2025 Winter Respiratory Viruses update

Northern Sydney Public Health Unit

NSW GOVERNMENT Health

Learning Objectives

Analyse the epidemiology of influenza infection and the rationale for targeted vaccination priority populations

Review, interpret and adapt to changes in the 2025 RSV, Covid and Influenza immunisations

Describe the severe clinical manifestations of influenza/RSV/COVID

Evaluate the role of immunisation in preventing severe outcomes of influenza/RSV/COVID

Influenza

- Acute viral illness that mainly affects the respiratory system.
- Causative agent Influenza viruses classified as type A, B or C
  - **Type A** influenza viruses are further categorised into subtypes based on two kinds of proteins on their surface:
    - haemagglutinin (H)
    - neuraminidase (N).
  - **Type B** influenza viruses are categorised into two lineages:
    - Yamagata
    - Victoria.
  - **Type C** (rare, mild illness)

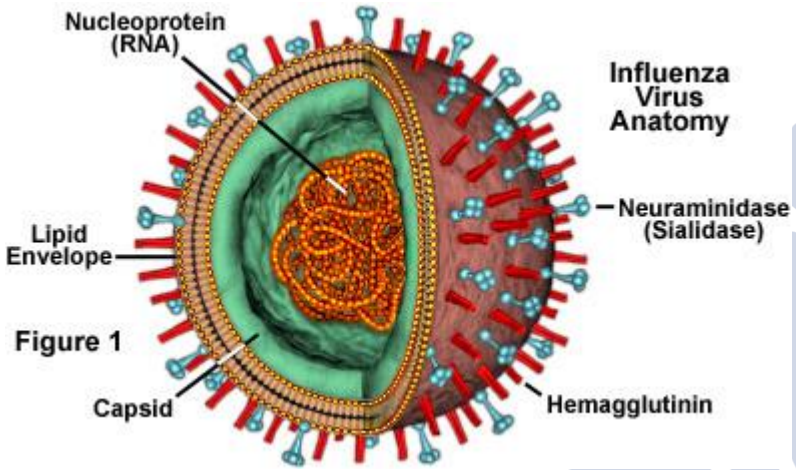

Figure 1

The genes for the H and N proteins on the virus surface mutate frequently.

Minor changes to the H and N proteins are referred to as ‘antigenic drift’, result in new virus strains

Antibody cross-protection against drifted strains is likely to be reduced.

Major change happens in the H or N protein of influenza A, it is called ‘antigenic shift’.

’Previous immunity is usually not adequate against disease from a ‘shifted’ strain.

This creates the potential for a pandemic.

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Transmission of Influenza

Spread easily

Large particle droplets produced by sneezing and coughing.

Droplets on surfaces.

Can then pass from hands to the nose, mouth or eyes.

Infectious to others from 24 hours before symptoms start until 1 week after the start of symptoms.

Symptoms typically subside within 5–8 days in previously healthy individuals.

People of all ages can get influenza.

5–10% of the general population (Up to 20% in some years)

Higher for children, with 10–40% infected each year

Transmission and presentation

- More easily spread where large numbers of people gather.
  - Infection rates may be 2–3 times higher in closed populations
    - (e.g. childcare centres, aged care facilities, households).

    - Usually have a sudden onset.
      - Fever
      - Dry non-productive cough
      - Nasal congestion
      - Headache
      - Sore throat
      - Constitutional complaints (such as myalgia, malaise and fatigue.)

Diagnosis

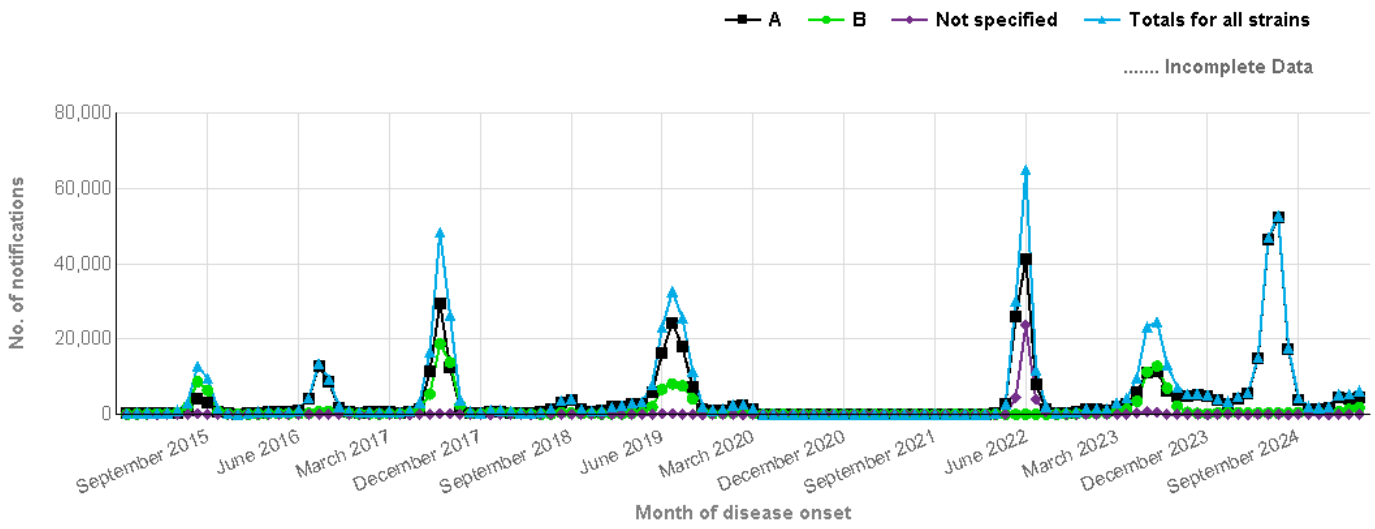
- Viral nucleic acid from a nasal or throat swab
  - Preferred method of testing
  - provided to the WHO Collaborating Centre (WHOCC)
    - antigenic characterisation and
    - antiviral resistance testing.
- SARS-CoV-2/Influenza A/B/RSV Antigen Rapid Test Kit
  - qualitative detection of nucleocapsid protein antigen from SARS-CoV-2/Influenza A/B in human nasal swab samples from individuals
  - within seven days of symptom onset for COVID-19 and
  - within four days of symptom onset for Influenza A / B.
  - **Negative results of the POC antigen tests should be treated with caution** due to their relatively low sensitivity compared to nucleic acid tests (NAT).

Epidemiology

- Seasonal disease in temperate regions.
  - Most cases in Australia occur during the winter months of June through September.
  - In the Northern Hemisphere, between December and April.
  - Can occur all year round in the tropics

Epidemiology

Influenza (A, B, Not specified) notifications in NSW residents, by month of disease onset. January 2015 to March 2025.



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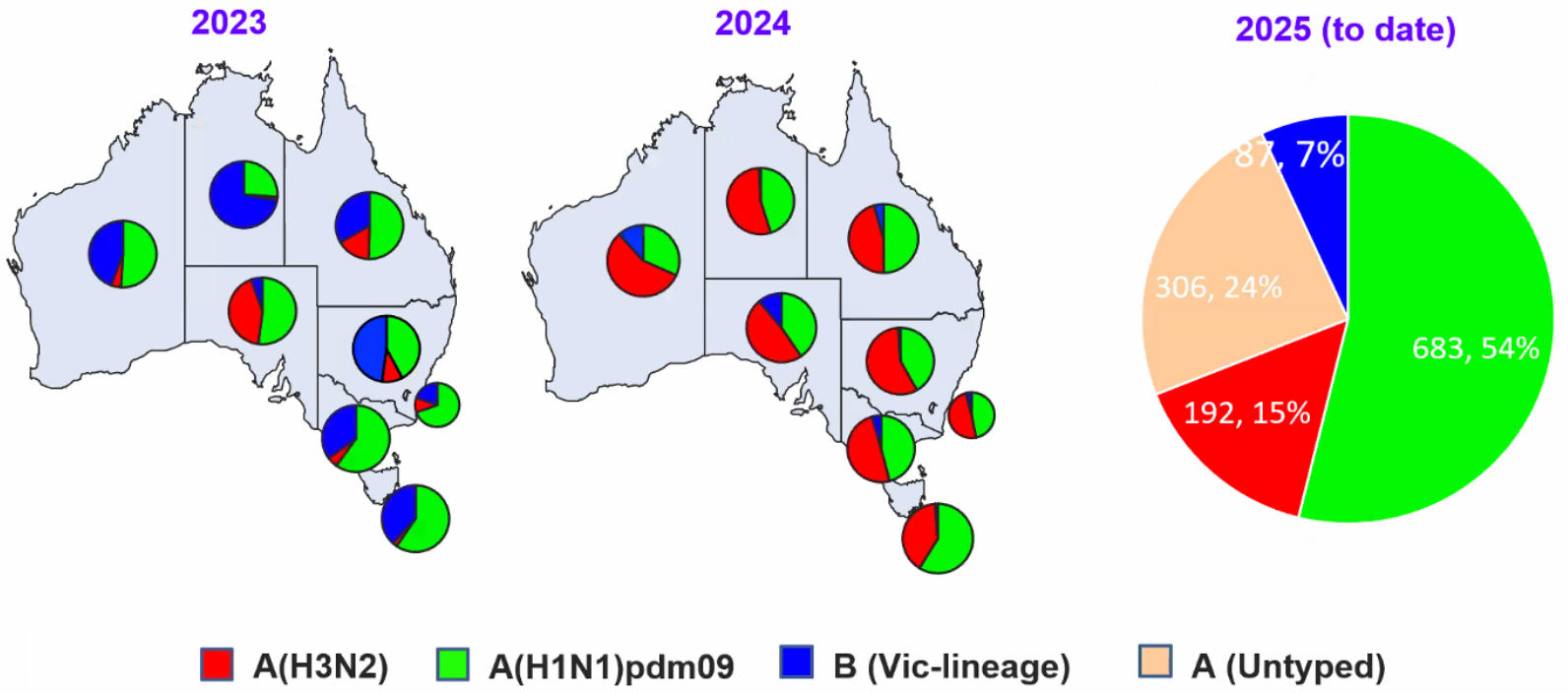
https://www.health.nsw.gov.au/infectious/pages/data.aspx

AUSTRALIA - Lineages/subtype of Influenza viruses in circulation (Influenza)



