



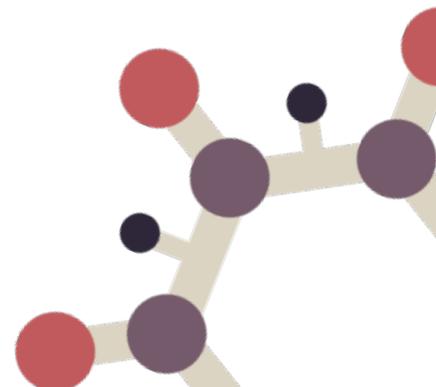
This webinar will start at
6:00pm AEDT

The Immunisation Coalition's
2021 Influenza Webinar

The Immunisation Coalition's mission:

- Protect Australians against infectious diseases
- Advocate for immunisation
- Fight the misinformation from anti-vax groups with evidence based medical facts.

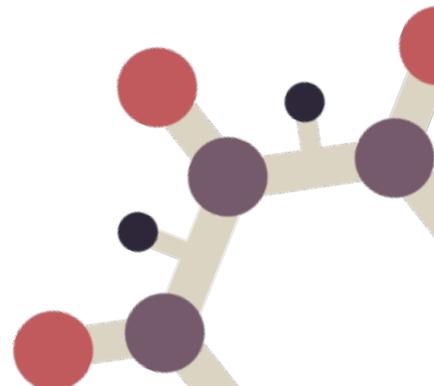
2021 Influenza Webinar



Questions & Answers



- ❁ Please type any questions for the speakers in the Q&A box throughout the meeting.
- ❁ A certificate of attendance will be sent to your email (minimum 50-minute attendance) in the coming weeks.
- ❁ A recording of this event will be available on the Immunisation Coalition's website soon.

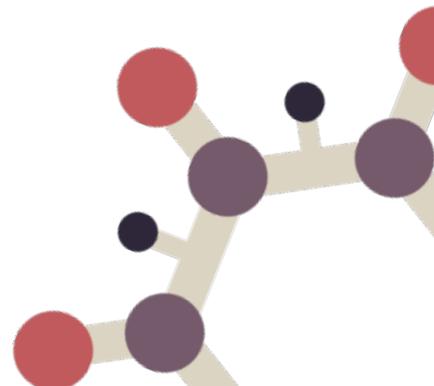


Audience Poll



Please indicate the profession or expertise area that most closely represents your background.

1. GP / Medical Practitioner
2. Nurse / Midwife
3. Researcher / Educator
4. Pharmacist
5. Other

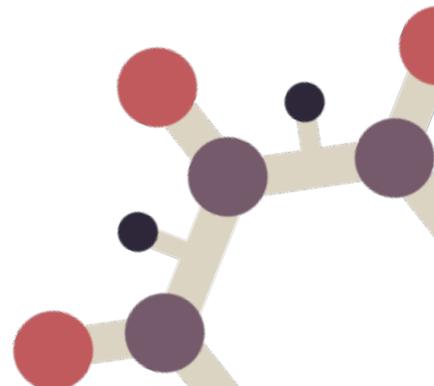


Influenza Vaccination 2021



Angela Newbound

Immunisation Specialist &
Immunisation Coalition Member



Influenza

What is influenza?

☼ Respiratory disease caused by influenza virus infection.

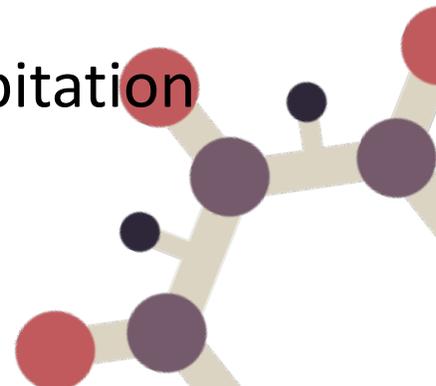
Influenza infection can cause a wide spectrum of disease

☼ Minimal to no symptoms in some people.

☼ Respiratory symptoms with **systemic features** (ie. involving the whole body) in others.

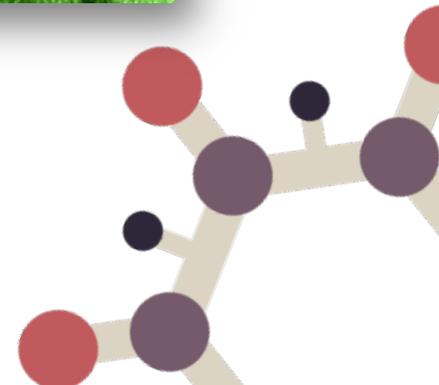
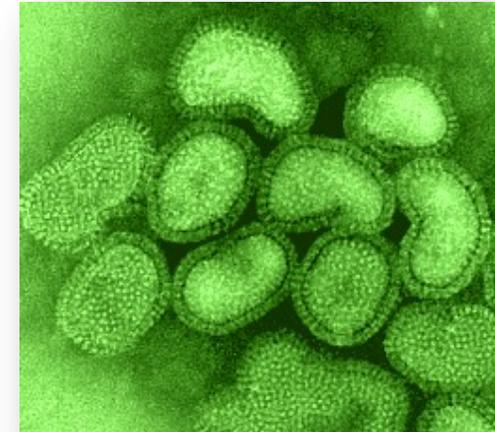
☼ In some patients, **progression to** viral pneumonia or secondary bacterial **pneumonia**.

☼ In other patients **worsening** of an underlying **comorbidity** or precipitation of events such as myocardial infarction.



Influenza viruses

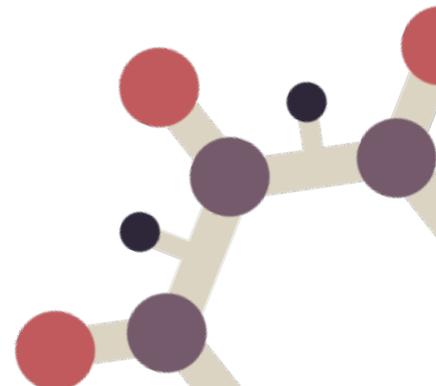
- ✿ During infection influenza virus enters the epithelial cells lining the airways. Replication of the virus leads to release of larger quantities of virus
- ✿ Influenza viruses have 2 surface glycoprotein antigens:
 - ✿ **Haemagglutinin (H)** – involved in cell attachment during infection
 - ✿ **Neuraminidase (N)** – facilitates the release of newly synthesized virus from the cell.



Poll 1

What best describes antigenic shift?

