Immunisation in patients with immunocompromising conditions

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Competing interests

- No pharma payment
- Former co-chair/member of ATAGI
- Former chair, Advisory Committee for Vaccines (TGA)

Adult immunisation principles

- Fewer routine immunisations, but more targeted programs

- HALO principle
  - Health
  - Age
  - Lifestyle (eg travel)
  - Occupation

Immunosuppressed patients

- Prevalence between 1:100,000 to 1:100 depending on definition and age

- Issues
  - Diverse group, immune compromising conditions may be underdiagnosed (esp IEI)
  - Assessing severity challenging, time varying
  - Safety risks with live attenuated vaccines
  - Risk-benefit may vary

Clinical approach

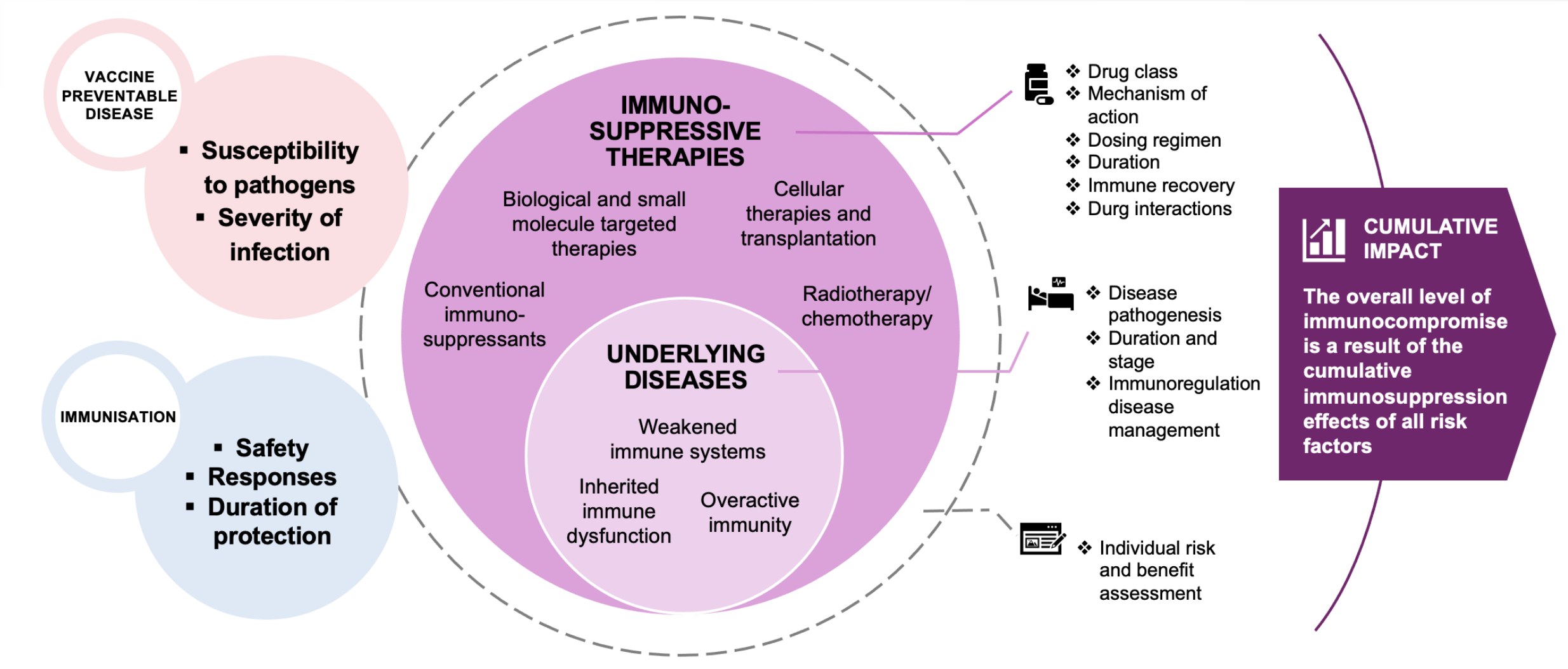
What is the risk of a vaccine preventable disease?

- Cumulative impact
  - Underlying diseases, immunosuppressive therapies
  - mild, moderate of severe
- Risk of infection
  - General
  - Specific - eculizumab and meningococcal disease, asplenia and encapsulated organisms

What strategies are available to optimise protection?

- booster doses or altered schedules of routine vaccines,
- additional vaccines to prevent specific VPDs,
- complete revaccination following immune reconstitution

The overarching factors and considerations when assessing the level of immunocompromise during immunisation decision-making.