*Based on influenza samples received from across Australia at the WHO CC Melb

Courtesy: Prof. Ian Barr

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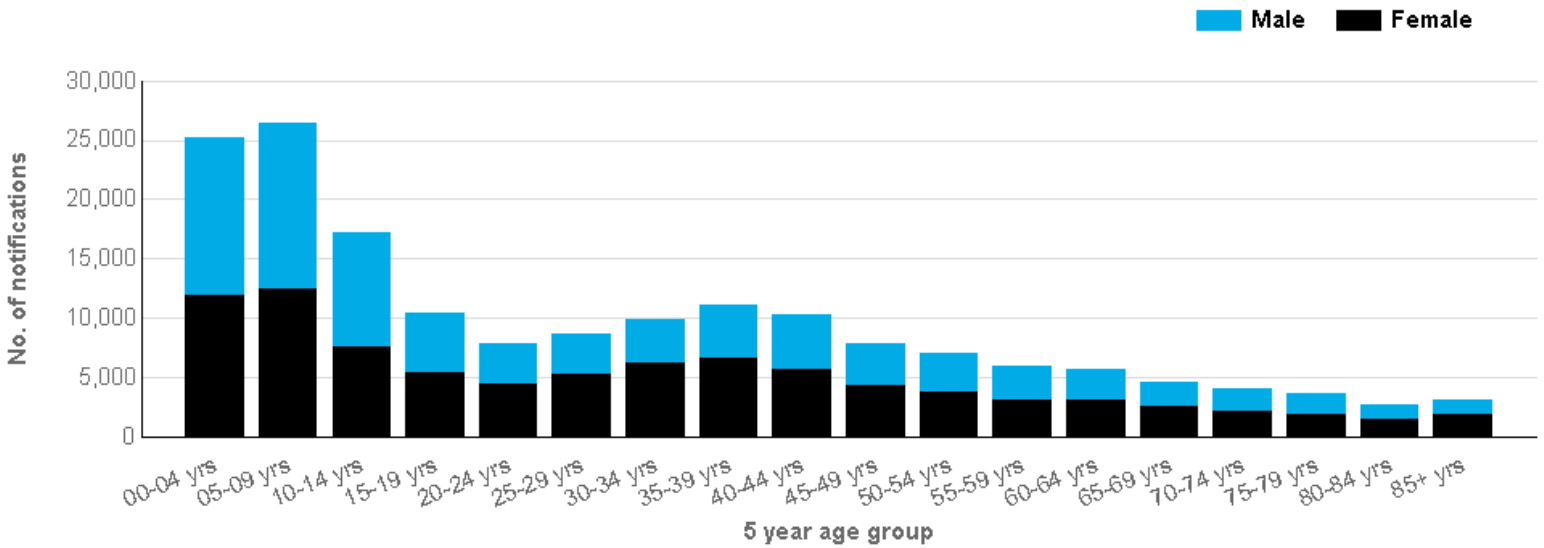
Rate of notifications by age of laboratory-confirmed influenza, Australia, 01 January2024 to February 2025



Strain A

https://www.health.nsw.gov.au/infectious/pages/data.aspx

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Influenza Vaccination Coverage 2024

	ACT	NSW	VIC	QLD	SA	WA	TAS	NT	AUS
6 mo - < 5 yrs	47.7	24.5	29.8	22.1	26.9	22.0	29.4	32.6	**25.8**
5 - < 15 yrs	21.8	13.1	15.0	13.9	14.5	13.1	14.0	13.3	**14.0**
15 - < 50 yrs	30.5	19.1	23.0	18.7	23.3	17.1	22.7	21.0	**20.4**
50 - < 65 yrs	42.6	30.8	34.6	32.6	37.1	29.2	39.6	25.2	**32.7**
≥ 65 yrs	65.2	58.4	61.8	60.8	66.5	58.5	67.7	33.9	**60.5**

Aboriginal and Torres Strait Islander people

	ACT	NSW	VIC	QLD	SA	WA	TAS	NT	AUS
6 mo - < 5 yrs	34.2	17.5	21.2	15.4	17.0	16.5	23.0	33.4	**18.3**
5 - < 15 yrs	16.1	11.7	11.6	11.7	12.5	10.3	12.4	21.7	**12.3**
15 - < 50 yrs	24.4	16.7	18.6	15.9	18.6	13.7	18.9	29.2	**17.6**
50 - < 65 yrs	45.3	37.5	38.5	36.2	38.5	31.0	46.5	42.3	**37.3**
≥ 65 yrs	65.2	62.2	63.0	60.2	60.3	51.3	70.3	42.8	**59.4**

Courtesy: NCIRS

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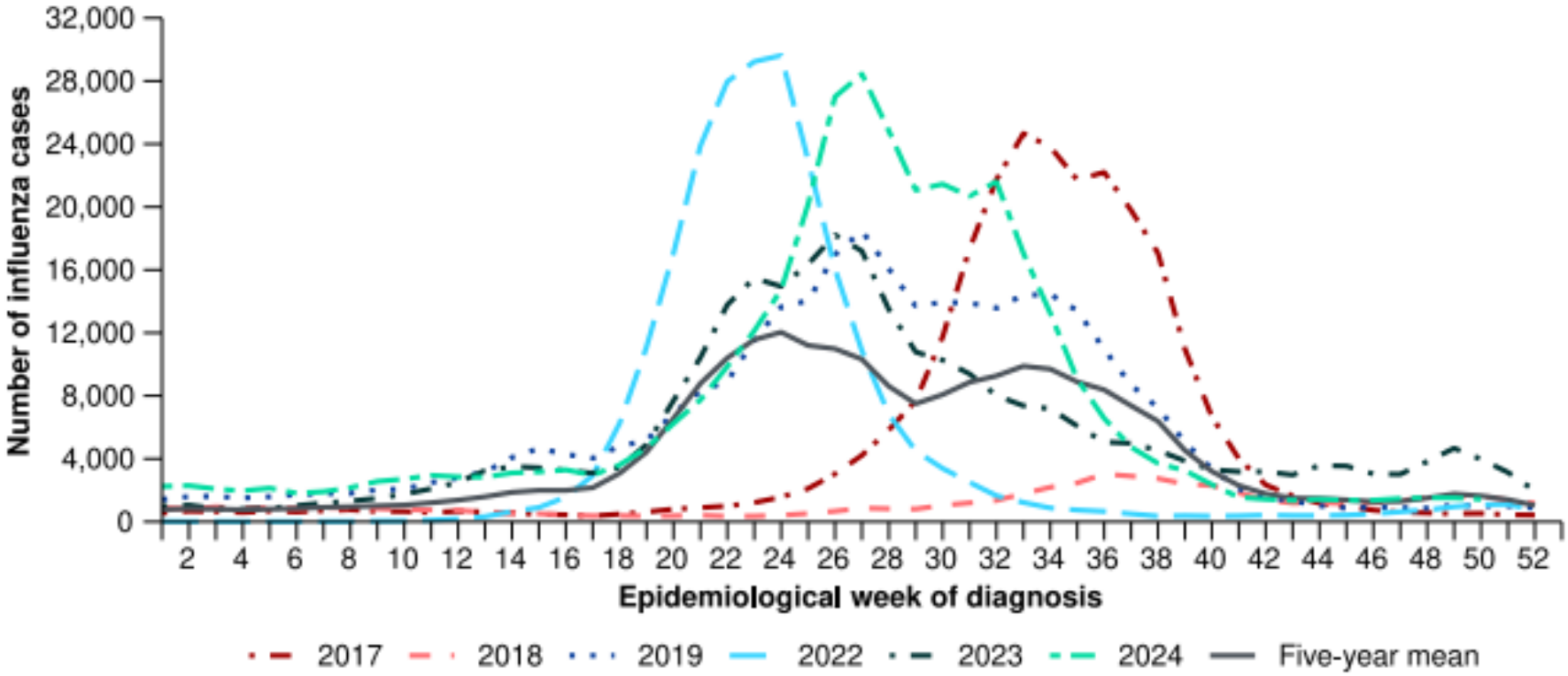
Influenza cases notified to the NNDSS and five-year mean* by year and week of diagnosis, Australia, 2017 to 15 December 2024



Source: NNDSS https://www.health.gov.au/sites/default/files/2024-12/australian-respiratory-surveillance-report-17-18-november-to-15-december-2024.pdf

Severity of Influenza

- 361,625 Cases in 2024
- 4,286 (11.8%)Hospital admissions
  - 274 (6.4%)have been admitted directly to an intensive care in a sentinel hospital
  - median length of stay in hospital was 2 days (IQR: 1–4 days).
- There were 500 deaths in people with confirmed influenza: a case fatality rate of 1.3%.
  - Below the 5-year mean case fatality rate of 2.1%.
  - Of these 500 deaths, 7 were in children aged less than 9

Vaccine match, effectiveness, and coverage

- During the 2024 season,
  - Vaccinated individuals - 60% less likely to attend general practice or be hospitalised vs unvaccinated (64% in 2023).
  - Estimated vaccine effectiveness against hospitalisation with influenza was 56%
    - 98.7% (1,446/1,465) of influenza A(H1N1) isolates,
    - 87.6% (1,342/1,532) of influenza A(H3N2) isolates and
    - 100% (145/145) Influenza B.

https://www.health.gov.au/sites/default/files/2024-12/australian-respiratory-surveillance-report-17-18-november-to-15-december-2024.pdf

Vaccine coverage

- In Australia, funded in the National Immunisation Program for people most at risk of severe infection
  - children aged 6 months to less than 5 years
  - people aged 65 and over
  - Aboriginal and Torres Strait Islander people aged 6 months and over ▪
  - pregnant women
  - people with certain medical conditions aged 6 months and over

Mandatory reporting to the Australian Immunisation Register (AIR) Since 1 March 2021.

Mandatory reporting of pregnancy status since March 2025

https://www.health.gov.au/news/mandatory-reporting-changes-to-the-australian-immunisation-register-air-from-1-march-2025

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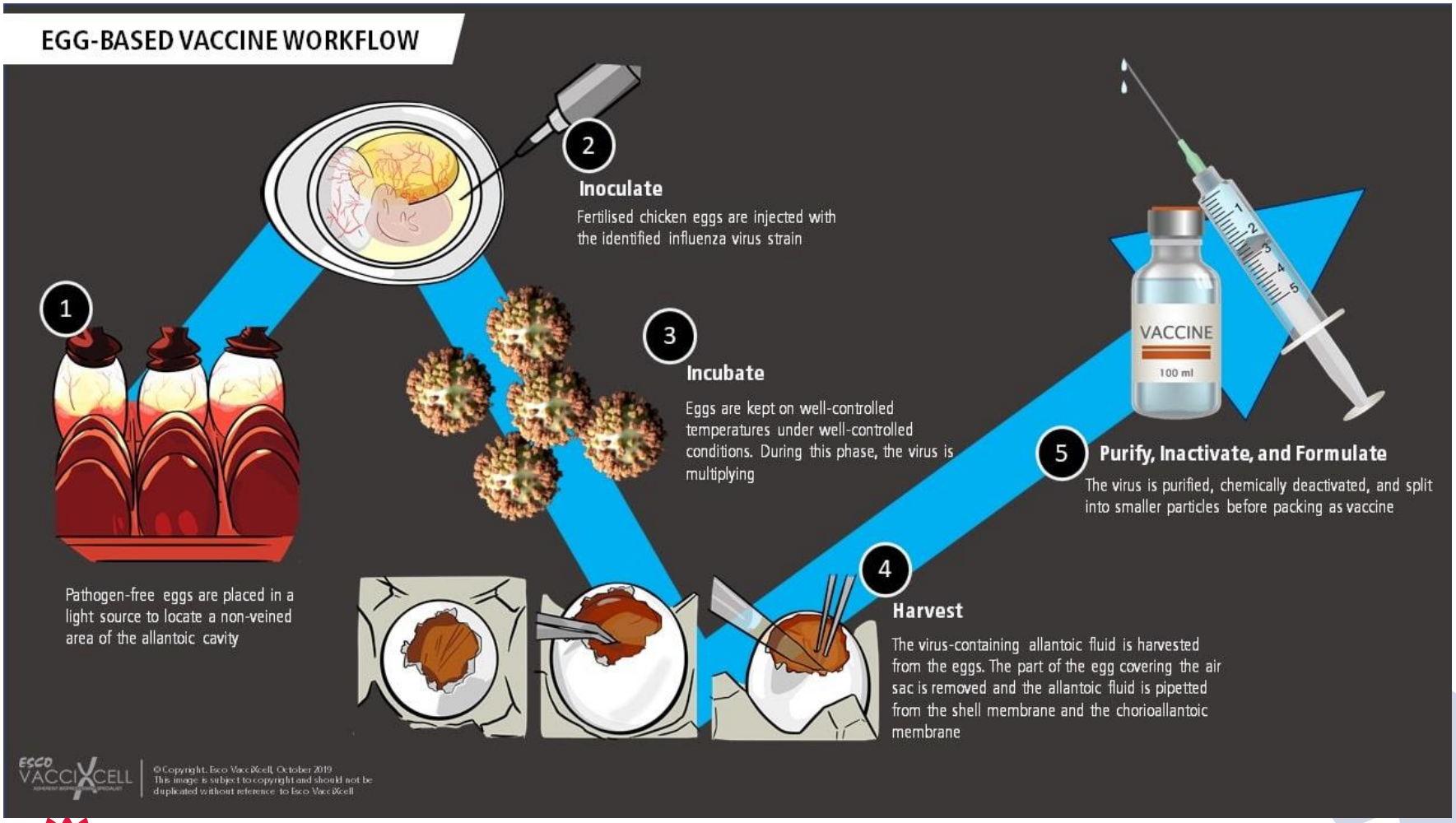
How are flu vaccines manufactured?