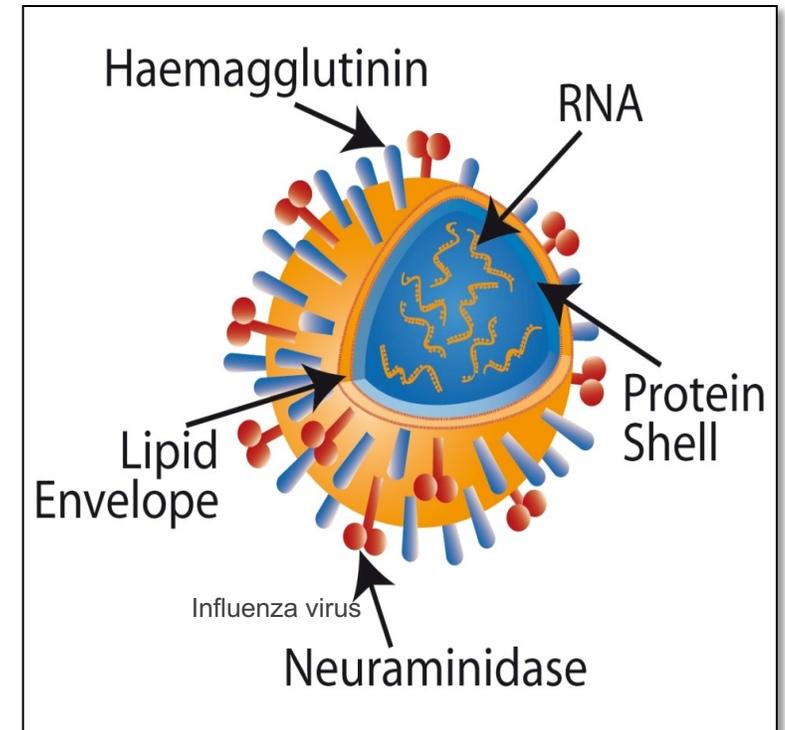
- A. A random genetic mutation of an infectious agent resulting in minor changes in proteins called antigens
- B. The accumulation of a series of minor genetic mutations
- C. Viruses that are closely related to one another. This can be illustrated by their location close together on a phylogenetic tree
- D. An abrupt, major change in an influenza A virus, resulting in new HA and/or new HA and NA proteins in influenza viruses that infect humans



Influenza viruses

Influenza A and influenza B viruses undergo frequent changes in their surface antigens

- ❁ Stepwise mutations of genes coding for Haemagglutinin and Neuraminidase result in changes in surface antigens.
 - ❁ This leads to **new strains (shift)** and **repeated outbreaks and epidemics of influenza (drift)**.
 - ❁ Reason why the **composition** of influenza vaccines is **reviewed yearly** and may change.



Influenza

How does influenza spread?

- ✿ Via respiratory aerosols, droplets produced during coughing/sneezing, and direct contact with respiratory secretions containing influenza viruses deposited on surfaces.

Typical course of influenza disease in symptomatic individuals

Incubation period of 1 to 3 days followed by abrupt illness, including:

- ✿ Cough, sore throat
- ✿ Feeling of discomfort (malaise)
- ✿ Fever
- ✿ Chills
- ✿ Headache
- ✿ Aching muscles (myalgia)

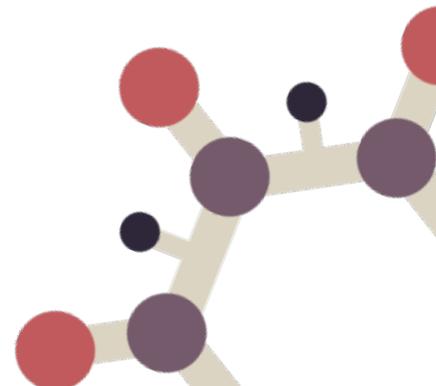
May also be accompanied by nasal discharge and sneezing



Influenza

Complications of influenza

- ✿ Acute bronchitis
- ✿ Acute otitis media
- ✿ Pneumonia
 - ✿ Primary viral pneumonia (rare)
 - ✿ Secondary bacterial pneumonia (frequent complication in individuals at high risk of influenza complications)
- ✿ Cardiovascular complications (e.g. myocardial infarction, myocarditis, pericarditis)
- ✿ Stroke
- ✿ Encephalopathy
- ✿ Reye syndrome
- ✿ Guillain-Barre syndrome
- ✿ Death from pneumonia or cardiac failure



Burden of influenza disease



Annual influenza attack rates: typically, 5-10% of the community

In some years, may be up to 20%.

Paediatric levels are higher ~30%.

Influenza-like illness accounts for significant morbidity in the general population and substantial economic losses through increased healthcare utilisation and lost productivity

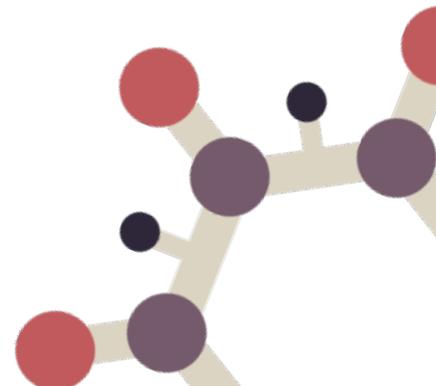
Estimated to be responsible per annum for approx:

1,500,000 lost workdays

>300,000 GP visits

18,000 hospitalisations

1,500 - 3,000 deaths



Burden of influenza disease

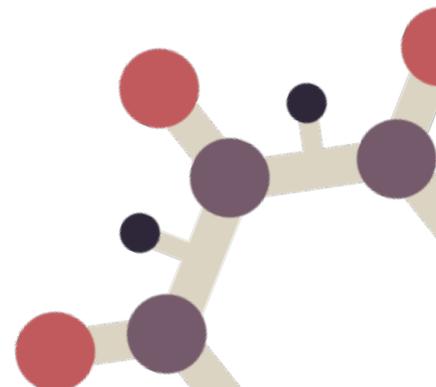
In Australia

2019

- ☀ More than 300,000 confirmed influenza cases
- ☀ 3,915 hospitalisations between 1st April when sentinel hospital surveillance began, to 6th October

2020

- ☀ 21,266 notifications of laboratory confirmed influenza
- ☀ 15 admissions to sentinel hospital (1 into ICU)



Poll 2

International studies reveal that healthcare settings have some of the highest rates of ‘sickness presenteeism’. What percentage of HCW’s in Australia admit to going to work with an influenza like illness?

- A. 40%
- B. 25%
- C. 60%
- D. 75%



Who is at increased risk of complications from influenza infection?

In 2019, 812 influenza-associated deaths have been notified to the NNDSS. The median age of deaths notified was 86 years (range <1 to 106 years).

In 2020, 37 deaths reported.



Who is at increased risk of complications from influenza infection?

- ☼ All individuals aged ≥ 65 years
- ☼ All older Australians and Aboriginal and Torres Strait Islanders



Who is at increased risk of complications from influenza infection?

Individuals (≥ 6 months) with chronic conditions or other factors predisposing to severe outcomes from influenza

☀️ **Pregnant women**

☀️ **Cardiac disease**

☀️ **Chronic respiratory conditions**

COPD (chronic obstructive pulmonary disease) and chronic emphysema

Severe asthma

Suppurative lung disease, bronchiectasis, and cystic fibrosis

☀️ **Other chronic illnesses** requiring regular medical follow up or hospitalisation in the preceding year, e.g.