Source: ATAGI Targeted review 2025 Immunisation considerations for immunocompromised people in Australia (unpublished manuscript, artwork copyright reserved)

Timing

- Prior to planned immunosuppression
- Breaks in immunosuppressive therapy
- After reconstitution

Additional doses

Which vaccine?	Who?	Why?
Influenza: annual dose	All immunocompromising conditions	Increased risk of respiratory infections and pneumococcal disease.
Pneumococcal: 1 additional dose of PCV and 2 doses of PPV		
Meningococcal: ongoing booster of MenACWY every 5 years; 1 booster dose of MenB 3 or 5 years later depending on age.	Asplenia (or hyposplenia); Complement deficiency (or receiving complement inhibitors); HIV	Increased risk of bacterial infections, particularly due to encapsulated bacteria.
Hib: 1 additional dose	Asplenia (or hyposplenia); Complement deficiency (or receiving complement inhibitors)	Increased risk of encapsulated bacteria.

Altered schedules or intervals

Which vaccine?	Who?	Why?
COVID: 3-dose primary schedule and additional doses every 6-12 months based on individual risk assessment	Severe immunocompromising conditions	Increased risk of severe disease or complications from COVID-19.
HPV: 3-dose primary schedule	≥9 years old with immunocompromising conditions	Increased risk of persistent HPV infection and related diseases.
Herpes zoster: 2-dose primary schedule (shorten interval of 1-2 months)	≥18 years old with immunocompromising conditions	Increased risk of herpes zoster and associated complications, such as post-herpetic neuralgia.

Additional vaccines

Which vaccine?	Who?	Why?
RSV: 1 single dose	≥60 years old with immunocompromising conditions	Increased risk of severe RSV disease and complications.
Hepatitis A: 2-dose schedule	Liver transplant	Increased risk of hepatitis infection
Mpox: 2-dose schedule (give the 2nd dose as close to 28 days after the 1st dose, but not earlier)	People living with HIV	Increased risk of severe mpox disease.

Complete revaccination

Which vaccine?	Who?	Why?
All routine and additional doses	HSCT; CAR-T cell therapy	Increased risk to various pathogens due to loss of immunity and receiving immunosuppressive therapies.

Resources

- Australian Immunisation Handbook
- Revised chapter

Principles and recommendations for people with different types of immunocompromise

For more details about principles and recommendations for people with different types of immunocompromise, see:

- Inborn errors of immunity, including primary immunodeficiency
- Secondary (acquired) immunodeficiency due to medical conditions
- Secondary (acquired) immunodeficiency due to medical therapies
- People with asplenia and hyposplenia
- Infants exposed to immunosuppressive therapy in utero or through breastmilk
- Close contacts of people who are immunocompromised
- Travellers who are immunocompromised

For more details about the immunosuppressive potential of various medications and medical conditions, see:

- Table. Types of medical conditions and immunosuppressive therapy and associated levels of immunocompromise
- Table. Immunosuppressive potential of cancer and organ rejection therapies
- Table. Immunosuppressive potential of conventional (non-biological) immunosuppressive therapies
- Table. Immunosuppressive potential of small molecule targeted therapies
- Table. Immunosuppressive potential of biological therapies
- Table. Immunosuppressive potential of corticosteroids
- Table. Immunosuppressive potential of certain medical conditions

New structure (new content in red)

- **Introduction and general principles**
- **Inborn errors of immunity (primary immunodeficiency)**
  - Recommendations for vaccine administration for people with inborn errors of immunity
    - **Antibody (B cell) immunodeficiencies**
    - **T cell or combined (T and B cell) immunodeficiencies**
    - **Phagocytic and neutrophil disorders**
    - **Defects of innate immunity**
    - **Complement deficiency**
- **Secondary (acquired) immunodeficiency due to medical conditions**
  - Principles of non-live and live vaccine administration
    - **People with malignancies**: recommendations for vaccination
    - **Solid organ transplant**: recommendations for vaccination
    - **Haematopoietic stem cell transplant**: recommendations for vaccination
    - **Chimeric antigen receptor modified T (CAR-T) cell therapy**: recommendations for vaccination
    - **People with HIV**: recommendations for vaccination

New structure (cont.)