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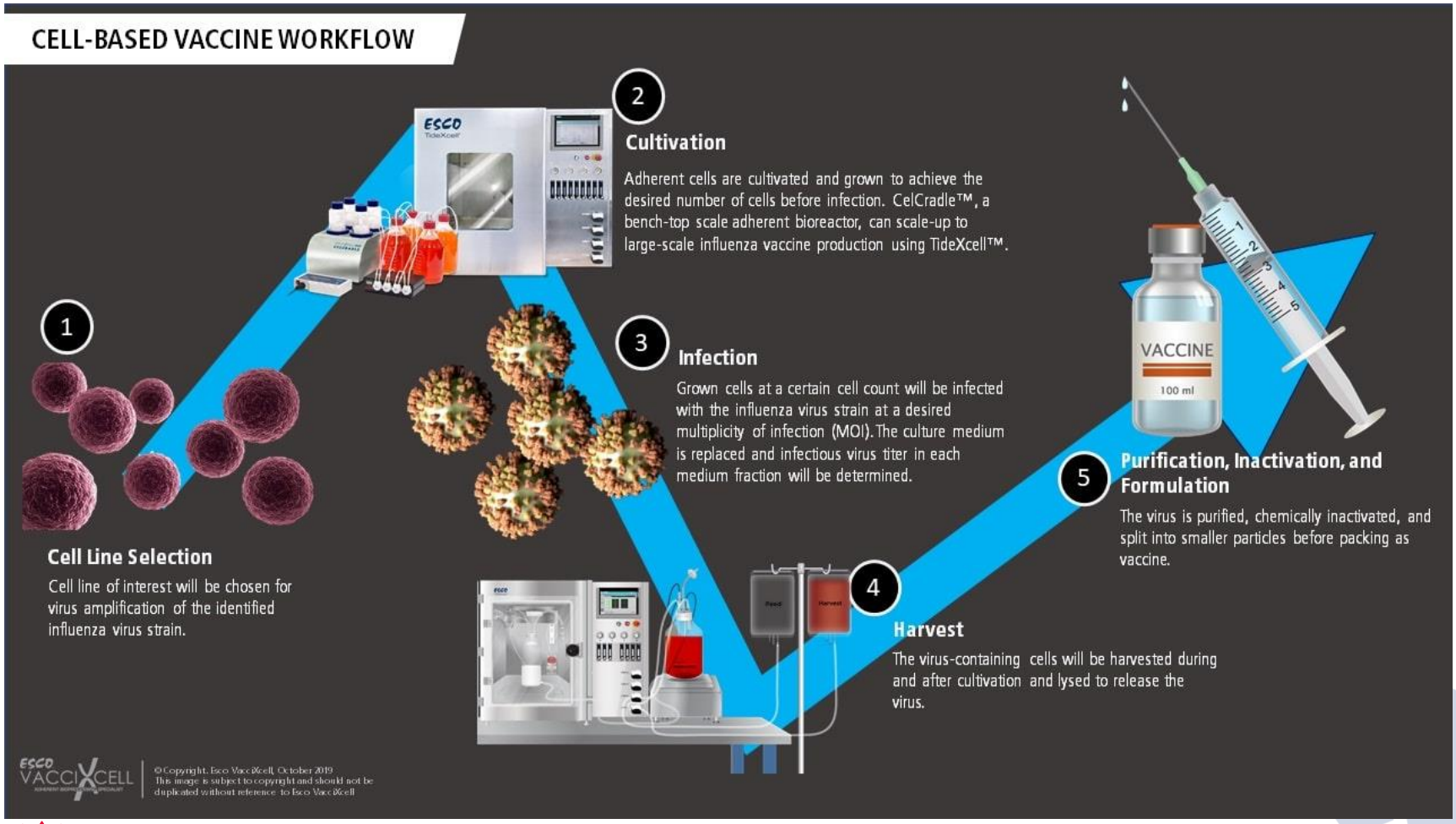


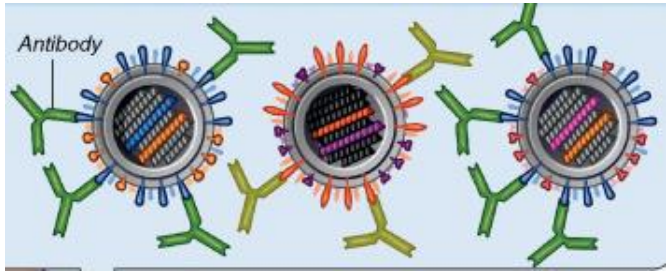
Immune Response to vaccines

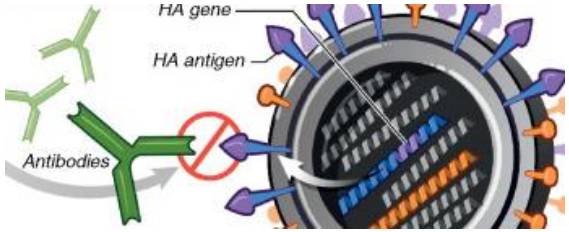
Each year's flu vaccine contains three or four strains that can change from year to year

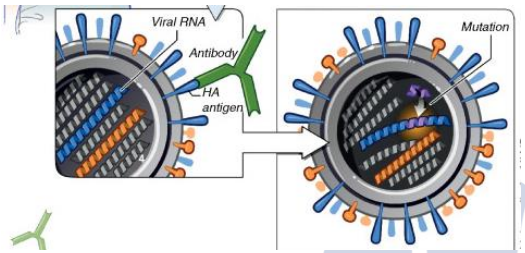
After vaccination, antibodies are produced against the covered strains

If you are exposed to any of the vaccine covered strains, the antibodies will latch onto the HA antigens preventing the virus from attaching to healthy cells

Mutations in the HA gene causes an escape in immunity







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Influenza vaccination program 2025

Figure 1. 2025 Influenza vaccines available under the NIP by age

2025 Influenza vaccines available under the NIP, by age

Before administering an influenza vaccine, CHECK you have the correct vaccine for the person's age. Ages are identified on the syringe.

	Quadrivalent (QIV) vaccines		
Registered age group	Vaxigrip Tetra® 0.50 mL (Sanofi)	Flucelvax® Quad 0.50 mL (Seqirus)	Fluad® Quad 0.50 mL (Seqirus)
<6 months	X	X	X
6 months to <5 years	✓	✓	X
5-64 years	✓[1]	✓[1]	X
65 years and over	✓	✓	✓[2]

2025 influenza vaccine presentation and free vaccine eligibility

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6 Months to less than 5 years

Vaxigrip Tetra®

Registered for use in people aged 6 months and over:

- All children 6 months to less than 5 years
- Give two doses one month apart for children aged 6 months to less than 5 years if first year of receiving flu vaccine
- Vaxigrip Tetra is only available in 10-dose packs.
- Children should receive a full dose (i.e. not a half dose)
- Does **not** contain latex

Vaxigrip Tetra® pack dimensions: 10.4 cm (L) x 10.4 cm (W) x 4.0 cm (H)

5 Years to 64 years

Vaxigrip Tetra® and Flucelvax® Quad

- People 5 years and over with medical risk factors predisposing to severe influenza
- All Aboriginal persons 5 years to 64 years of age
- Pregnant women
- Give two doses one month apart for children aged 5 years to less than 9 years if first year of receiving flu vaccine
- Vaxigrip Tetra and Flucelvax® Quad are only available in a 10 pack.
- Children should receive a full dose (i.e. not a half dose)
- Does **not** contain latex

Vaxigrip Tetra® pack dimensions: 10.4 cm (L) x 10.4 cm (W) x 4.0 cm (H)

Flucelvax® quad pack dimensions: 15.4 cm (L) x 13 cm (W) x 23 cm (H)

65 years and over

Fluad® Quad

- Adjuvanted quadrivalent vaccine
- All persons aged 65 years and over
- Milky-white suspension
- Available in 10 packs
- Does **not** contain latex
- Do not use in pregnant women or children

Fluad® quad pack dimensions: 15.4 cm (L) x 13 cm (W) x 23 cm (H)

Table 3: Recommended doses of influenza vaccine by age

(from the current Influenza disease chapter of the Australian Immunisation Handbook)

Age	Dose	Number of doses needed in 1st year of influenza vaccination	Number of doses needed if person received 1 or more doses of influenza vaccine in a previous season
≥6 months to <9 years	0.5 mL	2 (given 4 weeks apart)	1
≥9 years	0.5 mL	1	1
People of any age who have recently had a haematopoietic stem cell transplant or solid organ transplant	0.5 mL	2 (given 4 weeks apart) in 1st year vaccinated after transplant	2 (given 4 weeks apart) in 1st year vaccinated after transplant then 1 annually

2025 Influenza Vaccine strains (Southern Hemisphere)

- Egg-based quadrivalent influenza vaccines:
  - an A/Victoria/4897/2022 (H1N1)pdm09-like virus;
  - A/Croatia/10136RV/2023 (H3N2)-like virus
  - B/Austria/1359417/2021 (B/Victoria lineage)-like virus; and
  - B/Phuket/3073/2013 (B/Yamagata lineage)-like virus.

- Cell- or recombinant- based quadrivalent influenza vaccines:
  - an A/Wisconsin/67/2022 (H1N1) pdm09-like virus;
  - A/District of Columbia/27/2023 (H3N2)-like virus;
  - B/Austria/1359417/2021

  (B/Victoria lineage)-like virus; and
  - a B/Phuket/3073/2013 (B/Yamagata lineage)-like virus.

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Over 65 year age cohort

- Effectiveness of standard influenza vaccines is comparatively lower in older adults, especially in those aged ≥65
- In a large post-licensure study of community-dwelling adults aged ≥65 years, the **adjuvanted influenza vaccine was estimated to be around 25% more effective against hospitalisation** than the standard influenza vaccine.
- Fluad Quad includes an adjuvant called MF59.
  - an oil-in-water emulsion of squalene oil.

Over 65 year age cohort

- All available influenza QIV vaccines can also be used for aged 65 years and over.
- Fluad® Quad is the only funded vaccine available for this cohort through the NIP
- If a person aged 65 and over has been vaccinated with another QIV in the same year, revaccination with Fluad® Quad is not routinely recommended.
- The risk of mild to moderate injection site reactions may be greater for those aged 65 years and over receiving Fluad® Quad.
- Note that after shaking, the normal appearance of Fluad® Quad is a milky-white suspension.

Timing of vaccination

- Vaccination before the onset of each influenza season is recommended.
- Influenza circulation is typically June to September in NSW.
- (ATAGI) advises **that optimal protection occurs within the first three to four months following vaccination**.
  - **vaccination from mid-April/May onwards is likely to result in peak immunity during the influenza season**.
- It is never too late to vaccinate since influenza can circulate all year round.

Contraindications:

- Egg allergy not a contraindication to influenza vaccine.

- Although the product information for Fluarix Tetra states that some preparations of the vaccine cannot be considered latex-free, these preparations are not supplied in Australia.