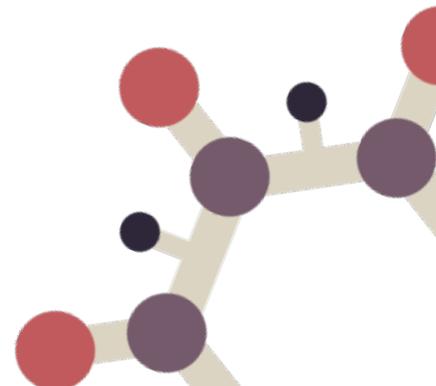
Diabetes mellitus

Chronic renal failure

Chronic metabolic diseases

Haemoglobinopathies

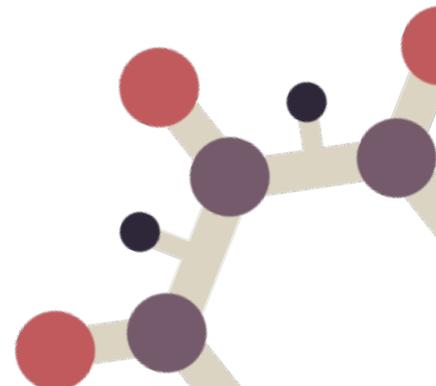
Harmful use of alcohol



Who is at increased risk of complications from influenza infection?

Individuals (≥ 6 months) with chronic conditions or other factors predisposing to severe influenza

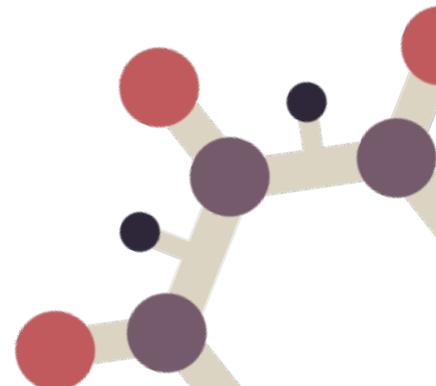
- ✿ Chronic neurological conditions that can compromise respiratory function (CNS diseases, seizure disorders, spinal cord injury, neuromuscular disorders)
- ✿ Chronic liver disease
- ✿ Impaired immunity (e.g. HIV infection or malignancy)
- ✿ Preterm infants (< 37 weeks gestation)
- ✿ Children aged 6 months to 10 years on long-term aspirin therapy
- ✿ Down syndrome
- ✿ Obesity (BMI $>30\text{kg/m}^2$)



Who else is at risk from influenza infection?

Others to consider:

- ✿ Every-one ≥ 5 years (even healthy individuals!) – **note that children ≥ 6 mths to < 5 years is funded under NIP**
- ✿ Residents ≥ 65 years in RACF's and other long term care facilities
- ✿ Homeless people (state funded vaccine in SA)
- ✿ Commercial poultry or pork industry staff (during confirmed avian or swine influenza activity)
- ✿ Essential Services personnel
- ✿ Travellers



Influenza infection and cardiac disease

Cardiac diseases that increase the risk of severe co influenza

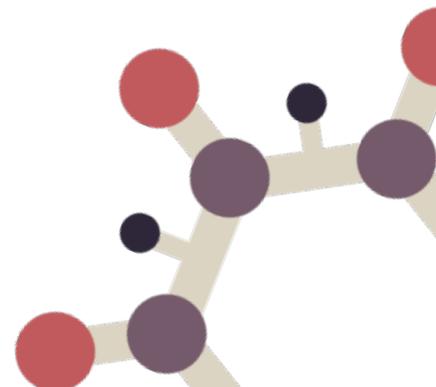
- ✿ Cyanotic congenital heart disease
- ✿ Coronary artery disease
- ✿ Congestive heart failure



Increased rates of myocardial infarction and coronary death often occur during the influenza season.

Pulmonary congestion in chronic heart failure patients predisposes them to increased risk of respiratory infections.

Patients with chronic heart failure are at increased risk of hospitalisations and death during the influenza season.



Influenza infection and chronic lung disease

COPD

- ❁ Patients with COPD are at increased risk for respiratory illness-related hospitalisation during influenza outbreaks.
- ❁ Influenza infection is an important cause of excess mortality and morbidity in COPD.
- ❁ Effective management of acute exacerbations of COPD can be challenging and so prevention strategies are preferred.



Influenza infection and chronic lung disease

Asthma

- ❁ Asthmatic children experience a significantly greater incidence of viral respiratory tract infections than do their non-asthmatic siblings of similar age.
- ❁ The course of illness was typically longer in the asthmatic siblings.
- ❁ Influenza can cause severe exacerbations of wheezing and about 10% of episodes of virus-induced wheezing are attributable to influenza.



Suppurative lung disease, bronchiectasis, and cystic fibrosis

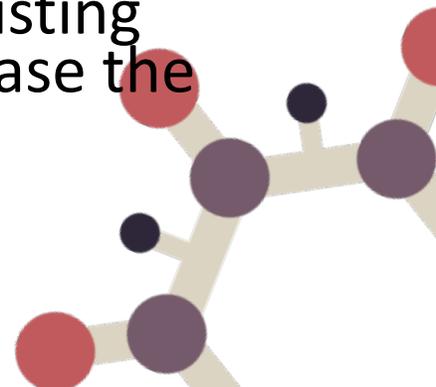
- ❁ Patients with these conditions are at increased risk of contracting influenza, which can lead to irreversible deterioration in lung function.



Influenza infection and diabetes

Increased risk from influenza infection in people with diabetes

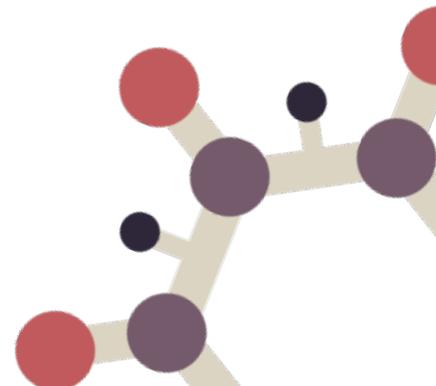
- ☼ People with diabetes may develop more severe disease.
- ☼ Those with Type I or Type II diabetes are at increased risk of lower respiratory tract infections including influenza.
- ☼ Influenza infection may be associated with increased morbidity and mortality in people with diabetes.
- ☼ Factors such as malnutrition, blood vessel damage and other co-existing conditions (e.g. cardiovascular and chronic renal disease) can increase the risk of lower respiratory tract infections.