- **Secondary (acquired) immunodeficiency due to medical therapies**
  - Principles of non-live and live vaccine administration
    - **Traditional (non-biologic) immunosuppressive agents**: recommendations for vaccination
    - **Biologic agents**: recommendations for vaccination
    - **Small molecule targeted therapies**: recommendations for vaccination
    - **Immune checkpoint inhibitors**: recommendations for vaccination
    - **Complement inhibitors**: recommendations for vaccination
    - **Corticosteroid therapies**: recommendations for vaccination
- **People with asplenia and hyposplenia**
  - Timing of vaccination for people undergoing splenectomy
  - Vaccination recommendations for people with asplenia and hyposplenia

Infants exposed to immunosuppressive therapy *in utero* or through breastmilk

- Non-live and live vaccine administration

- **Vaccination for close contacts of people who are immunocompromised**
- **Vaccination for immunocompromised travellers**

Examples of new tables

- Table. Types of medical conditions and immunosuppressive therapy and associated levels of immunocompromise

Type of immunosuppression	Example conditions (not an exhaustive list)	Specific therapies that may affect level of immunocompromise	Overall level of immunocompromise
Inborn errors of immunity, including primary immunodeficiency	**Antibody (B-cell) immunodeficiencies: less severe** • Selective IgA deficiency • IgG subclass deficiency	No routine immunosuppressive therapies prescribed	Moderate
	Antibody (B-cell) immunodeficiencies: severe • Common variable immunodeficiency • X-linked agammaglobulinaemia	Some patients may proceed to stem cell transplant, which will increase this level of immunosuppression	Severe
	T-cell or combined (T- and B-cell) immunodeficiencies: less severe • Incomplete DiGeorge syndrome • Ataxia telangiectasia • Hyper-IgE syndrome	Some patients may proceed to stem cell transplant, which will increase this level of immunosuppression	Moderate
	T-cell or combined (T- and B-cell) immunodeficiencies: severe • Severe combined immunodeficiency • Complete DiGeorge syndrome	Some patients may proceed to stem cell transplant, which will increase this level of immunosuppression	Severe
	Phagocytic and neutrophil disorders • Congenital neutropenia • Cyclic neutropenia • Chronic granulomatous disease	No routine immunosuppressive therapies prescribed, but antibiotic prophylaxis may be indicated	Moderate
	Defects of innate immunity • IFNAR defect • IFN gamma/IL-12 axis defect • Toll-like receptor signalling pathway defects	No routine immunosuppressive therapies prescribed, but antibiotic prophylaxis may be indicated	Moderate Susceptibilities to different pathogens depends on specific types of innate immune defects. See Defects of innate immunity: recommendations for vaccination

- Table. Vaccination for people with inborn errors of immunity (IEI)

Category of IEI	Examples of specific immunodeficiency diagnoses	Risk-specific recommended vaccines	Contraindicated vaccines
Antibody (B-cell) immunodeficiencies	Less severe antibody immunodeficiencies, such as: • selective IgA deficiency • specific polysaccharide antibody deficiency • IgG subclass deficiency	Some vaccines have altered primary dosing schedule: • 3-dose schedule of HPV vaccine • 2-dose schedule of recombinant zoster vaccine Additional doses of some vaccines are generally recommended: • Hepatitis B vaccine (if post-vaccination serology suggests an insufficient response) • Influenza vaccine • Pneumococcal vaccines (PCV and PPV) • Respiratory syncytial virus (vaccines or monoclonal antibodies)	Live vaccines are generally contraindicated, except MMR and monovalent varicella vaccines, which can be given to people with partial antibody immunodeficiency and known intact T-cell immunity.
	Severe antibody immunodeficiencies, such as: • X-linked agammaglobulinaemia • common variable immunodeficiency	Some vaccines have altered primary dosing schedule: • 2-dose schedule of COVID-19 vaccine and can consider a 3rd dose • 3-dose schedule of HPV vaccine • 2-dose schedule of recombinant zoster vaccine Additional doses of some vaccines are generally recommended: • Hepatitis B vaccine (if post-vaccination serology suggests an insufficient response) • Influenza vaccine • Pneumococcal vaccines (PCV and PPV) • Respiratory syncytial virus (vaccines or monoclonal antibodies)	All live vaccines are contraindicated.
T-cell or combined (T- and B-cell) immunodeficiencies	Less severe or partial immunodeficiencies, such as: • incomplete DiGeorge syndrome	Some vaccines have altered primary dosing schedule:	Live vaccines are generally contraindicated, except MMR and monovalent varicella vaccines, which can be given to people with partial T-cell or less severe

	Immunosuppressive treatment			Solid organ transplant	
	Before	During	After	Before	After
COVID	Yes	Yes	Yes	Yes	Yes
Influenza	Yes	Yes	Yes	Yes	Yes
Pneumococcal conjugate	Yes (not funded)	Yes	Yes	Yes (not funded)	Yes
Pneumococcal polysaccharide	Yes	Yes	Yes	Yes	Yes
Shingrix	Yes	Yes	Yes	Yes	Yes
Hepatitis B	Seroneg		Seroneg	Seroneg	Seroneg
MMR	Yes (>4w before)	No	Yes (>6mo after)	Yes	No
Varicella	Yes (>4w before)	No	Yes (>6mo after)	Yes	No
dTPa	10 yrly		Yes	10 yrly	
IPV	10 yrly		Yes	10 yrly	
RSV	>60 years (not funded)			>60 years (not funded)	
HPV	Risk dependent				
Hepatitis A	Liver disease + seroneg			Liver transplant/chronic liver disease	
MenACWY	Specific groups (eg asplenia, eculizumab)				
MenB	Specific groups				

