diabetes mellitus, as outlined in the [Immunisation Handbook](#).
- People with specific medical conditions should also receive pneumococcal, hepatitis A, hepatitis B, human papillomavirus (HPV) and meningococcal vaccination, described in more detail in the [Immunisation Handbook](#).
- Certain vaccinations are recommended for immunocompromised adults including (but not limited to):
  - oncology patients
  - solid organ and bone marrow transplant recipients
  - HIV-infected individuals
  - individuals with functional or anatomical asplenia.
- Live vaccines, including MMR, varicella, zoster, yellow fever and BCG vaccines, are generally (but with exceptions – see the [Immunisation Handbook](#)) contraindicated in adult patients who are immunocompromised. In some instances, vaccination of household contacts is recommended to prevent transmission to the vulnerable individual.

Immunisation of adults who are immunocompromised can be complex and may involve alternative schedules to those recommended for immunocompetent adults.

Vaccination is best considered in consultation with the patient's specialist healthcare provider or an immunisation expert.

If immunity following vaccination is uncertain, serological testing of antibody levels may be useful in some circumstances. For detailed information on vaccinating immunocompromised adults, see [Section 3.3.3 in the Immunisation Handbook](#).

### At-risk personal behaviours

Some personal behaviours such as sexual practices, drug use and smoking are indications for certain vaccinations.

- Hepatitis A and hepatitis B vaccines are recommended for men who have sex with men (MSM) and people who inject drugs.
- HPV vaccination should be considered for MSM who have not previously been vaccinated, after taking into account their likelihood of previous exposure to HPV and their future risk of HPV exposure.
- People who smoke tobacco have an increased risk of IPD and vaccination with 23vPPV is recommended.
- Meningococcal vaccines against serogroup B (Bexsero<sup>®</sup>) and serogroups A, C, W and Y (Menactra<sup>®</sup>, Menveo<sup>®</sup> or Nimenrix<sup>®</sup>) are recommended for young adults living in high-risk settings (such as new military recruits and students living in residential accommodation), prior to or as soon as possible after entry.

### At-risk occupations

Certain occupations are associated with a greater risk of acquiring and/or transmitting a vaccine-preventable disease than the general population. These are described in more detail in [Table 3.3.7 in the Immunisation Handbook](#) and include:

- healthcare workers, including trainees and students
- those who care for children
- carers of people with intellectual disabilities or the elderly
- students in healthcare-related fields
- laboratory personnel
- those who work with or are in contact with animals
- anyone exposed to human tissue, blood, body fluids or sewage
- emergency and essential service workers.

Healthcare workers are a priority group for whom a number of vaccinations including pertussis, MMR, varicella, hepatitis B and influenza could be relevant, due to their personal risk of acquiring vaccine-preventable diseases from patients. Vaccination of healthcare workers also reduces the likelihood of them transmitting some of these infections to their patients, who are often vulnerable to serious complications following infection.

## Travel

This fact sheet is not intended to provide comprehensive information on vaccines for international travel purposes. A chapter outlining vaccines recommended for travellers can be found in the [Immunisation Handbook](#).

Travel is an important time to ensure that patients are up to date with standard vaccinations recommended for their age, including dT, MMR, polio and influenza. These diseases can be imported to Australia by travellers who are not immune, leading to disease outbreaks as observed with measles in recent years.<sup>4,5</sup>

Travel vaccination requirements depend on the travel destination, likely risks of exposure to vaccine-preventable diseases, and the individual's medical and vaccination history. In some instances, documentation of vaccinations (e.g. against yellow fever) may be required under International Health Regulations. It is recommended that patients are referred to specialist travel health clinics or GPs with extensive experience in this area.

## Migrants to Australia

In many instances, adult migrants entering Australia do not have adequate immunity against one or more diseases for which vaccination is recommended in Australia. This may include hepatitis B, tetanus, diphtheria, polio and measles,<sup>16</sup> and catch-up schedules may be required.<sup>17</sup>

- Developing catch-up programs for migrants can be complex; advice can be found in the [Immunisation Handbook](#), or by contacting the relevant [state or territory health department](#).
- If no valid documentation of vaccination exists, a standard catch-up schedule should be commenced.
- If documentation is provided, it is important to check that the intervals between doses are appropriate.
- Serological testing is not routinely recommended but may be appropriate for hepatitis B and rubella.
- It is important to provide hand-held documentation of any vaccinations given and dates of future vaccinations.