Influenza infection and diabetes

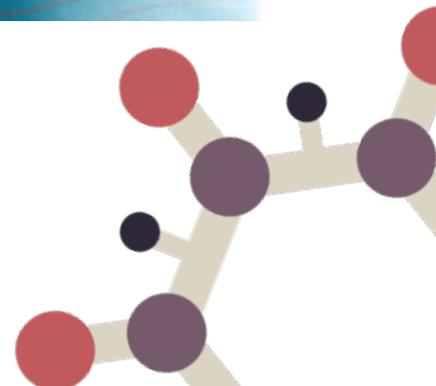
Deaths from influenza in people with diabetes

- ✿ A sizeable fraction (~10%) of deaths associated with influenza and pneumonia are attributable to diabetes.
- ✿ In the general population, people aged 25 to 64 years with diabetes were 4 times more likely to die with pneumonia and influenza than people without diabetes of comparable age, sex, race, and socioeconomic status.



Pregnancy

- ❁ Pregnant women, and women planning pregnancy, are at increased risk of morbidity and mortality from influenza
- ❁ The risk of complications due to influenza increases during the later stages of pregnancy
- ❁ Selective suppression of immune components significantly increases the rate of serious illnesses and hospitalisations in pregnant women
- ❁ RANZCOG recommend the routine vaccination of pregnant women against influenza in every pregnancy
- ❁ Vaccination during pregnancy also provides protection for the neonate



Influenza vaccination for travellers

- ✿ Frequent vaccine preventable disease in travellers
 - Low rate all year round in the tropics
 - Peaks seasonally in Northern and Southern hemispheres
- ✿ Australian residents undertaking international travel has almost doubled
 - 2008: 5.1 million
 - 2018: 9.5 million
 - 2019: 11.3 million
- ✿ Risk factors
 - Aeroplanes / Airport lounges etc
 - Cruise ships (majority elderly)
 - Hajj (~30% elderly)
 - Other mass gatherings:
FIFA World Cup, Olympics, Divali etc



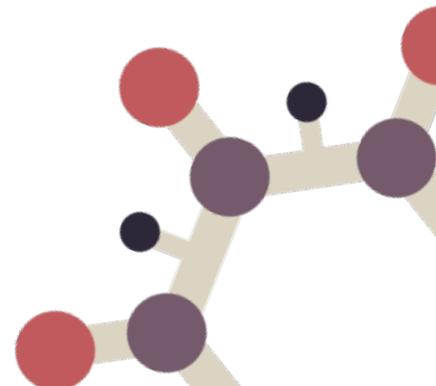
Influenza vaccination for at-risk groups: NHMRC recommendations

The Australian Immunisation Handbook:

☼ Recommends annual influenza vaccination for any person aged ≥ 6 months of age.

☼ **Strongly recommends** influenza vaccination in groups at risk of severe influenza or complications from influenza.

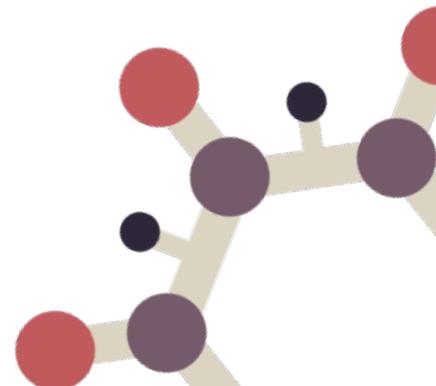
☼ Advises that influenza vaccination should be actively promoted in these groups.



Poll 3

Who is recommended to receive 2 doses of influenza vaccine, 4 weeks apart, in the same year?

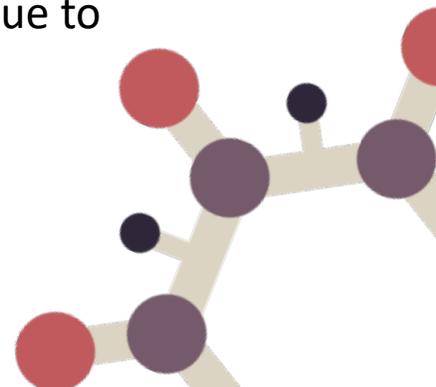
- A. Children <9 years receiving flu vaccine for the first time
- B. Individuals having flu vaccine for the first time post Solid Organ Transplant or Haematopoietic Stem Cell Transplant
- C. Women who have received a dose of influenza vaccine and then become pregnant in the same year
- D. All of the above
- E. None of the above



Government-funded influenza vaccine for at-risk groups

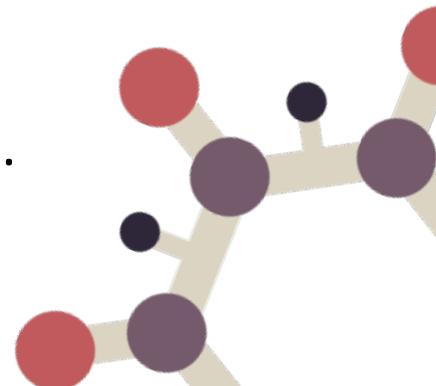
Free influenza vaccine is available through the National Immunisation Program Schedule for the following individuals at risk of severe influenza and its complications

- ✿ Individuals aged ≥ 65 years
- ✿ All children aged ≥ 6 months to less than 5 years.
- ✿ All Aboriginal and Torres Strait Islander people aged 6 months and over.
- ✿ Individuals aged ≥ 6 months with the following chronic conditions:
 - Cardiac disease
 - Chronic respiratory conditions
 - Chronic Neurological conditions
 - Diabetes mellitus, asplenia, renal disease, haematological malignancies, impaired immunity (due to disease or treatment)
- ✿ Pregnant women
- ✿ Children aged 6 months to 10 years on long-term aspirin therapy



When to administer influenza vaccine?

- ☼ Need to allow time for the full development of protective antibody levels (10-14 days).
- ☼ Vaccination is encouraged throughout the influenza season and in some settings such as pregnant women and residents of northern Australia, this should occur as soon as vaccine is available.
- ☼ The duration of protection for elderly people and residents of nursing homes is shorter, perhaps only three to six months, so it is important not to vaccinate them too early. While opportunistic vaccination is always important, dedicated clinics for elderly patients should occur in April.
- ☼ Some people will miss the pre-season window for vaccination. It is important to continue to offer vaccination throughout the influenza season.



Influenza: how often to vaccinate?

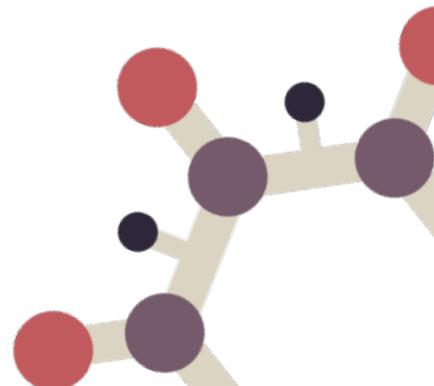
Annual vaccination is recommended

☼ The influenza virus is always changing.

Antibody levels decrease over the course of a year.

☼ For optimal protection against influenza and potentially, its complications – **yearly vaccination is recommended.**

☼ Annual vaccination is advised even if a person has been vaccinated previously and the new season influenza vaccine contains the same influenza strains as in the previous season's vaccine.