Special situations

- Infants exposed to immunosuppressives. Eg rituximab, infliximab, adalimumab and etanercept.
  - No live vaccines (including BCG) except rotavirus
- Close contacts - vaccination generally encouraged (including live vaccines).
  - VZV - cover rash if develops,
  - Rota/typhoid – standard hand hygiene/infection control
- Travellers
  - Japanese encephalitis vaccine – Imojev live attenuated, JEspect inactivated
  - Yellow fever – live attenuated.

RSV immunisation

- Monoclonal antibody
  - Nirsevimab – funded by states to protect infants from RSV
  - Clesrovimab - not yet registered
- Maternal vaccine
  - Abrysvo – funded by National Immunisation Program (to protect infants)
  - *NOT Arexvy*
- Vaccine for older people
  - Abrysvo, Arexvy – not yet funded by NIP (private ~$300)
  - Recommended for >75, First Nations >60, medical risk factors >60

Immunisation Programs

- Often difficult where there are unfunded recommendations eg RSV
- National Immunisation Program - pneumococcal, Haemophilus influenzae type b (Hib), herpes zoster, and meningococcal vaccines
- Jurisdictional programs - Mpox and hepatitis A/B for people living with HIV

Gaps in knowledge

- Coverage
- Immunogenicity and effectiveness
- Vaccines vs antibiotic prophylaxis
- New strategies and technologies eg heterologous boosting, new adjuvants
- New therapies eg CAR-T, new biologicals

Summary

- Immunisation key part of preventative care for immunosuppressed patients
- Key target group for immunisation programs
- Assessment of degree of immunosuppression can be difficult, and may require specialist input
- Live attenuated vaccines generally contraindicated
- Recommendations may include additional doses, altered schedules, additional vaccines, complete re-vaccination

Acknowledgements

- Phoebe Williams, Clementine David, National Centre for Immunisation Research and Surveillance
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- **Susceptible to encapsulated bacteria:**
- *Streptococcus pneumoniae, Haemophilus influenzae and Neisseria meningitidis*

30 yo F with Common Variable Immunodeficiency

- **Antibody (B-cell) immunodeficiency**

- On subcutaneous immunoglobulin replacement
- Vaccinated according to immunisation schedule

- *Can she receive live vaccines?*
- *Is she likely to respond adequately to inactivated vaccines?*
- *What additional vaccines does she need?*

Question 1

Can she receive live vaccines? (eg MMR if indicated)

- Yes
- No

Table. Types of medical conditions and immunosuppressive therapy and associated levels of immunocompromise

Type of immunosuppression	Example conditions (not an exhaustive list)	Specific therapies that may affect level of immunocompromise	Overall level of immunocompromise
Inborn errors of immunity, including primary immunodeficiency	**Antibody (B-cell) immunodeficiencies: less severe** • Selective IgA deficiency • IgG subclass deficiency	No routine immunosuppressive therapies prescribed	Moderate
	Antibody (B-cell) immunodeficiencies: severe • Common variable immunodeficiency • X-linked agammaglobulinaemia	Some patients may proceed to stem cell transplant, which will increase this level of immunosuppression	Severe
	T-cell or combined (T- and B-cell) immunodeficiencies: less severe • Incomplete DiGeorge syndrome • Ataxia telangiectasia • Hyper-IgE syndrome	Some patients may proceed to stem cell transplant, which will increase this level of immunosuppression	Moderate

Question 2

Which of the following vaccines have primary schedules that are different in immunocompromised people?

- COVID-19 vaccine
- Zoster vaccine (Shingrix)
- HPV vaccine
- Hepatitis B

Question 3

Which of the following vaccines are specifically indicated in immunocompromised younger adults?

- Pneumococcal vaccines (conjugate and polysaccharide)
- Hepatitis B
- RSV
- Influenza
- COVID-19
- Meningococcal B

Table. Vaccination for people with inborn errors of immunity (IEI)

Examples of specific immunodeficiency diagnoses	Risk-specific recommended vaccines	Contraindicated vaccines
Severe antibody immunodeficiencies, such as: • X-linked agammaglobulinaemia • common variable immunodeficiency	Some vaccines have altered primary dosing schedule: • 2-dose schedule of COVID-19 vaccine and can consider a 3rd dose • 3-dose schedule of HPV vaccine • 2-dose schedule of recombinant zoster vaccine Additional doses of some vaccines are generally recommended: • Hepatitis B vaccine (if post-vaccination serology suggests an insufficient response) • Influenza vaccine • Pneumococcal vaccines (PCV and PPV) • Respiratory syncytial virus (vaccines or monoclonal antibodies)	All live vaccines are contraindicated.