From July 2017, refugees and other humanitarian entrants are eligible for free catch-up vaccines on an ongoing basis through the NIP.<sup>18</sup>

## How are adult vaccinations recorded?

A 'whole-of-life' Australian Immunisation Register (AIR) was introduced to replace the Australian Childhood Immunisation Register (ACIR) in September 2016. The AIR aims to capture all NIP-funded and most privately purchased vaccines, given to people of all ages.

There are also separate registers for HPV (school-based) vaccinations and Q fever vaccination.

- Immunisation providers are encouraged to notify all Gardasil<sup>®</sup> and Cervarix<sup>®</sup> vaccinations to the National

HPV Vaccination Program Register (HPV Register) ([www.hpvregister.org.au/health-professionals.aspx](http://www.hpvregister.org.au/health-professionals.aspx)).

- The Australian Q Fever Register can assist in determining an individual's immunity to Q fever ([www.qfever.org](http://www.qfever.org)).

## What are vaccine uptake rates in adults?

Government health departments and health professionals have previously relied on population surveys to estimate vaccination coverage in the adult population.

- According to the most recent survey data, about 73% of Australians aged  $\geq 65$  years received the seasonal influenza vaccine in 2014,<sup>19</sup> and about 54% of Australians aged  $\geq 65$  years had been vaccinated against pneumococcal disease in 2009.<sup>20</sup>
- The uptake of other NIP vaccines, as well as those recommended for adults but not funded under the NIP, is not as well known, but is likely to be low.<sup>21</sup> Adult vaccination data captured in the AIR will be reported when reliable estimates can be obtained.
- Recommendation by healthcare providers has been shown to increase the likelihood of adults receiving their required vaccines.<sup>22</sup>

## How are adverse events following immunisation in adults reported?

Immunisation providers in all states and territories, except Tasmania, should report any significant or unexpected adverse event following immunisation (AEFI) directly to the relevant [health authority](#) in their state or territory, which will then forward the details of the notified adverse event to the TGA. Direct reporting to the TGA is also accepted. Providers in Tasmania should report directly to the TGA using the 'Blue card' form ([www.tga.gov.au/form/blue-card-adverse-reaction-reporting-form](http://www.tga.gov.au/form/blue-card-adverse-reaction-reporting-form)).

Advice on how to best manage patients who have experienced an AEFI can be obtained from [state and territory health departments](#) and/or designated clinics that are part of the AEFI–Clinical Assessment Network.

AusVaxSafety is a sentinel surveillance system that actively monitors the safety of vaccines using SMS feedback from recently vaccinated children and adults. AusVaxSafety is established in more than 200 sentinel immunisation providers across all Australian states and territories.

## Additional resources for primary medical care/vaccination providers

- *The Australian Immunisation Handbook*, 10th edition – the most up-to-date clinical recommendations are contained in the online version of the *Handbook* [www.immunise.health.gov.au/internet/immunise/publishing.nsf/Content/Handbook10-home](http://www.immunise.health.gov.au/internet/immunise/publishing.nsf/Content/Handbook10-home)
- Immunise Australia website [www.immunise.health.gov.au](http://www.immunise.health.gov.au)
- National Immunisation Program schedule [www.immunise.health.gov.au/internet/immunise/publishing.nsf/Content/national-immunisation-program-schedule](http://www.immunise.health.gov.au/internet/immunise/publishing.nsf/Content/national-immunisation-program-schedule)
- ACT Health: [www.health.act.gov.au](http://www.health.act.gov.au)
- NSW Health: [www.health.nsw.gov.au](http://www.health.nsw.gov.au)
- Northern Territory Department of Health: [www.health.nt.gov.au](http://www.health.nt.gov.au)
- Queensland Health: [www.health.qld.gov.au](http://www.health.qld.gov.au)
- SA Health: [www.sahealth.sa.gov.au](http://www.sahealth.sa.gov.au)
- Tasmania Department of Health and Human Services: [www.dhhs.tas.gov.au](http://www.dhhs.tas.gov.au)
- Victoria – Health.vic: [www.health.vic.gov.au](http://www.health.vic.gov.au)
- WA Health: [www.health.wa.gov.au](http://www.health.wa.gov.au)

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