Influenza vaccine: adverse events and contraindications

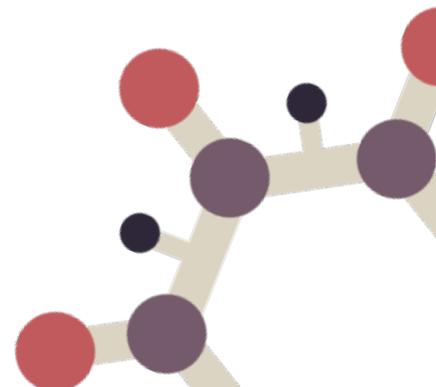
Adverse events

Very common (> 10%)	Local reactions (swelling, induration, redness and pain)
Common (1-10%)	Mild, short-lived fever, malaise and myalgia
Rare	Immediate reactions, e.g. hives, angioedema, or anaphylaxis

Contraindications

- ❁ Anaphylaxis following a previous dose of any influenza vaccine.
- ❁ Anaphylaxis following any vaccine component.

Note: People with egg allergy, including a history of anaphylaxis, can be safely vaccinated with influenza vaccines.



AIVC Recommendations for composition of 2021 Influenza Vaccine for Australia

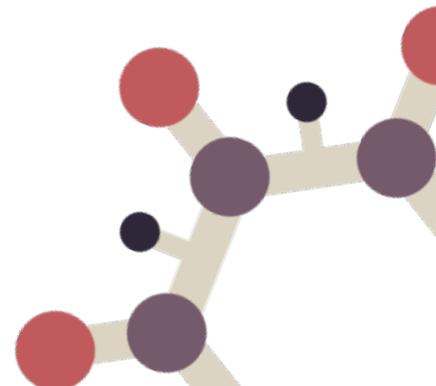
In 2021, vaccine composition for **egg-based** flu vaccines:

- ☼ A/Victoria/2570/2019 (H1N1)pdm09-like virus*
- ☼ A/Hong Kong/2671/2019 (H3N2)-like virus**
- ☼ B/Washington/02/2019-like virus (B/Victoria lineage)***
- ☼ B/Phuket/3073/2013-like virus (B/Yamagata/16/88 lineage)

* Was A/Michigan/45/2015 (H1N1)pdm09-like virus in 2020

** Was A/Switzerland/8060/2017 (H3N2)-like virus in 2020

*** Was B/Colorado/06/2017-like virus (B/Victoria/2/87 lineage) in 2020



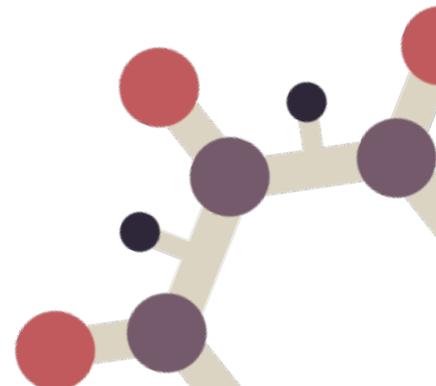
AIVC Recommendations for composition of 2021 Influenza Vaccine for Australia

In 2021, vaccine composition for **cell-based** flu vaccine:

- ✿ an A/Wisconsin/588/2019 (H1N1)pdm09-like virus;
- ✿ an A/Hong Kong/45/2019 (H3N2)-like virus;
- ✿ a B/Washington/02/2019 (B/Victoria lineage)-like virus; and
- ✿ a B/Phuket/3073/2013 (B/Yamagata lineage)-like virus.

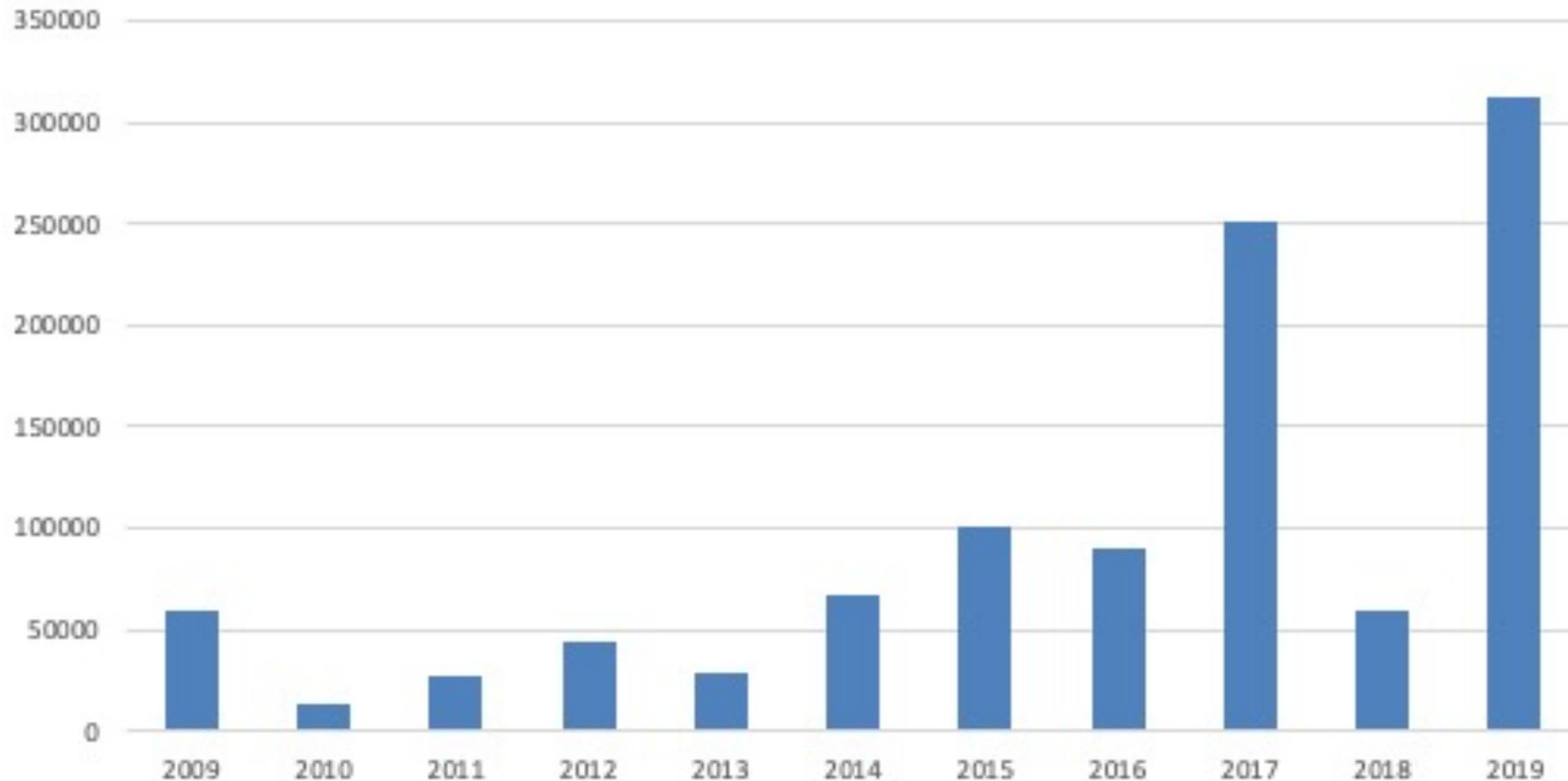
Flucelvax® Quad is the first cell-based influenza vaccine offered in **Australia**.