Additional doses of non-live vaccines

COVID-19

Information about COVID-19, vaccines and recommendations for vaccination from the Australian Immunisation Handbook.

> This chapter is currently undergoing consultation and seeking National Health and Medical Research Council (NHMRC) approval.

> Vaccination for certain groups of people is funded under emergency measures, **not** by the National Immunisation Program or states and territories.

On this page

Recommendations

Infants, children and adolescents

Healthy infants, children and adolescents aged <18 years are not recommended to receive COVID-19 vaccine

Adults

Adults aged ≥18 years are recommended to receive COVID-19 vaccine, and further doses are recommended based on age and risk-benefit assessment

People with medical conditions that increase their risk of severe illness

People with medical conditions that increase their risk of severe illness from COVID-19 are recommended to receive further doses of COVID-19 vaccine

For people with relevant medical risk conditions, COVID-19 vaccine dose recommendations vary based on age and the presence of severe immunocompromise (which may reduce the immune response to vaccination). See Table. Example conditions associated with increased risk of severe outcomes from COVID-19, Table. COVID-19 vaccine primary and further dose recommendations for people with medical conditions that increase their risk of severe illness and Table. Examples of severely immunocompromising conditions for which additional primary doses of COVID-19 vaccine are recommended or can be considered.

Table. Example conditions associated with increased risk of severe outcomes from COVID-19

This table is not exhaustive, and providers should use their judgement to vaccinate people with conditions not listed.

Condition	Example medical condition

Table. COVID-19 vaccine primary and further dose recommendations for people with medical conditions that increase their risk of severe illness

"Recommended": benefits of vaccination outweigh the risks for the defined population.

"Consider": shared decision making between an individual and their healthcare provider.

Age group	Level of immunocompromise	Primary course recommendations	Further (booster) dose recommendations
Age 6 months to <5 years	Medical risk condition without severe immunocompromise	Consider 2 doses, at least 8 weeks apart	Not recommended
	Severe immunocompromise	Consider 2-3 doses, at least 8 weeks apart	Not recommended
Age 5 years to <18 years	Medical risk condition without severe immunocompromise	Consider 1 primary dose	Not recommended
	Severe immunocompromise	Consider 1-2 primary doses, at least 8 weeks apart	Consider 1 further dose every 12 months
Age 18–64 years	Medical risk condition without severe immunocompromise	Recommended 1 primary dose	Consider 1 further dose every 12 months
	Severe immunocompromise	Recommended 2 primary doses and consider a 3rd, at least 8 weeks apart	Recommended 1 further dose every 12 months but can be considered every 6 months
Age 65–74 years	Medical risk condition without severe immunocompromise	Recommended 1 primary dose	Recommended 1 further dose every 12 months but can be considered every 6 months
	Severe immunocompromise	Recommended 2 primary doses and consider a 3rd, at	Recommended 1 further dose every 12 months, but can be

Is this dose funded?

Human papillomavirus (HPV)

Information about human papillomavirus (HPV) disease, vaccines and recommendations for vaccination from the Australian Immunisation Handbook.

Vaccination for certain groups of people is funded under the National Immunisation Program and by states and territories.

On this page

Recommendations

Children, adolescents and young adults

Adolescents and young adults are recommended to receive 9vHPV vaccine from 9 years of age

Adults aged ≥26 years

Adults aged ≥26 years are not recommended to receive HPV vaccine

People who are immunocompromised

People with immunocompromising conditions are recommended to receive 3 doses of HPV vaccine

A 3-dose schedule of 9vHPV vaccine is recommended for people with immunocompromising conditions, regardless of their age when they started vaccination.

This is because their immune response is likely to be lower than for immunocompetent people. They are also more likely to develop a persistent HPV infection and HPV-related disease.[6,7]

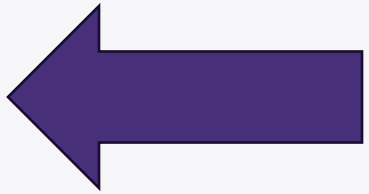

Table. Recommended doses and intervals between doses for human papillomavirus (HPV) vaccines, by age group at the start of the course

Age group	Recommended doses	Recommended schedule	Notes
Starting HPV vaccination at 9–25 years of age (except people who are immunocompromised)	1	Single dose	• The optimal age for HPV vaccination is 12–13 years, but people can receive vaccines from 9 years of age.
Starting HPV vaccination at ≥26 years of age	3	0, 2, 6 months	• A 3-dose schedule of 0, 1 and 6 months for 2vHPV (2-valent HPV) vaccine is acceptable.
People who are immunocompromised at any age (excluding those with asplenia or hyposplenia)	3	0, 2, 6 months	• A 3-dose schedule of 0, 1 and 6 months for 2vHPV vaccine is acceptable.

