

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 2015 update of the 10th edition of *The Australian Immunisation Handbook*¹ 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/immunisation/schedules/index.php).

Overview

- More vaccines are becoming available and recommended in *The Australian Immunisation Handbook* for use during adulthood.
- Currently only the seasonal influenza vaccine and the pneumococcal polysaccharide vaccine are funded under the National Immunisation Program (NIP). Zoster vaccine will be introduced to the NIP in November 2016. Some vaccines are funded through state and territory programs or through the workplace. Other recommended vaccines are purchased privately by the individual.
- Adults may be recommended to receive vaccinations due to a range of factors which can increase their risk of disease, such as age, lifestyle behaviours or medical conditions.
- It is important that Indigenous status is noted during consultation as the indications for NIP-funded vaccines for Aboriginal and Torres Strait Islander people are different to those for non-Indigenous people.
- Immunisation providers play an important role in promoting vaccination during adulthood and should seize every opportunity to identify and offer vaccination to eligible individuals.

Recent changes to national recommendations for adult vaccinations

- Pertussis vaccine is recommended in the third trimester of every pregnancy, replacing antenatal vaccination, to provide optimal protection against pertussis to the youngest of infants. It is currently funded through state and territory programs.
- The list of medical risk conditions for which annual influenza vaccine is recommended has been expanded to include two new conditions: BMI ≥ 40 and chronic liver disease. Influenza vaccine is not currently NIP-funded for these conditions.
- Advice on zoster vaccination of elderly persons has been provided by age group, with greatest population benefit expected from routine vaccination of those aged ≥ 70 years.

Recording and reporting

- The Australian Childhood Immunisation Register (ACIR) is to be gradually expanded in 2016 to become an Australian Immunisation Register (AIR) (initially capturing vaccines given up to 19 years of age and then vaccines given at all ages). There are also currently separate registries for HPV school-based vaccinations and Q fever.
- Adverse events following immunisation are notifiable and should be reported to the Therapeutic Goods Administration via the established mechanism in your jurisdiction.

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.²
- For some diseases, even though the illness is less severe in adults they can still transmit the infection to vulnerable groups.³ 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).
- 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 from non-immune young adult travellers.^{4,5}
- Indigenous Australians, both children and adults, have higher rates of morbidity and mortality due to 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.⁶
- Certain lifestyle 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.⁷

What vaccines are recommended for adults?

Routine vaccinations for all adults: NIP funded Influenza

Yearly seasonal influenza vaccinations are recommended for any person ≥ 6 months of age who would like to be protected against influenza. Influenza vaccination has been funded under the NIP for elderly Australians (≥ 65 years of age) since 1997. Since 2010, the eligibility for NIP-funded influenza vaccination has been extended to include:

- pregnant women (see also [During and after pregnancy](#) below)
- any person ≥ 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)
- Aboriginal and Torres Strait Islander Australians 6 months to < 5 years and ≥ 15 years of age (independent of health status).

Details of the current seasonal influenza vaccination program, including details for the funded underlying medical conditions, are available on the Immunise Australia website

(www.immunise.health.gov.au/internet/immunise/publishing.nsf/Content/immunise-influenza).

Pneumococcal disease

Two types of pneumococcal vaccine are available in Australia: a 13-valent **pneumococcal conjugate** vaccine (13vPCV) available for use in infants, young children and some adults, and a 23-valent **pneumococcal polysaccharide** vaccine (23vPPV) which can be used in persons ≥ 2 years of age. Vaccination with 23vPPV is funded under the NIP for:

- Non-Indigenous Australians ≥ 65 years of age
- Aboriginal and Torres Strait Islander people ≥ 50 years of age
- Aboriginal and Torres Strait Islander people 15–49 years of age who have a medical condition that increases their risk of invasive pneumococcal disease (IPD) (as outlined in the *Handbook*).

Vaccination with 23vPPV is also recommended for non-Indigenous adults who have a chronic illness predisposing them to IPD (as outlined in the *Handbook*) and can be accessed through PBS prescription for these individuals.

Indigenous and non-Indigenous adults who have a chronic illness that puts them at the greatest risk of IPD also require a dose of 13vPCV (not funded on the NIP).

Detailed information on additional pneumococcal vaccine requirements, including revaccination schedules, is outlined in the *Handbook*.

Routine vaccinations for all adults: *Handbook* recommended (non-NIP funded)

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[®] or Adacel[®]), which also provides immunity against pertussis.