- More than 100 million doses of Flucelvax® Quad have been distributed worldwide
- Approved by the TGA for use in adults and children nine years of age and older
- 0.5mL by IM injection
- Pre-filled syringe
- Available on private market (script or Pharmacist vaccination service)

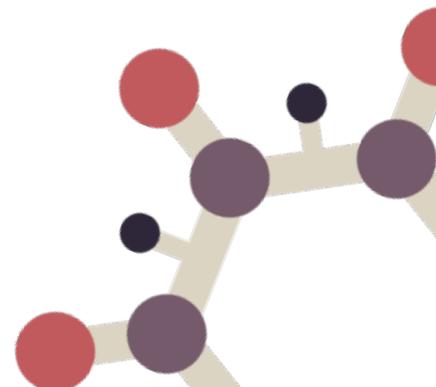


Number of Influenza notifications (laboratory confirmed) from 2009 to 2019

Number of influenza notifications 2009-2019



Ref: National Notifiable Diseases Surveillance System Influenza Accessed 12 March 2020



Number of Influenza notifications (laboratory confirmed) 2020 Australia



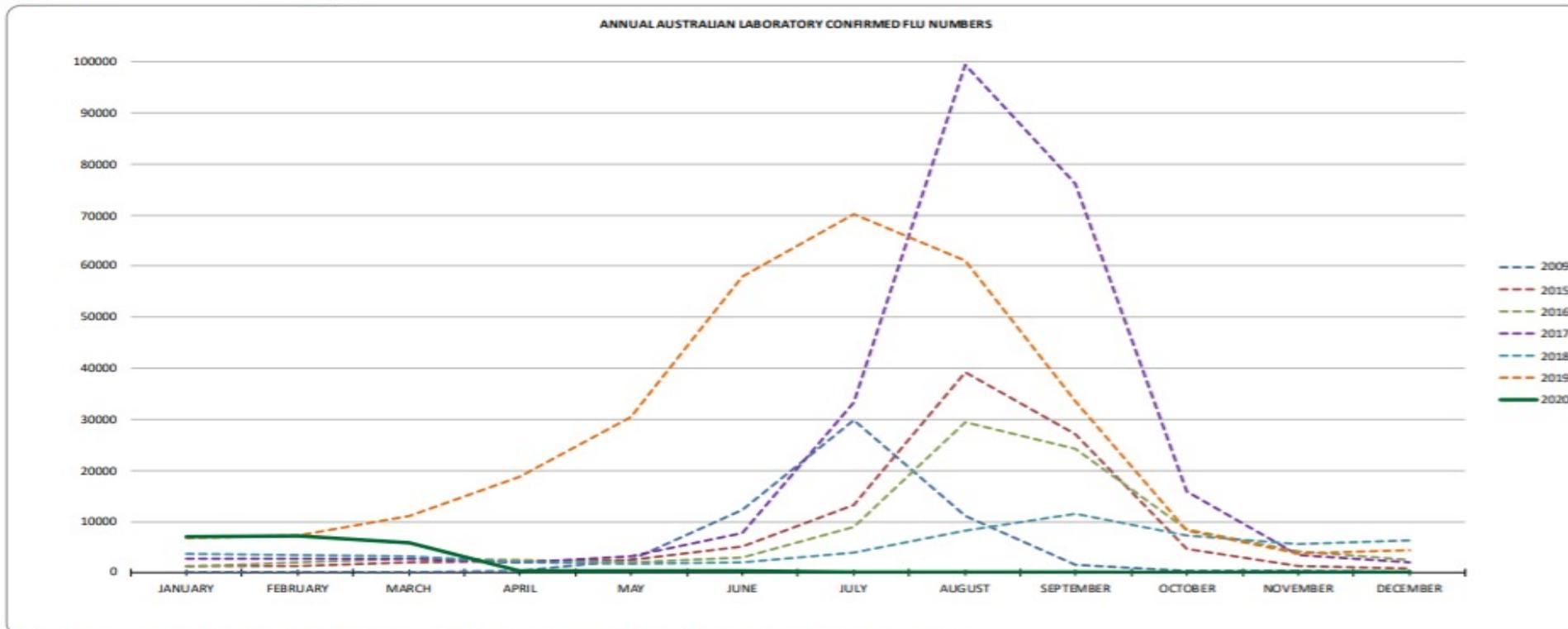
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website: <http://www.immunisationcoalition.org.au/news-media/2020-influenza-statistics/>

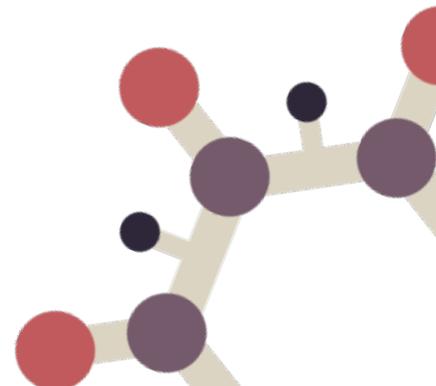
ANNUAL AUSTRALIAN INFLUENZA STATISTICS

YEAR	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTALS
2009	182	125	164	275	2557	12318	29840	11119	1627	407	255	171	59040
2015	1249	1339	1967	2217	2529	5021	13282	39198	27080	4734	1179	788	100583
2016	1169	1970	2664	2433	2064	2837	9042	29426	24217	8465	4040	2557	90884
2017	2762	2750	2815	1939	3285	7793	33207	99367	76060	15912	3369	2031	251290
2018	3746	3481	3174	1977	1717	1988	3969	8168	11506	7320	5548	6267	58861
2019	6829	7161	11158	18667	30372	57842	70151	60964	33572	8319	3734	4316	313085
2020	6982	7174	5899	309	231	224	190	126	57	35	56	73	21356