Is this dose funded?

30 yo F with Common Variable Immunodeficiency

- NCIRS resource: History of immunisation in Australia

30 yo F with Common Variable Immunodeficiency

- NCIRS resource: History of immunisation in Australia

Significant events in human papillomavirus (HPV) vaccination practice in Australia

Year	Month	Intervention
2006	June	4-valent human papillomavirus vaccine (4vHPV, Gardasil) registered for use in females aged 9–26 years as a 3-dose schedule
2007	March	2-valent human papillomavirus vaccine (2vHPV, Cervarix) registered for use in females aged 10–45 years as a 3-dose schedule
2007	April	A 3-dose schedule of HPV recommended for females aged 12–26 years A 3-dose schedule of 4vHPV funded for females aged 12–13 years, delivered through a school-based program
	July	Time-limited catch-up program of a 3-dose schedule of 4vHPV delivered through schools or primary care providers targeting females aged 14–26 years
2009	December	Catch-up program for females aged 14–26 years ceased
2010	June	4vHPV registered for use in males aged 9–26 years as a 3-dose schedule
2011	December	A 3-dose schedule of 4vHPV recommended for males aged 12–13 years
2013	February	4vHPV funded for males aged 12–13 years, delivered through a school-based program, with a catch-up program for males aged 14–15 years in 2013 and 2014
	March	A 3-dose schedule of 4vHPV recommended for men who have sex with men and immunocompromised individuals 4vHPV no longer recommended for females aged 19–26 years
2015	June	9vHPV (Gardasil 9) registered for use in females aged 9–45 years and males aged 9–26 years as a 3-dose schedule
	September	2vHPV registered for use in females aged 10–14 years as a 2-dose schedule
2017	March	9vHPV registered for use in females and males aged 9–14 years as a 2-dose schedule
	January	4vHPV funded by Vic for men who have sex with men (aged up to 26 years)

Human papillomavirus (HPV)

Information about human papillomavirus (HPV) disease, vaccines and recommendations for vaccination from the Australian Immunisation Handbook.

Vaccination for certain groups of people is funded under the National Immunisation Program and by states and territories.

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Variations from product information

Indicated ages for vaccination

The product information for the 9vHPV vaccine, Gardasil 9, states that this vaccine is indic

- males and females up to 45 years of age

The Australian Technical Advisory Group on Immunisation (ATAGI) recommends that the f 9vHPV vaccine:

- MSM of any age
- people of any age who are immunocompromised

ATAGI also recommends that males and females older than the upper indicated ages can risk of future HPV exposure and disease.

Dose schedule

The product information of the 9vHPV vaccine, Gardasil 9, states that this vaccine should be given:

- in a 2-dose schedule to people aged 9–14 years
- in a 3-dose schedule to people aged ≥15 years

The Australian Technical Advisory Group on Immunisation (ATAGI) recommends the following dose schedule:

- 1 dose for immunocompetent people aged 9–25 years
- 3 doses for immunocompetent people aged ≥26 years

Table. Recommended doses and intervals between doses for human papillomavirus (HPV) vaccines, by age group at the start of the course

Age group	Recommended doses	Recommended schedule	Notes
Starting HPV vaccination at 9–25 years of age (except people who are immunocompromised)	1	Single dose	• The optimal age for HPV vaccination is 12–13 years, but people can receive vaccines from 9 years of age.
Starting HPV vaccination at ≥26 years of age	3	0, 2, 6 months	• A 3-dose schedule of 0, 1 and 6 months for 2vHPV (2-valent HPV) vaccine is acceptable.
People who are immunocompromised at any age (excluding those with asplenia or hyposplenia)	3	0, 2, 6 months	• A 3-dose schedule of 0, 1 and 6 months for 2vHPV vaccine is acceptable.

Measles vaccine: Another example of a variation from product information

Variations from product information

People with egg allergy

The product information for Priorix, M-M-R II and Priorix-tetra states that people with a history of anaphylactic or anaphylactoid reactions to egg should not receive these vaccines.