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

- ≥50 years of age who have not received a tetanus-containing vaccine in the previous 10 years (yet have previously completed a primary course)

A dose of **tetanus-containing** vaccine is required for tetanus-prone wounds if more than 5 years has elapsed since a previous dose (tetanus immunoglobulin may also be required as outlined in the *Handbook*). In some circumstances, such as in emergency departments, surgery or in general practice, this dose is sourced from the 'doctor's bag' and is most often given as dT.

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.

Although dTpa booster vaccination is not funded under the NIP, some states and territories do provide it free of charge to adults as part of strategies to protect infants against pertussis (see [During and after pregnancy](#)).

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.

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. It is expected that those born before 1966 have natural immunity to measles, mumps and rubella and do not require MMR vaccination.

There are a number of adults who are 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.^{8,9}

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

Herpes zoster (HZ)

A single dose of zoster vaccine, Zostavax[®], for adults aged ≥60 years has been recommended since 2009 due to high disease burden¹⁰ and vaccine efficacy¹¹ demonstrated in this age group. However, vaccine availability in Australia was limited until 2013.

From November 2016, a single dose of Zostavax[®] will be funded on the NIP for adults at 70 years of age (with a

short-term catch-up program for adults aged 71–79) as routine vaccination of this age group is expected to obtain the greatest benefits against herpes zoster and its complications. The [Australian Immunisation Register](#) (AIR) is expected to be in place by this date to capture NIP-funded doses of Zostavax[®].

The exact duration of vaccine efficacy is not known and it is possible that protection following a single vaccine dose wanes with time. However, the need for revaccination has not yet been determined.

Zostavax[®] 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.

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.

Pertussis

- From March 2015, 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.¹²
- If a pregnant woman does not receive pertussis 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. Pertussis vaccine should be administered in the third trimester of any future pregnancies, even if closely spaced, as the benefits to the newborn are likely to outweigh the risks of any adverse events.
- Any adult household contacts and carers (e.g. fathers, grandparents) of infants <6 months of age should ideally receive a dTpa vaccine at least 2 weeks before beginning close contact with the infant, if 10 years have elapsed since a previous dose.

Influenza

- Seasonal influenza vaccination has been funded under the NIP for pregnant women since 2010 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 pregnant women and their infants.¹³⁻¹⁵
- 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 varicella should be established via serological screening before pregnancy as outlined in the *Handbook*.

Aboriginal and Torres Strait Islander people

Due to the higher rates of IPD and influenza in Aboriginal and Torres Strait Islander people compared to non-Indigenous Australians, the criteria for eligibility for NIP-funded vaccinations against these diseases differ for Indigenous Australians (see [Routine vaccinations for all adults: NIP funded](#)). Every effort should be made to identify Indigenous patients in mainstream GP clinics to ensure the appropriate immunisations are given at the correct age.

It is important to also review the vaccination status of Aboriginal and Torres Strait Islander adults against other diseases and vaccinate if appropriate as outlined in the *Handbook*.

At-risk medical conditions

Pre-existing chronic diseases or comorbid conditions can increase a person's risk of acquiring 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, severe asthma, chronic cardiac disease, neurological conditions, obesity (BMI ≥ 40), chronic liver disease and diabetes mellitus, as outlined in the *Handbook*.
- People with specific underlying medical conditions are also indicated for pneumococcal, hepatitis A, hepatitis B and meningococcal vaccination, described in more detail in the *Handbook*.

People with certain at-risk medical conditions can access pneumococcal and influenza vaccine on the NIP (see [Routine vaccinations for all adults: NIP funded](#)).

- Certain vaccinations are recommended for immunocompromised adults including (but not limited to):
 - oncology patients
 - solid organ and bone marrow transplant recipients
 - HIV-infected adults
 - adults with functional or anatomical asplenia.
- Live vaccines, including MMR, varicella, herpes zoster, yellow fever and BCG vaccines, are generally (but with exceptions – see *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 *Handbook*.

At-risk lifestyle behaviours

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

- Hepatitis A and hepatitis B vaccinations are recommended for men who have sex with men (MSM) and people who inject drugs.
- The combined hepatitis A/hepatitis B vaccines may be considered for these individuals if they are not immune to both viruses.
- Serology is not routinely recommended to determine immunity to hepatitis A or hepatitis B, but may be required in some circumstances as outlined in the *Handbook*.
- MSM who have not previously been vaccinated should receive HPV vaccine, taking into account their likelihood of previous exposure to HPV and their future risks of HPV exposure.
- People who smoke tobacco have an increased risk of invasive pneumococcal disease and vaccination with 23vPPV is recommended.
- Meningococcal B vaccine is recommended for young adults living in high-risk settings prior to or as soon as

possible after entry, such as new military recruits and students living in residential accommodation.