LAST UPDATED: 27 January 2021



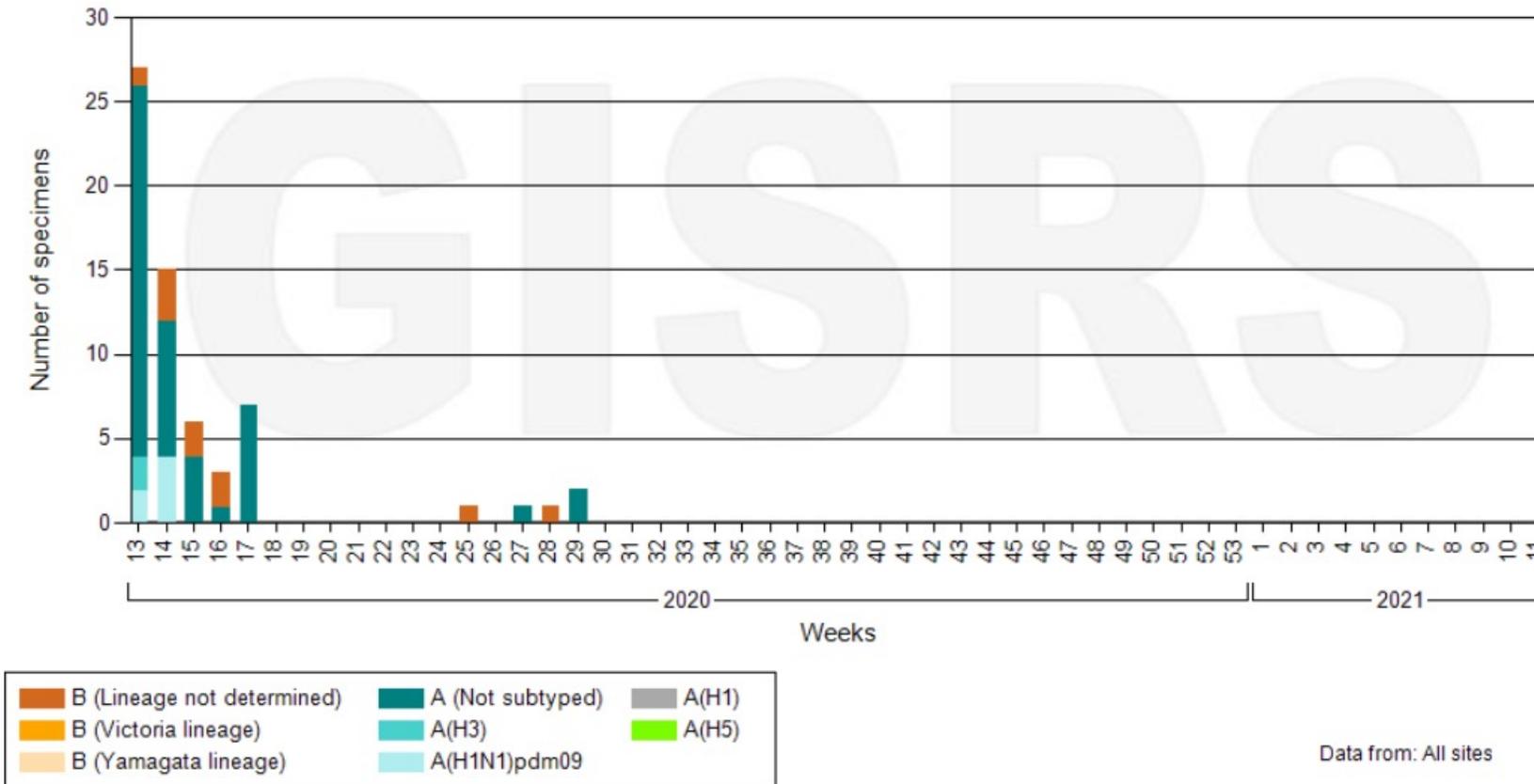
Reference: These statistics are taken from the Aust Government Department of Health, National Notifiable Diseases Surveillance System



Notifications of laboratory confirmed influenza, Australia, to 25th March 2021, by subtype.

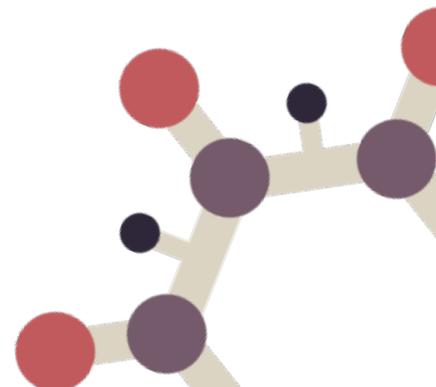
Australia

Number of specimens positive for influenza by subtype



Data source: FluNet (www.who.int/flunet), GISRS

© World Health Organization 2021



Notifications of influenza in Australia to 8th February 2021.



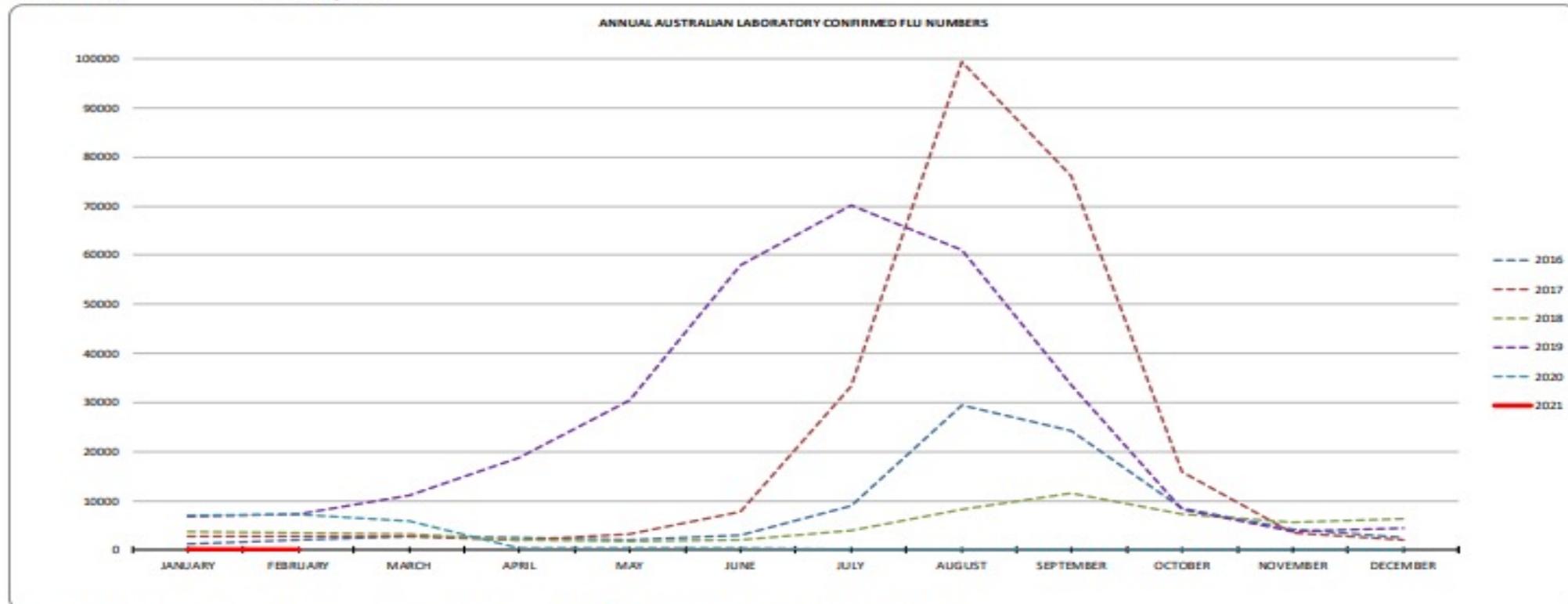
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website: <http://www.immunisationcoalition.org.au/news-media/2020-influenza-statistics/>