Timing with other routine vaccines

- Once-off Prevenar® 13 (70 years and over) and Shingrix vaccines should also be offered to eligible people
- Shingrix
  - There is the potential for an increase in mild to moderate adverse events when more than one vaccine is given at the same time.
  - Separation of Shingrix from other vaccines should be considered, particularly for vaccines for which co-administration data are currently limited — for example, adjuvanted influenza vaccine
  - COVID-19 vaccines can be administered on the same day, based on the latest ATAGI advice

Strategies to promote prevention of Influenza spread

- Vaccination: community wide coverage of those aged 6 months and over
- Public messages to encourage the following:
  - Annual vaccination, especially for those at risk of severe disease,
  - Using a “never too late” approach
  - Inform people at risk for severe disease to seek prompt medical assessment
  - Increase frequency of hand hygiene, surface cleaning, and correct cough/sneeze etiquette

Strategies to promote prevention of Influenza spread

- Targeted messages:
  - Remind health care providers that people with ILI who are at increased risk of severe disease should be medically assessed, as appropriate
  - Strongly encourage vaccination of health care workers (HCWs). NSW specific influenza guidance
  - ANTIVIRALS - Aged care facilities can order oseltamivir (Tamiflu®) directly from the State Vaccine Centre by completing the online RACF influenza antiviral treatment access form.

Treatment

- The reduction in viral shedding as a result of antiviral treatment is dependent on the time to commencement of therapy after symptom onset.
- Delayed administration of antiviral therapy (>48hours) diminishes its impact on viral shedding and symptom resolution

- People at higher risk of severe disease from influenza (from the **Therapeutic Guidelines***):
  - adults aged 65 years or older
  - pregnant women
  - people with chronic conditions including:
    - heart disease
    - Down syndrome
    - obesity
    - chronic respiratory conditions
    - severe neurological conditions
    - immune compromise
  - Aboriginal people
  - children aged 5 years or younger
  - residents of long-term residential facilities
  - homeless people

Key Messages

- Almost 60% of children admitted to hospital with the flu do not have co-morbidities – key target demographic
- Healthcare provider recommendation of flu vaccine to patients and families
- Egg allergy (even anaphylaxis) is not a contraindication for vaccination
- Latex allergies not a contraindication for vaccination

Covid 19

25

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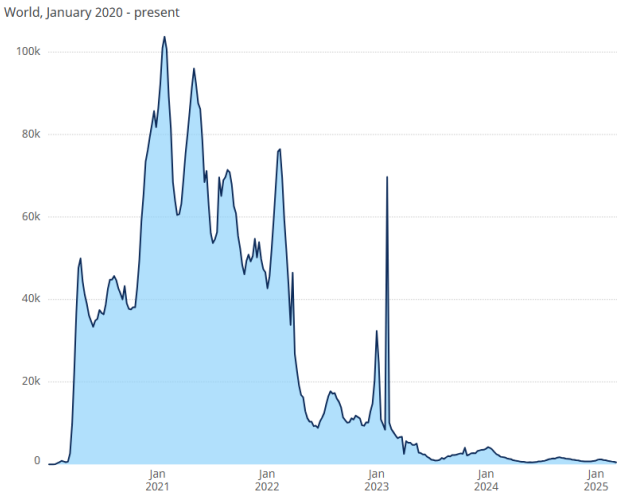
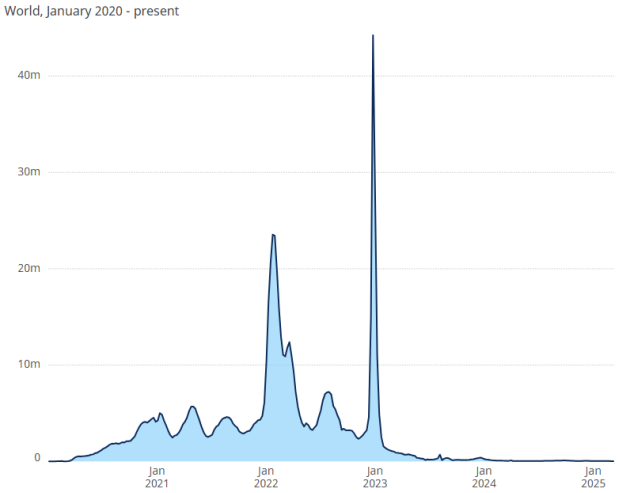
Total COVID-19 deaths reported to WHO (weekly)



Source: World Health Organization

Total COVID-19 cases reported to WHO (weekly)



Source: World Health Organization

Fall in mortality over time

- Vaccination
- Hybrid immunity
- Omicron
- Treatment of mild and severe COVID
- Improved infection control in aged care

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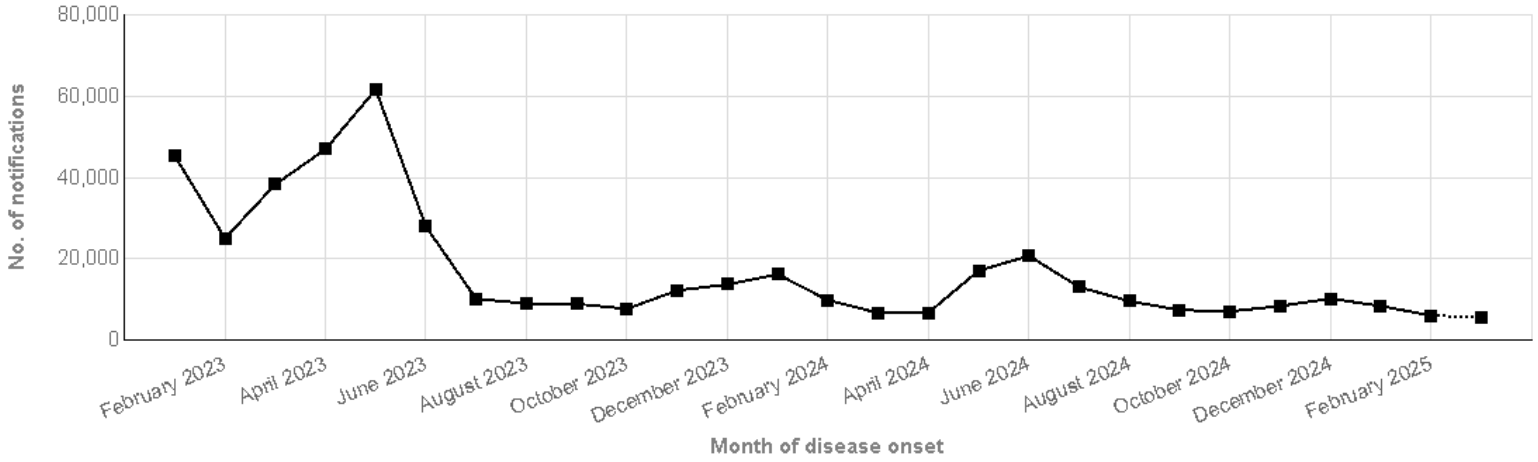
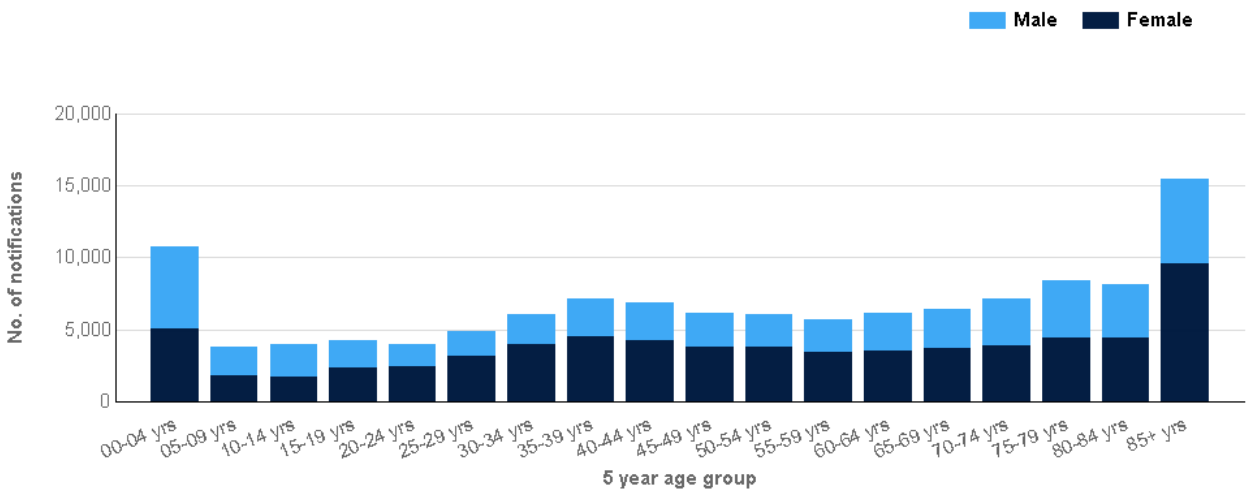
COVID-19 notifications in NSW residents, by month of disease onset. January 2023 to March 2025.



https://www.health.nsw.gov.au/infectious/pages/data.asp

COVID-19 notifications in NSW residents, by five year age group and gender. March 2024 to February 2025



COVID Booster dose recommendations

2024 COVID-19 Booster Dose Recommendations

Age	With severe immunocompromise[#]	Without severe immunocompromise[#]
≥ 75 years	**Recommended** every 6 months	
65-74 years	**Recommended** every 12 months and **eligible** for a dose every 6 months	
18-64 years	**Recommended** every 12 months and **eligible** for a dose every 6 months	**Eligible** for a dose every 12 months
5-17 years	**Eligible** every 12 months	**Not recommended**
<5 years	**Not recommended**	

[#]for details refer to the Australian Immunisation Handbook

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COVID Primary course recommendations

	6 months to 5 years	5 years to <18 years	≥ 18 years
Without risk factors	Not Eligible	Not Eligible	Recomended single primary dose
With risk factors	**Eligible** for 2 primary doses and eligible for a 3rd dose based on individual risk-benefit assessment.	**Eligible** for a single primary dose based on individual risk-benefit assessment.	Recomended single primary dose
With severe immunocompromise	**Recommended** 2 primary doses and eligible for a 3rd dose based on individual risk-benefit assessment.	**Recommended** 2 primary doses and eligible for a 3rd dose based on individual risk-benefit assessment.	**Recommended** 2 primary doses and eligible for a 3rd dose based on individual risk-benefit assessment.