At-risk occupations

Certain occupations put employees at 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 *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 in particular 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 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 specifically for international travel purposes. A chapter outlining vaccines recommended for travellers can be found in the *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 with travellers who were not immune which can lead to disease outbreaks, as observed with measles in recent years.^{4,5}

Travel vaccination requirements differ depending on the travel destination, likely risks of exposure to vaccine preventable diseases, and the individual's previous 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, either as permanent residents or temporary visa holders, 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.¹⁶ Catch-up schedules may be required.¹⁷

- Developing catch-up programs for migrants can be complex: advice can be found in the *Handbook*.
- 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.

How are adult vaccinations recorded?

The only national system currently in place for recording vaccinations is the Australian Childhood Immunisation Register (ACIR), which records vaccinations received by children up to 7 years of age. A 'whole-of-life' Australian Immunisation Register (AIR) will be introduced in Australia during 2016, starting with expansion of the ACIR to record vaccines delivered during adolescence, with the whole-of-life AIR in place by November 2016.

Currently immunisations given to adolescents through school-based vaccination programs are recorded independently by state and territory health departments. In some instances, immunisation registers have been developed to record coverage of certain vaccines, for example, the National HPV Vaccination Program Register and the Australian Q Fever Register.

- Immunisation providers are encouraged to notify all Gardasil[®] and Cervarix[®] vaccinations to the HPV Register (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).
- Some state and territory health departments have developed their own adult vaccination record forms

and jurisdictional immunisation databases to assist in monitoring of their adult immunisation programs.

To capture and improve coverage among adolescents nationally, expansion of the existing National HPV Vaccination Program Register is planned to become an 'Australian School Vaccination Register' which will capture all adolescent vaccines given through school-based programs. It is expected to be in place in the 2017 school year.

What are vaccine coverage rates in adults?

As there is currently no immunisation register for adults, government health departments and health professionals rely on population surveys to estimate vaccination coverage in the adult population.

- Results from the most recent Australian Institute of Health and Welfare (AIHW) survey, the 2009 Adult Vaccination Survey, are available at www.aihw.gov.au/publication-detail/?id=10737418409
- The most current data available from the 2009 AIHW survey reports that 74.6% of Australians aged ≥ 65 years received the seasonal influenza vaccine and 54.4% had been vaccinated against pneumococcal disease.¹⁸
- The uptake of vaccines recommended for adults but not funded under the NIP is not as well known. However, data suggests that vaccine uptake is higher among groups for which vaccine is NIP funded.¹⁹
- Healthcare provider recommendation has been shown to increase the likelihood of adults receiving their required vaccines.²⁰
- Vaccination rates among groups who are at high risk of acquiring vaccine preventable diseases are low, in particular healthcare workers. A survey of a Melbourne hospital found nearly 50% of healthcare workers surveyed required vaccination to be up-to-date with Australian immunisation guidelines.²¹

How are adverse events following immunisation in adults reported?

Adverse events following immunisation are notifiable conditions and should be reported to the Therapeutic Goods Administration (TGA). It is recommended that only 'significant' adverse events are reported, rather than adverse events which may be expected following vaccination such as minor injection site reactions. A

detailed description of reporting adverse events following immunisation is provided in the *Handbook*.

- Providers in all states and territories (except Tasmania) should report any significant or unexpected adverse event 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.
- Immunisation providers in Tasmania should report adverse events directly to the TGA via the completion of the adverse drug reaction reporting form (the 'blue card') found at: www.tga.gov.au/form/blue-card-adverse-reaction-reporting-form

Advice on how to best manage patients who have experienced an adverse event following immunisation can be obtained from state and territory health departments. Specific clinics for adult patients who have experienced adverse events after vaccination have been established at major children's hospitals in NSW, Victoria, South Australia, Queensland and Western Australia.

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
- Immunise Australia website www.immunise.health.gov.au
- National Immunisation Program schedule www.immunise.health.gov.au/internet/immunise/publishing.nsf/Content/national-immunisation-program-schedule

State and territory health department websites

ACT Health: www.health.act.gov.au

NSW Health: www.health.nsw.gov.au

Northern Territory Department of Health: www.health.nt.gov.au

Queensland Health: www.health.qld.gov.au

SA Health: www.sahealth.sa.gov.au

Tasmania Department of Health and Human Services: www.dhhs.tas.gov.au

Victoria Department of Health and Human Services: www.health.vic.gov.au

Western Australia Department of Health: www.health.wa.gov.au

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