The Australian Technical Advisory Group on Immunisation (ATAGI) recommends that these people can receive Priorix, M-M-R II, Priorix-tetra or ProQuad.[18]

Women planning pregnancy

The product information for M-M-R II and ProQuad recommends that women of child-bearing age should avoid pregnancy for 1 month after vaccination.

ATAGI recommends that these women should avoid pregnancy for 28 days after vaccination,[18] as for Priorix and Priorix-tetra.

People taking salicylates

The product information for ProQuad and Priorix-tetra states that people should avoid taking salicylates for 6 weeks after vaccination. This is because Reye syndrome has been reported after using salicylates during natural varicella infection.

ATAGI recommends that non-immune people on long-term salicylate therapy can receive varicella-containing vaccines, because the benefit is likely to outweigh any possible risk of Reye syndrome after vaccination.

Recommended ages for MMR vaccines

The product information for M-M-R II and Priorix states vaccine is for use in children ≥12 months of age.

ATAGI recommends that children ≥6 months can receive both MMR vaccines in certain circumstances, including travel to highly endemic areas and during outbreaks.

Home > Table of contents > Vaccine preventable diseases

Zoster (herpes zoster)

Information about herpes zoster (shingles) disease, vaccines and recommendations for vaccination from the Australian Immunisation Handbook.

Shingrix is funded under the National Immunisation Program (NIP) for certain groups of people.

On this page

People aged ≥18 years who are immunocompromised or shortly expected to be immunocompromised

People aged ≥18 years who are immunocompromised or shortly expected to be immunocompromised are recommended to receive a zoster vaccine

People aged ≥18 years who are immunocompromised or shortly expected to be immunocompromised are recommended to receive a 2-dose schedule of Shingrix, 1–2 months apart, for the prevention of herpes zoster and associated complications. A shorter interval can be chosen should an immunocompromised person need to be protected earlier. This includes people who are currently or soon to be immunocompromised because of a primary or acquired medical condition, or medical treatment (including treatment that has recently ceased).

Compared with immunocompetent people, people who are immunocompromised have higher rates of herpes zoster and of complications such as post-herpetic neuralgia (PHN).[4,5] Herpes zoster can occur at a younger age in people who are immunocompromised, and there is also a higher risk of recurrence.[6-9]

Shingrix provides good protection against herpes zoster and associated complications in severely immunocompromised people aged ≥18 years,[10,11] including people with a history of haematopoietic stem cell transplantation or haematologic malignancies.

The optimal time to receive Shingrix in immunocompromised individuals aged ≥18 years depends on individual circumstances:

- **Age-related risk of herpes zoster and its complications**: Herpes zoster can occur at any age, but the risk increases with age similar to in immunocompetent people. The likelihood of complications such as PHN also increases with age. While the risk will be elevated compared to a similarly aged immunocompetent person, the risk in a young person with an immunocompromising condition may still be lower than an older immunocompetent individual.[4,12]
- **Individual's immune status and duration of protection**: People who are immunocompromised are at significantly higher risk of herpes zoster and severe complications than those who are immunocompetent.[13-15] However, the extent of immunocompromise and risk of zoster will vary by the person's underlying condition and the type and duration of immunocompromising medical treatment. Ideally vaccination should occur prior to onset or initiation of

2 dose schedule
of
Shingrix
1-2 months apart

Is this funded?

What if she misses the follow up appointment?

- What is shingles?
- Who can get shingles, and how common is it?
- What are the complications of shingles, and what is post-herpetic neuralgia (PHN)?
- What shingles vaccines are available in Australia?
- Who is recommended to receive the shingles vaccine?
- Who is eligible to receive a free shingles vaccine under the NIP?
- How many doses of the shingles vaccine are required?
- Are booster doses of the shingles vaccine recommended?
- What are the common side effects after receiving the shingles vaccine?
- Are there any rare side effects after receiving the shingles vaccine?
- Can a person receive the singles vaccine if they have had GBS?
- Can a person receive other vaccines at the same time as the shingles vaccine?
- What are the options for individuals who are not eligible for a shingles vaccine under the NIP and want to be protected?
- What should be done if it has been 6 months or more since the first dose of Shingrix was administered?

What are the common side effects after receiving the shingles vaccine?

Injection site reactions, such as pain, swelling and redness, are common after vaccination with the shingles vaccine. Australian data from AusVaxSafety surveys show up to 82% of had experienced these reactions and that 47% of people had experienced at least one adverse event, with the most common being a local reaction.

Other generalised symptoms that may occur after vaccination with Shingrix include fatigue, muscle aches, headache, shivering, fever and gastrointestinal symptoms. These symptoms are typically mild and resolve within a few days.

See also the Australian Government resource Following vaccination – what to expect and what to do .