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COVID-19 VACCINATION

As of 14 November 2024

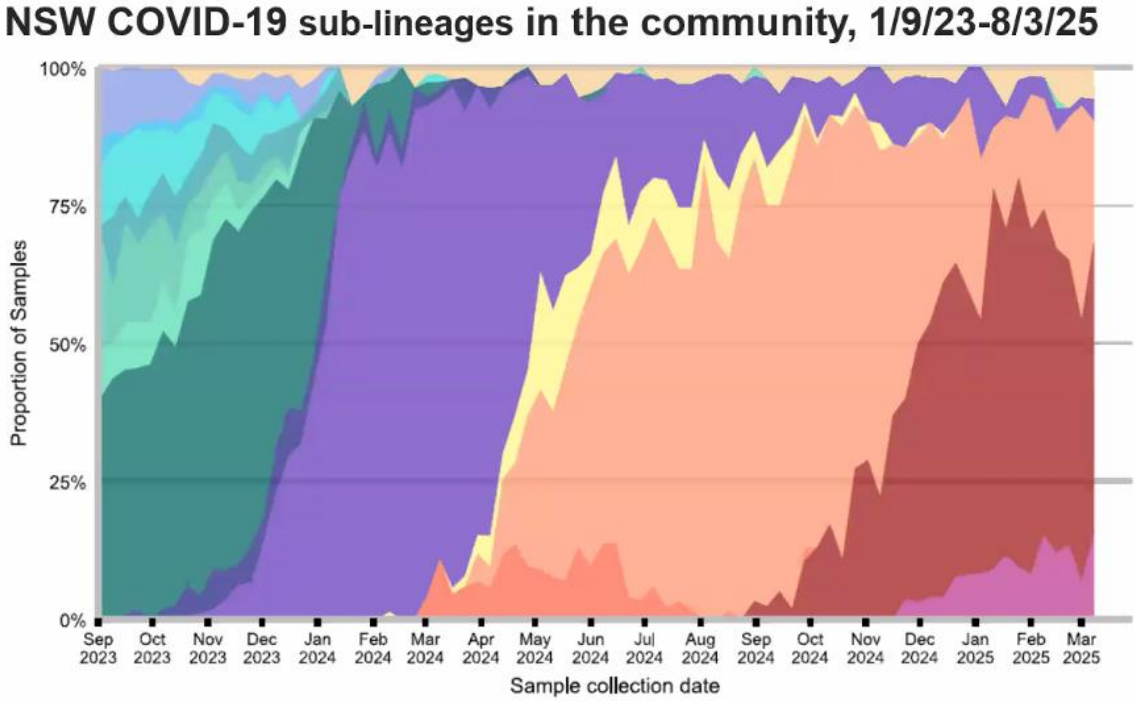
	Pfizer (COMIRNATY) JN.1 **6 months – 4 years** 3 mcg/0.3 mL concentrated suspension for injection multi-dose vial	Pfizer (COMIRNATY) JN.1 **5 – 11 years** 10 mcg/0.3 mL suspension for injection single-dose vial	Pfizer (COMIRNATY) JN.1 **12 years+** 30 mcg/0.3 mL suspension for injection multi-dose vial	Pfizer (COMIRNATY) JN.1 **12 years+** 30 mcg/0.3 mL suspension for injection single-dose glass prefilled syringes	Pfizer (COMIRNATY) Omicron XBB.1.5 **6 months – 4 years** 3 mcg/0.2 mL concentrated suspension for injection multi-dose vial	Pfizer (COMIRNATY) Omicron XBB.1.5 **5 – 11 years** 10 mcg/0.3 mL suspension for injection single-dose vial	Pfizer (COMIRNATY) Omicron XBB.1.5 **12 years+** 30 mcg/0.3 mL suspension for injection multi-dose vial
CVAS naming convention	Pfizer (JN.1) 6 months – 4 years (Yellow)	Pfizer (JN.1) 5 – 11 years (Light Blue)	Pfizer (JN.1) 12 years+ (Dark Grey)	Pfizer (JN.1) 12 years+ (PFS)	Pfizer (XBB.1.5) 6 months - 4 years (Maroon)	Pfizer (XBB.1.5) 5 - 11 years (Light Blue)	Pfizer (XBB.1.5) 12 years+ (Grey)
Vaccine type	mRNA (nucleic acid)	mRNA (nucleic acid)	mRNA (nucleic acid)	mRNA (nucleic acid)	mRNA (nucleic acid)	mRNA (nucleic acid)	mRNA (nucleic acid)
Approved age	6 months – 4 years	5 – 11 years	12 years and older	12 years and older	6 months to 4 years	5 to 11 years	12 years and older
Dose volume	0.3 mL	0.3 mL	0.3 mL	0.3mL	0.2 mL	0.3 mL	0.3 mL
Doses per vial	3	1	6	1	10	1	6
Dilution required	Yes (1.1 mL)	No	No	No	Yes (2.2 mL)	No	No
ULT freezer storage time	18 months (shelf life) at -90°C to -60°C	18 months (shelf life) at -90°C to -60°C	18 months (shelf life) at -90°C to -60°C	NA	24 months (shelf life) at -90°C to -60°C	24 months (shelf life) at -90°C to -60°C	24 months (shelf life) at -90°C to -60°C
Freezer storage time (unopened)	DO NOT STORE at -25°C to -15°C	DO NOT STORE at -25°C to -15°C	DO NOT STORE at -25°C to -15°C	DO NOT FREEZE	DO NOT STORE at -25°C to -15°C	DO NOT STORE at -25°C to -15°C	DO NOT STORE at -25°C to -15°C
Refrigeration storage time (unopened)[1]	70 days (+2°C to +8°C) within the 18-month shelf life	70 days (+2°C to +8°C) within the 18-month shelf life	70 days (+2°C to +8°C) within the 18-month shelf life	Expiry date printed on the carton and syringe label	70 days (+2°C to +8°C) within the 24-month shelf life	70 days (+2°C to +8°C) within the 24-month shelf life	70 days (+2°C to +8°C) within the 24-month shelf life
Room temperature storage time (unopened)	24 hours pre- and post-dilution (up to +30°C)	24 hours pre- and post-initial puncture (up to +30°C)	24 hours pre- and post-initial puncture (up to +30°C)	12 hours (up to +30°C)	24 hours pre- and post-dilution (up to +30°C)	24 hours pre- and post-initial puncture (up to +30°C)	24 hours pre- and post-initial puncture (up to +30°C)
Storing opened vials	6 hours (up to +30°C)	6 hours (up to +30°C)	6 hours (up to +30°C)	NA	6 hours (up to +30°C)	6 hours (up to +30°C)	6 hours (up to +30°C)
Storing pre-drawn doses	1 hour (up to +30°C) or 6 hours (+2°C to +8°C)	1 hour (up to +30°C) or 6 hours (+2°C to +8°C)	1 hour (up to +30°C) or 6 hours (+2°C to +8°C)	NA	1 hour (up to +30°C) or 6 hours (+2°C to +8°C)	1 hour (up to +30°C) or 6 hours (+2°C to +8°C)	1 hour (up to +30°C) or 6 hours (+2°C to +8°C)
TGA Product Information (PI) and Consumer Medicine Information (CMI)	PI CMI	PI CMI	PI CMI	PI CMI	PI CMI	PI CMI	PI CMI

Notes:

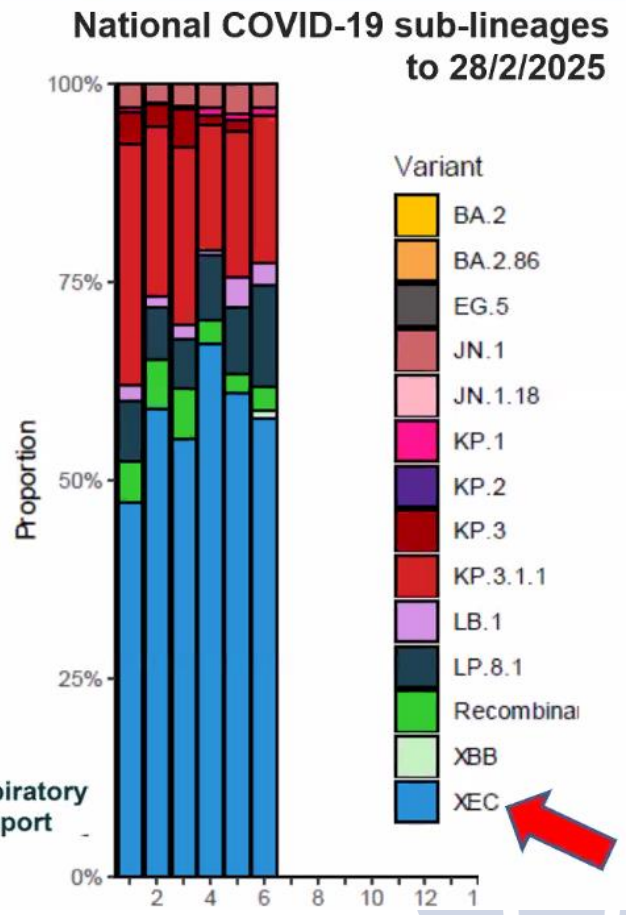
For the latest information on COVID-19 primary course and additional doses advise, please refer to the Australian Immunisation Handbook:

- All adults aged 18 years and over are **recommended** a **single primary dose**. Children and adolescents aged under 18 years are not routinely recommended a primary dose.
- People with severe immunocompromise conditions, who are over 6 months of age or older are recommended 2 primary doses and are eligible for a 3rd primary dose based on an individual risk-benefit assessment.
- Infants, children and adolescents aged 6 months to <18 years with conditions other than severe immunocompromise that may increase the risk of severe COVID-19 are **eligible** for primary dose(s) based on a risk benefit assessment.

Lineages/subtypes of respiratory viruses in circulation



NSW Respiratory Surveillance Report



Australian Respiratory Surveillance Report

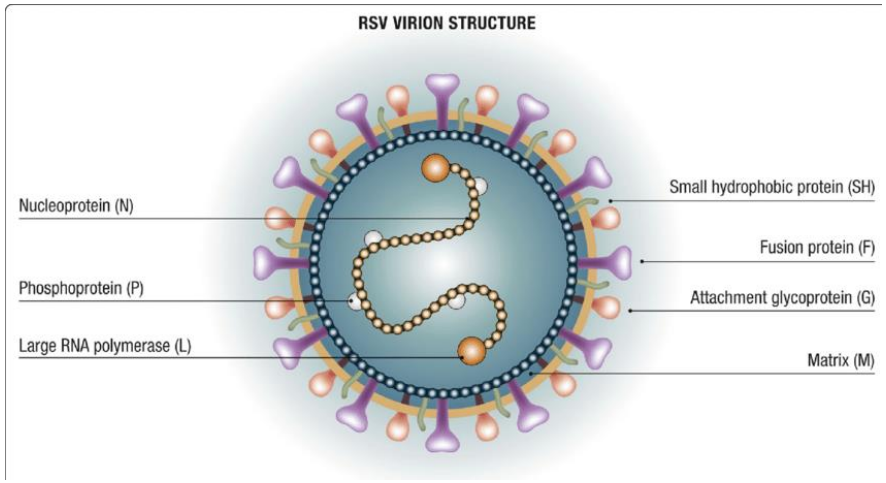
Courtesy: Prof. Ian Barr

NSW GOVERNMENT

Health
Northern Sydney
Local Health District

Respiratory syncytial virus

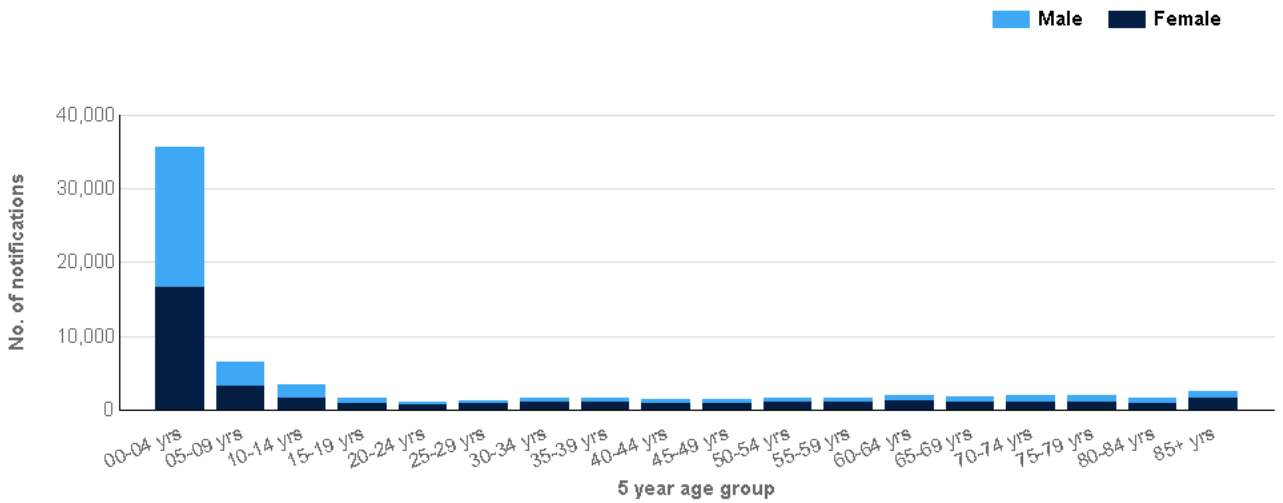
- Causes infections of the lungs and respiratory tract.
- Most people infected with the virus by age 2.
- Can also infect adults.
- causes an upper respiratory tract infection similar to other respiratory viruses.; RSV causes more frequent respiratory wheezing, earache and sinus pain than other viruses.[32]
- Can cause severe infection in :
  - babies especially premature infants
  - older adults
  - people with heart and lung disease
  - anyone with a weak immune system (immunocompromised).



Are RSV vaccines indicated every year?

- RSV is considered more genetically stable ->strains don't change as drastically from year to year.
- Less need for annual vaccine updates or re-dosing, unlike with influenza

Respiratory syncytial virus notifications in NSW residents, by five year age group and gender. March 2024 to February 2025



https://www.health.nsw.gov.au/infectious/pages/data.aspx

The annual RSV hospitalisation rate prior to immunisation was highest in:

- infants aged 0–2 months (approximately 3,100 per 100,000 population)
- infants aged 3–5 months (approximately 1,800 per 100,000 population

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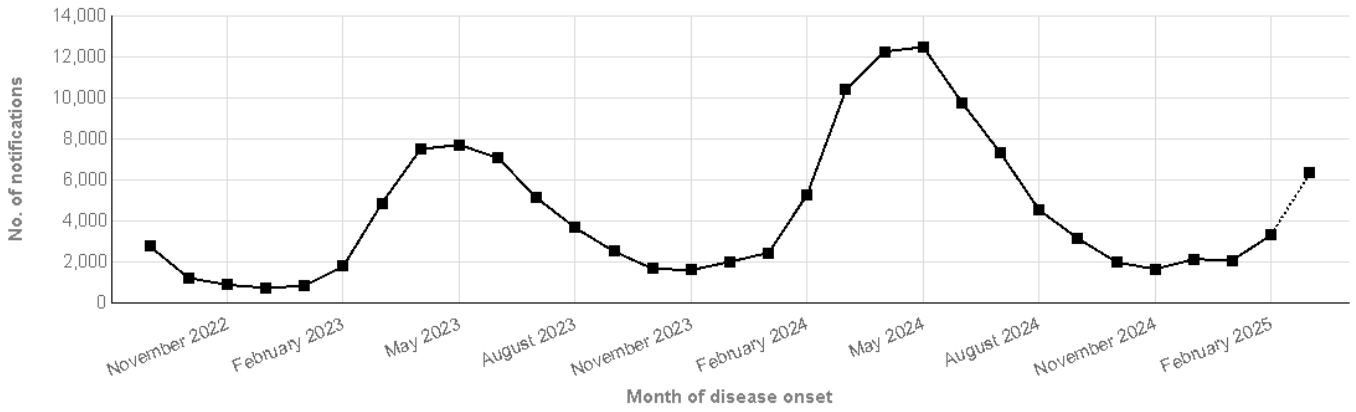
Respiratory syncytial virus notifications in NSW residents, by month of disease onset. September 2022 to March 2025.



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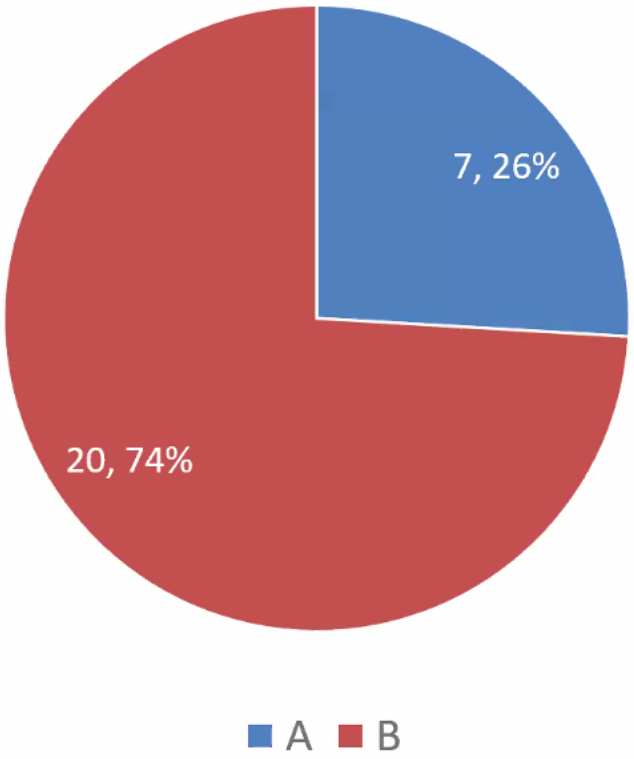
https://www.health.nsw.gov.au/infectious/pages/data.aspx

Subgroups of RSV in circulation in 2025



*Based on small numbers of RSV samples received at the WHO CC Melb from NT

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Respiratory syncytial virus notifications in NSW residents, by year of disease onset and Local Health District of residence. September 2022 to February 2025

Year	Central Coast	Far West	Hunter New England	Illawarra Shoalhaven	Mid North Coast	Murrumbidgee	Nepean Blue Mountains	Northern NSW	Northern Sydney	NSW not otherwise specified	South Eastern Sydney	South Western Sydney	Southern NSW	Sydney	Western NSW	Western Sydney	Total
2022	213	19	452	443	150	299	276	146	739	11	832	602	146	499	195	601	5,623
2023	2,148	214	4,049	2,342	882	2,066	2,695	1,093	6,311	59	4,675	6,424	923	3,045	1,793	7,764	46,483
2024	2,899	122	6,808	4,024	1,485	2,578	4,639	2,221	9,693	45	7,163	10,975	1,404	4,565	2,349	12,572	73,542
2025	168	5	495	365	81	39	355	220	974	3	674	537	79	388	67	972	5,422

Based on onset: the earlier of patient-reported onset, specimen, or notification date.
Became notifiable from 1 September 2022
Data may reflect current respiratory testing strategies.

https://www.health.nsw.gov.au/infectious/pages/data.aspx

NSW GOVERNMENT Health

RSV

VACCINATION

LONG-ACTING IMMUNEGLOBULIN

OLDER ADULTS

PREGNANT WOMEN

INFANTS AND CHILDREN UNDER 24 MOS

ALL RSV IMMUNISATIONS IN AUSTRALIA ARE >80% EFFECTIVE IN PREVENTING SEVERE RSV IN TARGET POPULATION

NSW GOVERNMENT Health
Northern Sydney Local Health District

2025 NSW RSV Prevention Program Eligibility

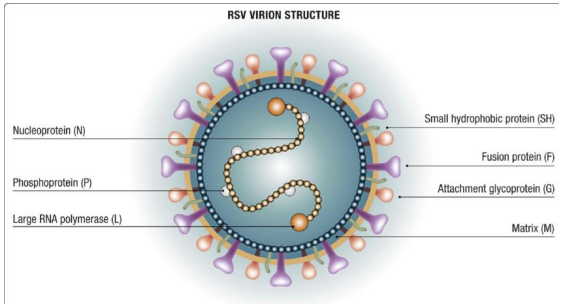
A **hybrid RSV prevention program** will include NIP funded maternal RSV vaccine and NSW state funded monoclonal antibodies (mAb) for infants

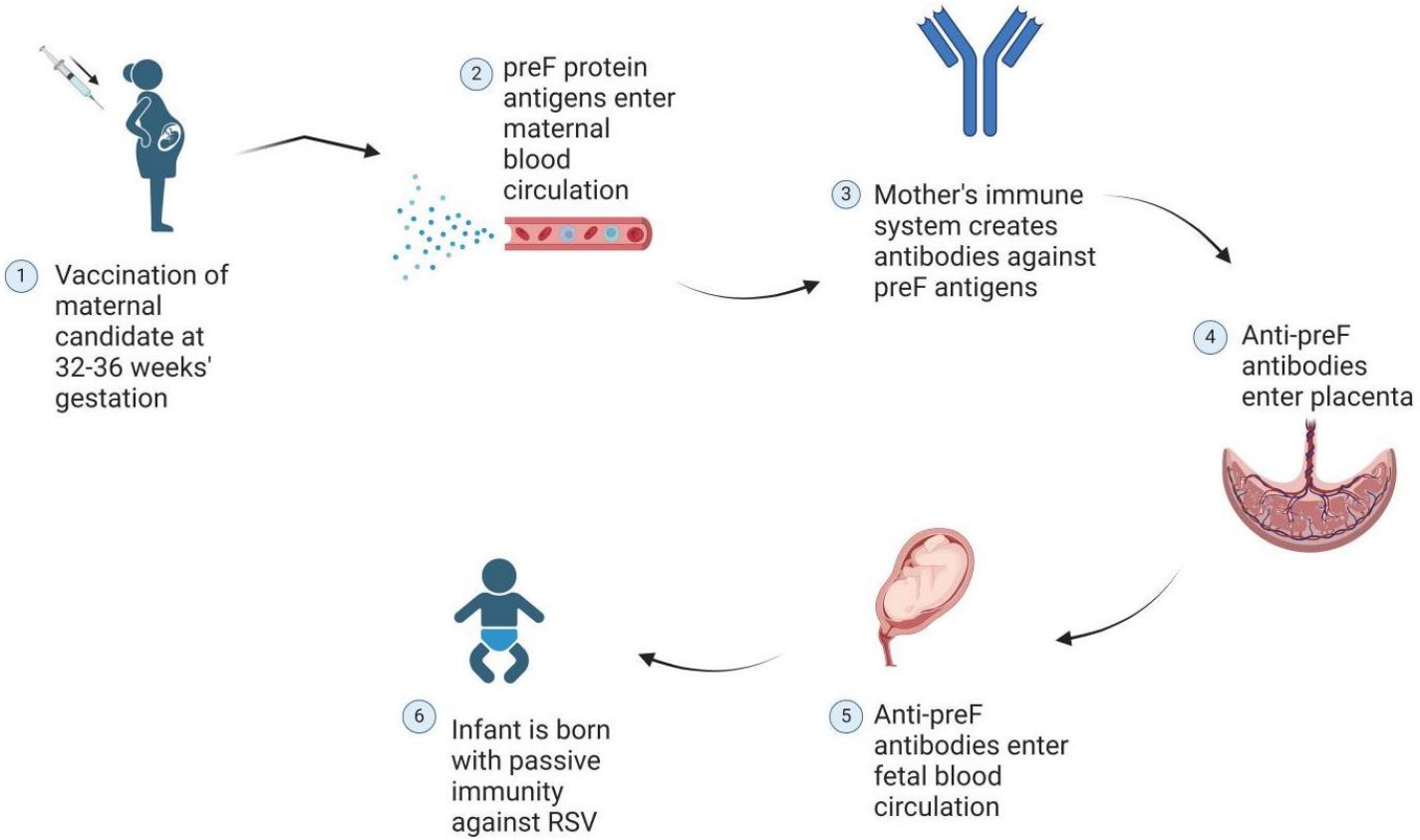
Maternal RVS vaccine

Abrysvo

- Pregnant women at 28/40 weeks
- Can be given between 28 – 36 weeks*
- Program commenced 3 February 2025
- Funded under the National Immunisation Program

•How does Abrysvo work?