NCIRS National Centre for Immunisation Research and Surveillance

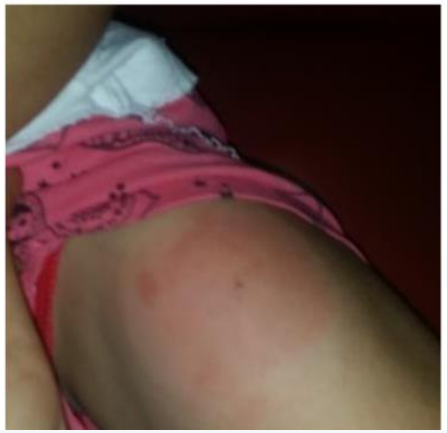
Information sheet

Injection site reactions

Injection site reactions are the most common adverse events following immunisation. These include pain, itching, swelling or redness around the site of injection. These reactions are usually mild and last for 1–2 days.

Rarely, injection site reactions can be quite large and may extend from joint to joint (e.g. shoulder to elbow) or may cross a joint. These reactions may occur after administration of any vaccine but are more common after booster doses of diphtheria, tetanus and pertussis (DTPa/dTpa). The inflammatory changes develop over a few hours following vaccination, peak at 24 to 48 hours and resolve completely within a week. Decreased range of limb movement is uncommon, and the individual is systemically well. Symptomatic relief may include analgesia and cool compress. Moving the limb will encourage lymphatic drainage and prevent joint stiffness. Avoid putting the arm in a sling.

Large local reactions can be confused with bacterial cellulitis and antibiotics may be unnecessarily prescribed. Cellulitis post vaccination is extremely uncommon as bacteria are rarely introduced into tissues, especially with the use of single-dose vials and single-use injections. Large local reactions do not require antibiotics.



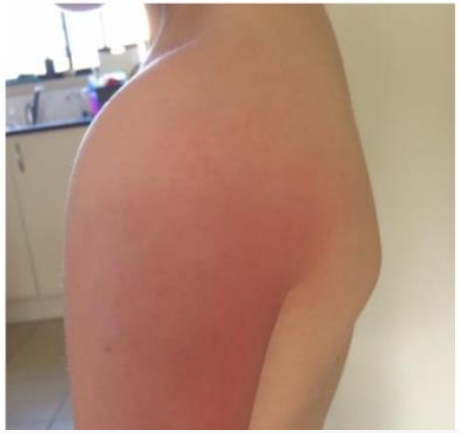


Table. Immunosuppressive potential of conventional (non-biological) immunosuppressive therapies

Immunosuppressant category	Drug(s)	Licensed indication(s)	Overall immunosuppressive potential	Mechanism of action	Half-life (mean)	Duration of immunosuppression
General	Hydroxychloroquine	Systemic lupus erythematosus (SLE), rheumatoid arthritis (RA), malaria	Mild	Suppresses toll-like receptors to trigger important immunomodulatory effects, which impairs complement-dependent antigen-antibody reactions	About 40 days	Not typically considered as an immunosuppressant, but may lower lymphocyte count. Exact duration of immune recovery after drug discontinuation is not well defined
	Sulfasalazine Mesalazine Osalazine	RA, ulcerative colitis, Crohn's disease	Mild	Immunomodulatory agents that block the production of COX-derived products of arachidonic acid metabolism	Sulfasalazine: about 10 hours Mesalazine: about 25 hours Olsalazine: about 55 minutes Olsalazine-S: 7 days due to slow dissociation from the protein binding site	Not typically considered as an immunosuppressant, but may lower lymphocyte count. Exact duration of immune recovery after drug discontinuation is not well defined

Table. Immunosuppressive potential of conventional (non-biological) immunosuppressive therapies

Immunosuppressant category	Drug(s)	Licensed indication(s)	Overall immunosuppressive potential	Mechanism of action	Half-life (mean)	Duration of immunosuppression
	Azathioprine ≤3 mg/kg/day	Rheumatic disorders	Mild	Inhibits purine and protein synthesis, which reduces circulating lymphocytes and immunoglobulin production	About 2 hours	Exact duration of potential immunosuppression is not well defined
	Azathioprine >3 mg/kg/day	Rheumatic disorders	Moderate			
	Azathioprine	Prevention of rejection in kidney transplant	Severe	Inhibits purine and protein synthesis, which reduces circulating lymphocytes and immunoglobulin production	About 2 hours	Immune recovery after transplant is impaired for at least 12 months
	Methotrexate ≤25 mg/week	RA, psoriasis arthritis	Mild	Folate antimetabolite that binds to dihydrofolate reductase, interfering	1–15 hours	Lymphocyte recovery occurs 1–3 months after discontinuation. In RA, temporary