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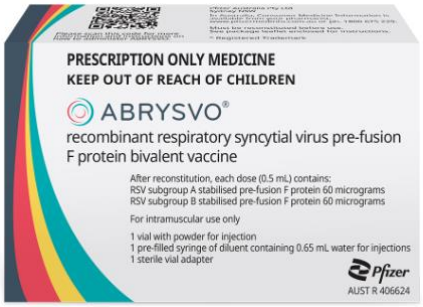
Patel et. a, 2024 Use of the Abrysvo Vaccine in Pregnancy to Prevent Respiratory Syncytial Virus in Infants: A Review

Maternal RSV vaccine Abrysvo



Recommendations

- Single dose between 28-36 weeks
- Can give >36 weeks (but baby may not be protected if born within 2 weeks of mother receiving vaccine)
- Do not give before 28 weeks

Administration

- Intramuscular injection 0.5mL to deltoid
- Can be co-administered with other antenatal vaccines
- Must be reconstituted with supplied diluent and vial adaptor

Safety & Efficacy

- Clinical trials found Abrysvo reduced risk of severe RSV disease in infants by 70%, and hospitalisation by 60% for 6 months
- Common side effects: fatigue, injection site pain, headache, muscle ache, nausea.

Contraindications & Precautions

- Contraindicated if previous hx anaphylaxis after same RSV vaccine, or component of same vaccine.
- Precautions: immunocompromise, bleeding disorders, current febrile illness

RSV vaccine Arexvy (GSK) used for older adults >60yo is not registered for use in pregnant women and must not be given

•ALERT!!! Extension of Abrysvo expiry date

Batch number	Expiry date on package	Updated expiry date
LL2636	31.07.2025	**31.07.2026**
LR6779	30.06.2025	**30.06.2026**
LR6778	31.05.2026	**31.05.2027**

https://cesphn.org.au/wp-content/uploads/2025/03/ABRYSVO-vaccine-Shelf-Life-Extension.pdf

Beyfortus (Nirsevimab)

Age and weight	Dose
Infants less than 5kg	50mg IMI
5kg or more	100mg IMI (Can also use 2 x 50mg syringe)
Infants entering 2nd RSV season	200mg IMI (2 x 100mg syringe)

Storage

Store at +2C to +8C, protect from light

May be kept at room temp <25C for 8 hours

Use within 8 hours after removal from fridge

Administration

Intramuscular injection

50mg 0.5mL pre-filled syringe (PURPLE)

100mg 1mL pre-filled syringe (BLUE)

Can be co-administered with other routine vaccines

Safety & Efficacy

Clinical trials found Beyfortus reduced risk of hospitalisation with severe RSV by 77%

Early real-world data shows >80% effective at preventing severe RSV infection

Possible side effects: injection site reaction, fever, rash.

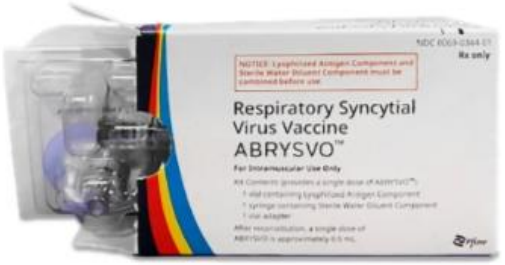
Contraindications & Precautions

Contraindicated for infants with severe hypersensitivity reaction to any components of Beyfortus

Precaution: bleeding disorders

Access to RSV immunisation products

- Abrysvo for pregnant women
  - from all antenatal care providers
- Nirsevimab for newborns
  - from public and private hospitals
- Nirsevimab for infants up to 24 months of age (from 3 March 2025)
  - from GPs, Aboriginal Medical Services, and Community health centres.
- Both Abrysvo and Nirsevimab can be ordered from the State Vaccine Centre
  - New '*Nirsevimab Order Form*' for primary care providers



Safety

Safety –how do we get the information?

- Pre-clinical studies
- Clinical trial data – phase 1-3 trials
- Post licensure
  - Spontaneous reporting
  - Active surveillance
  - Data linkage
- Pregnancy vaccines – specific issues
  - Mother
  - Foetus
  - neonate

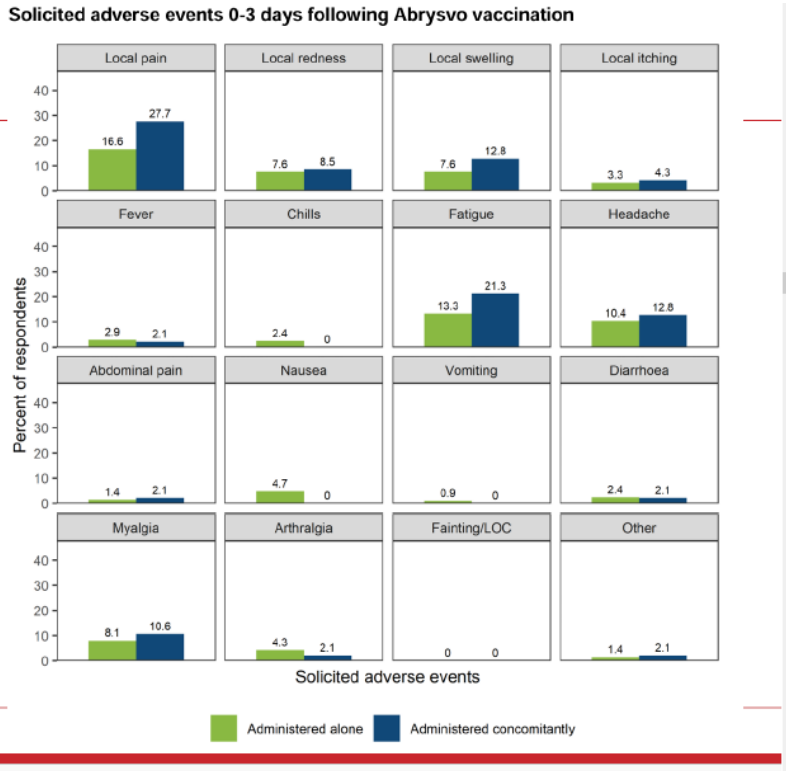
Focus on AESI and serious adverse events

Not associated with increased risk for preterm birth or SGA at birth

https://www.cdc.gov/acip/downloads/slides-2024-10-23-24/03-RSV-Mat-Peds-DeSilva-508.pdf

AusVaxSafety – 1st data

- Abrsyvo in pregnancy
  - N=258
- Medical attendance =0.9%
- Impact = 5.7%



Courtesy: Prof Nick Wood

Arexvy

- Single dose (0.5 mL IMI) is recommended for:
  - All adults aged ≥75 years
  - Aboriginal and/or Torres Strait Islander peoples aged 60 to 74 years
  - Adults aged 60 to 74 years with medical conditions that increase their risk of severe disease due to RSV.
  - Currently only through private prescription

All other adults aged 60 to 74 years can consider RSV vaccination (Registered ≥60 years of age)

NOT INDICATED FOR PREGNANT WOMEN

Arexvy - Efficacy

- In a large clinical trial, adults aged ≥60 years who received Arexvy were:
  - 83% less likely to have RSV-associated lower respiratory tract disease (LRTD)
  - 94% less likely to have severe RSV-associated LRTD through a single RSV season at 10 months follow-up.

Moderate vaccine efficacy (67%) was demonstrated across 2 complete RSV seasons in the Northern Hemisphere (up to 22 months after vaccination

https://www1.racgp.org.au/ajgp/2024/october/respiratory-syncytial-virus-prevention-is-finally

https://australianprescriber.tg.org.au/articles/recombinant-respiratory-syncytial-virus-RSV-vaccines-for-older-adults-and-pregnant-women-to-prevent-disease-in-their-infant.html

Nirsevimab (Beyfortus)

- Injectable, monoclonal antibody (mAb) that protects against (RSV)
- Long-acting (at least 5 months after single dose.
- Used to protect
  - all infants against severe disease during or entering their first RSV season, and vulnerable children aged <24 months in their second RSV season.
- safe and well tolerated, very rare hypersensitivity reactions
- Report receipt of Nirsevimab to the Australian Immunisation Register.

Nirsevimab (Beyfortus) Eligibility for Nirsevimab

Infant or child up to 24 months with risk conditions

- Including children born to mothers who have received Abrysvo during pregnancy.

Infants born on or after 1 January 2025 to a mother who did not receive the RSV vaccine

- Babies born to mothers From 01/01/2025 who did not receive Abrysvo
- Babies born within 2 weeks of maternal RSV vaccination
- Babies born to mothers who are immunosuppressed, regardless of maternal vaccination status
- Babies at risk for severe disease

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Northern Sydney Local Health District

Nirsevimab (Beyfortus) : Risk conditions for severe RSV disease in infants and young children

Box 1: Risk conditions for severe RSV disease in infants and young children

- Prematurity (particularly infants born <32 weeks gestational age)[10,11]
- Haemodynamically significant congenital heart disease[9-11]
- Significant immunosuppression, e.g. due to solid organ transplant, haematopoietic stem cell transplant,[12] or primary immune deficiencies such as severe combined immunodeficiency (SCID)[9,10]
- Chronic lung disease that requires oxygen or respiratory support beyond 36 weeks gestation or at hospital discharge[9,10]
- Neurological conditions that impair respiratory function[10]
- Cystic fibrosis with severe lung disease or weight for length <10th percentile[10]
- Trisomy 21 or other genetic conditions that increase the risk of RSV[13]

Can administration of Nirsevemab cause a decrease in the natural antibody response?

- Yes
- No

RSV Prevention Program FAQs

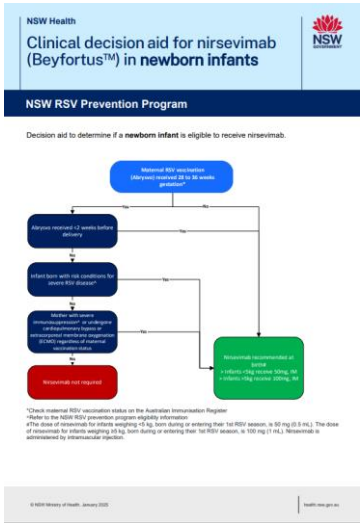
What if a newborn infant is not given nirsevimab before discharge from hospital?	• They can receive a catch up dose of nirsevimab, if they meet the eligibility criteria until 6 months of age from their GP, AMS or Community Health Centre
What if an infant received nirsevimab outside of RSV season in 2024 – Do they need a repeat dose in 2025 RSV season?	• No, a repeat dose is not recommended. • Children up to 24 months old with risk conditions for severe RSV disease are recommended to receive a second dose
Can nirsevimab be given to eligible children who have had previous RSV infection?	• Yes, eligible infants and children <24 months who have been previously diagnosed with RSV can receive nirsevimab once recovered
What if mum has a planned delivery booked soon?	• If mum has a planned delivery date within 2 weeks of being offered Abrysvo, DO NOT vaccinate mum. • Baby should be offered nirsevimab before discharge from hospital*

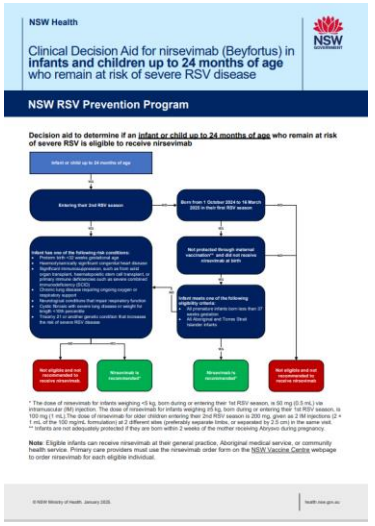
Other RSV prevention methods

- Synagis (palivizumab)
  - registered for use in infants aged 24 months and under for many years
  - Short duration (given monthly)

RSV immunisation resources

- Australian Immunisation Handbook ‘RSV chapter’
- NSW RSV Prevention Program - Information for health professionals https://www.health.nsw.gov.au/immunisation/Pages/respiratory-syncytial-virus.aspx
- NSW Health clinical decision aids
- NCIRS RSV FAQs





Additional resources

- FAQs NSW Health
- NSW Health vax toolkit
- NCIRS SKAI

Emerging/other Respiratory threats

NSW GOVERNMENT Health

Avian Influenza

- **Human infection with avian influenza A(H5N1) virus:**
  - 248 cases of human infection 1 January 2003 to 21 December 2023
    - 139 fatal.
  - Reported from four countries within the Western Pacific Region.
- **Human infection with avian influenza A(H5N6) virus:**
  - 90 laboratory-confirmed cases of human infection (As of 31 January 2024)
    - 35 deaths were reported to WHO in the Western Pacific Region since 2014.
- **Human infection with avian influenza A(H3N8) virus:**
  - a total of three laboratory-confirmed cases (As of 31 January 2024,) with o
    - one death were reported to WHO in the Western Pacific Region.

https://iris.who.int/bitstream/handle/10665/375483/AI-20240126.pdf?sequence=17&isAllowed=y

Avian Influenza

- Person-to-person transmission is very rare
  - occurs when a person does not wear personal protective equipment (PPE) and spends prolonged periods with an infected person.
- Low risk of infection from consuming animal products
- Australia - small outbreaks of other strains of avian influenza on poultry
  - Small number of mild human infections (close contact with sick birds)
- One human case of H5N1 has been recorded in Australia (overseas acquired, has since fully recovered)
- Department of Agriculture, One Health approach with human and animal branches

https://www.outbreak.gov.au/current-outbreaks/avian-influenza

Australian Government

What you need to know about avian influenza

agriculture.gov.au/birdflu

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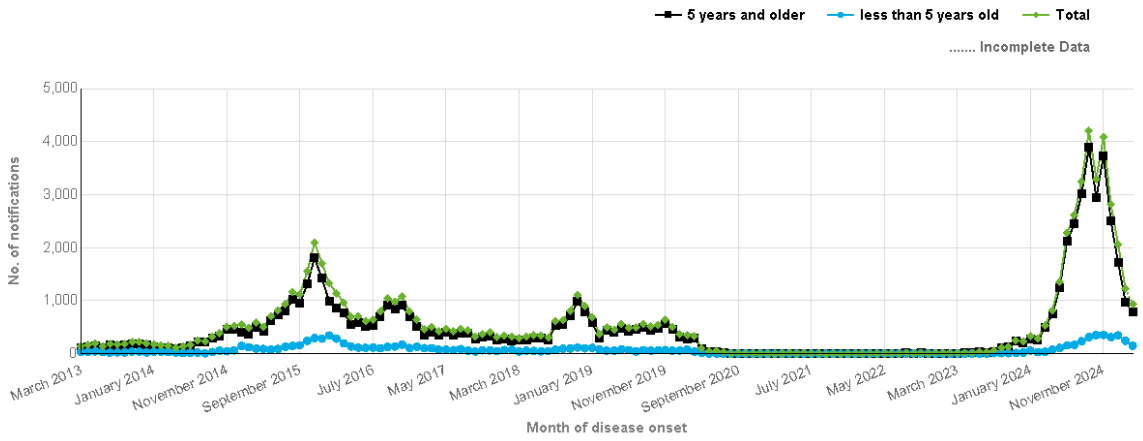
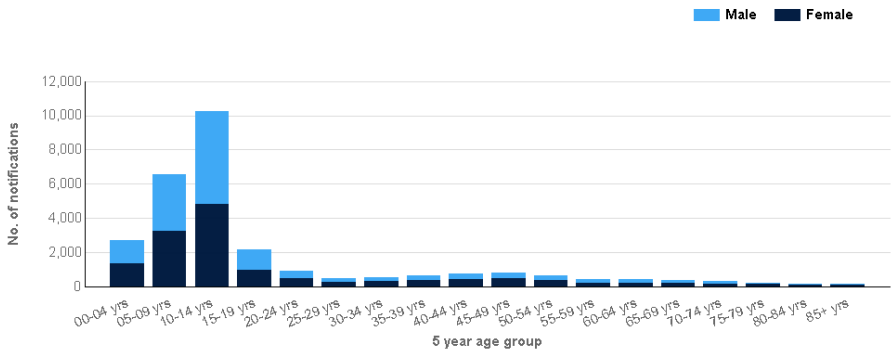
Pertussis

Pertussis notifications in NSW residents, by month of disease onset and age group. March 2013 to March 2025.



Pertussis notifications in NSW residents, by five year age group and gender. March 2024 to February 2025



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https://www.health.nsw.gov.au/infectious/pages/data.aspx

Pertussis

Pertussis notifications in NSW residents, by year of disease onset and Local Health District of residence. January 2024 to February 2025

Year	Central Coast	Far West	Hunter New England	Illawarra Shoalhaven	Mid North Coast	Murrumbidgee	Nepean Blue Mountains	Northern NSW	Northern Sydney	NSW not otherwise specified	South Eastern Sydney	South Western Sydney	Southern NSW	Sydney	Western NSW	Western Sydney	Total
2024	759	42	3,105	1,528	981	1,317	903	1,934	3,597	14	2,925	2,790	307	1,598	1,333	2,753	25,886
2025	127	8	379	196	81	123	154	132	485	3	299	421	109	162	195	409	3,283

Based on onset: the earlier of patient-reported onset, specimen, or notification date.
Became notifiable November 1991

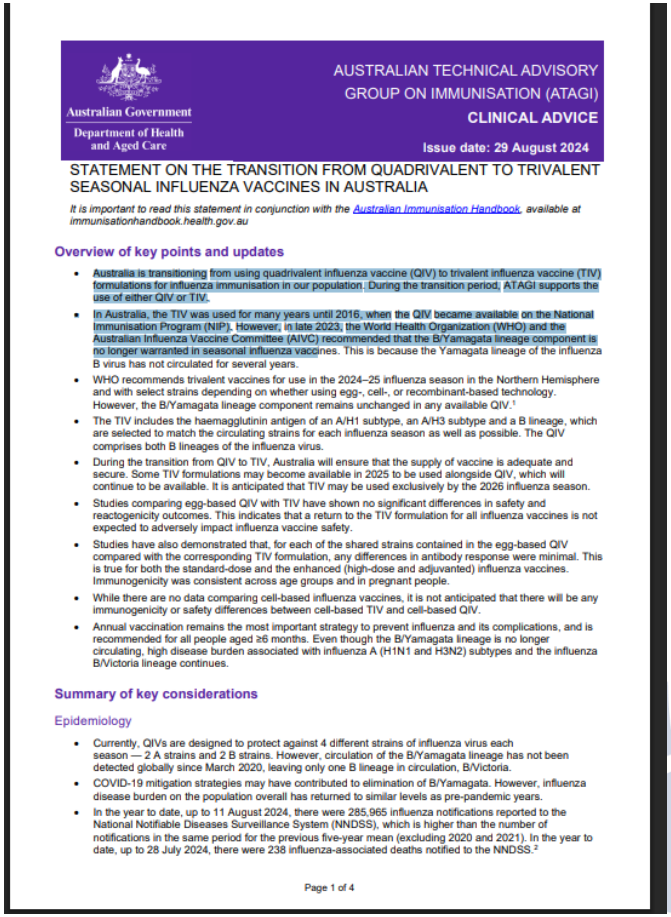
https://www.health.nsw.gov.au/infectious/pages/data.aspx

Transition from Quadrivalent to Trivalent flu vaccines in Australia

In late 2023, the World Health Organization (WHO) and the Australian Influenza Vaccine Committee (AIVC) recommended that the B/Yamagata lineage component is no longer warranted in seasonal influenza vaccine

During the transition period, ATAGI supports the use of either QIV or TIV. •

- https://www.health.gov.au/sites/default/files/2024-08/atagi-statement-on-the-transition-from-quadrivalent-to-trivalent-seasonal-influenza-vaccines-in-australia.pdf



Australian Government
Department of Health and Aged Care

AUSTRALIAN TECHNICAL ADVISORY GROUP ON IMMUNISATION (ATAGI)
CLINICAL ADVICE
Issue date: 29 August 2024

STATEMENT ON THE TRANSITION FROM QUADRIVALENT TO TRIVALENT SEASONAL INFLUENZA VACCINES IN AUSTRALIA

It is important to read this statement in conjunction with the Australian Immunisation Handbook, available at immunisationhandbook.health.gov.au

Overview of key points and updates

- Australia is transitioning from using quadrivalent influenza vaccine (QIV) to trivalent influenza vaccine (TIV) formulations for influenza immunisation in our population. During the transition period, ATAGI supports the use of either QIV or TIV.
- In Australia, the TIV was used for many years until 2016, when the QIV became available on the National Immunisation Program (NIP). However, in late 2023, the World Health Organization (WHO) and the Australian Influenza Vaccine Committee (AIVC) recommended that the B/Yamagata lineage component is no longer warranted in seasonal influenza vaccines. This is because the Yamagata lineage of the influenza B virus has not circulated for several years.
- WHO recommends trivalent vaccines for use in the 2024–25 influenza season in the Northern Hemisphere and with select strains depending on whether using egg-, cell-, or recombinant-based technology. However, the B/Yamagata lineage component remains unchanged in any available QIV.[1]
- The TIV includes the haemagglutinin antigen of an A/H1 subtype, an A/H3 subtype and a B lineage, which are selected to match the circulating strains for each influenza season as well as possible. The QIV comprises both B lineages of the influenza virus.
- During the transition from QIV to TIV, Australia will ensure that the supply of vaccine is adequate and secure. Some TIV formulations may become available in 2025 to be used alongside QIV, which will continue to be available. It is anticipated that TIV may be used exclusively by the 2026 influenza season.
- Studies comparing egg-based QIV with TIV have shown no significant differences in safety and reactogenicity outcomes. This indicates that a return to the TIV formulation for all influenza vaccines is not expected to adversely impact influenza vaccine safety.
- Studies have also demonstrated that, for each of the shared strains contained in the egg-based QIV compared with the corresponding TIV formulation, any differences in antibody response were minimal. This is true for both the standard-dose and the enhanced (high-dose and adjuvanted) influenza vaccines. Immunogenicity was consistent across age groups and in pregnant people.
- While there are no data comparing cell-based influenza vaccines, it is not anticipated that there will be any immunogenicity or safety differences between cell-based TIV and cell-based QIV.
- Annual vaccination remains the most important strategy to prevent influenza and its complications, and is recommended for all people aged ≥6 months. Even though the B/Yamagata lineage is no longer circulating, high disease burden associated with influenza A (H1N1 and H3N2) subtypes and the influenza B/Victoria lineage continues.

Summary of key considerations

Epidemiology

- Currently, QIVs are designed to protect against 4 different strains of influenza virus each season — 2 A strains and 2 B strains. However, circulation of the B/Yamagata lineage has not been detected globally since March 2020, leaving only one B lineage in circulation, B/Victoria.
- COVID-19 mitigation strategies may have contributed to elimination of B/Yamagata. However, influenza disease burden on the population overall has returned to similar levels as pre-pandemic years.
- In the year to date, up to 11 August 2024, there were 285,965 influenza notifications reported to the National Notifiable Diseases Surveillance System (NNDSS), which is higher than the number of notifications in the same period for the previous five-year mean (excluding 2020 and 2021). In the year to date, up to 28 July 2024, there were 238 influenza-associated deaths notified to the NNDSS.[2]

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