ANNUAL AUSTRALIAN INFLUENZA STATISTICS

YEAR	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTALS
2016	1169	1970	2664	2433	2064	2837	9042	29426	24217	8465	4040	2557	90884
2017	2762	2750	2815	1939	3285	7793	33207	99367	76060	15912	3369	2031	251290
2018	3746	3481	3174	1977	1717	1988	3969	8168	11506	7320	5548	6267	58861
2019	6829	7161	11158	18667	30372	57842	70151	60964	33572	8319	3734	4316	313085
2020	6982	7174	5899	309	231	224	190	126	57	35	56	73	21356
2021	56	10											66

LAST UPDATED: 8 February 2021



Reference: These statistics are taken from the Aust Government Department of Health, National Notifiable Diseases Surveillance System

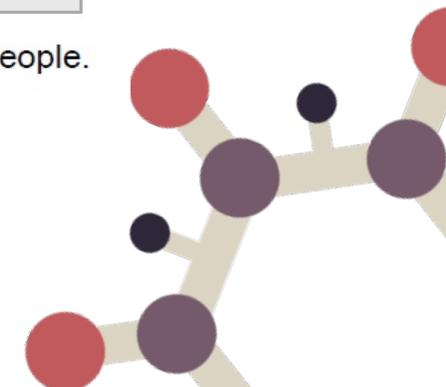
Influenza Quadrivalent Vaccine Age Recommendations 2021

Table 1. Seasonal influenza vaccines registered and available for use in Australia in 2021, by age

Vaccine	Vaxigrip Tetra 0.5 mL (Sanofi)	Fluarix Tetra 0.5 mL (GSK)	FluQuadri 0.5 mL (Sanofi)	Influvac Tetra 0.50 mL (Mylan)	Afluria Quad 0.5 mL (Seqirus)	Flucelvax Quad 0.5 mL (Seqirus)	Fluad Quad 0.5 mL (Seqirus)
Registered age group							
6 to 35 months (<3 years)	✓	✓	✓	X	X	X	X
≥3 to <5 years	✓	✓	✓	✓	X	X	X
≥5 to <9 years	✓*	✓*	✓	✓	✓*	X	X
≥9 to <65 years	✓*	✓*	✓	✓	✓*	✓	X
≥65 years	✓	✓	✓	✓	✓	✓	✓

Ticks indicate age at which a vaccine is registered and available. Shaded boxes indicate the vaccine is funded under the NIP for eligible people.

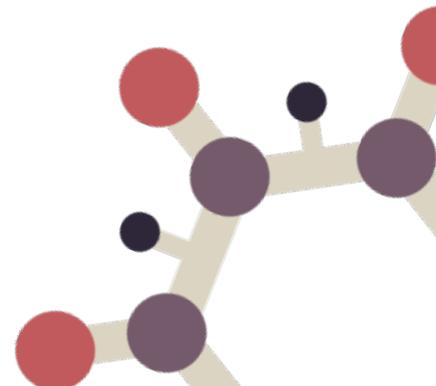
* NIP funding only for Aboriginal and Torres Strait Islander people, pregnant women and people who have certain medical conditions.



Vaccination coverage

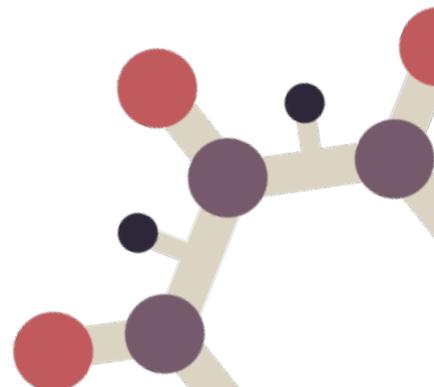
	Seasonal influenza immunisation coverage
65 years and over	75%
≥18 to 64 years	23%

Reporting all adult vaccinations, including influenza vaccinations to the AIR will give us a better understanding of vaccine uptake.



COVID-19 & influenza

- Symptoms are similar
- At risk groups are also similar
- Most other people experience mild disease
- Vaccination against influenza will not protect from COVID-19
- It is more important than ever to be vaccinated against influenza
- If infection by influenza is followed by infection from COVID-19, it could have devastating effects.....and vice versa
- The recommended interval between receiving COVID-19 vaccine and any other vaccine (including influenza) is 14 days





COVID-19: Identifying the Symptoms

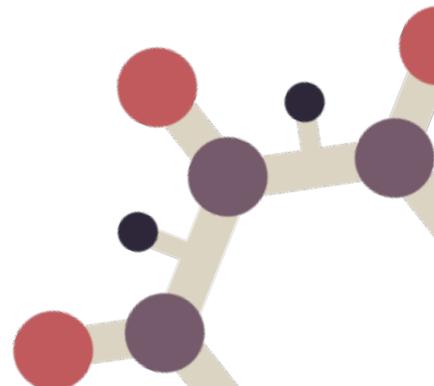
Symptoms	COVID-19	Cold	Flu	Allergies*
	Symptoms range from mild to severe	Gradual onset of symptoms	Abrupt onset of symptoms	May be abrupt or gradual onset of symptoms
Fever 	Common	Rare	Common	No
Cough 	Common	Common	Common	Common (asthma)
Sore Throat 	Sometimes	Common	Sometimes	Sometimes (Itchy throat and palate)
Shortness of Breath 	Sometimes	No	No	Common (asthma)
Fatigue 	Sometimes	Sometimes	Common	Sometimes
Aches & Pains 	Sometimes	No	Common	No
Headaches 	Sometimes	Common	Common	Sometimes
Runny or Stuffy Nose 	Sometimes	Common	Sometimes	Common
Diarrhoea 	Rare	No	Sometimes, especially for children	No
Sneezing 	No	Common	No	Common

*Adapted from material produced by WHO, Centers for Disease Control and Prevention and the American Academy of Allergy, Asthma and Immunology. *Respiratory allergies include allergic rhinitis (hay fever), and allergic asthma. Other common symptoms of hay fever include itchy nose and itchy, watery eyes.*

It is very difficult to distinguish between the symptoms of COVID-19, influenza and a cold. If you have any infectious or respiratory symptoms (such as a sore throat, headache, fever, shortness of breath, muscle aches, cough or runny nose) don't go to work. You need to self-isolate and to be assessed by a medical professional. You may need testing for COVID-19. You must not return to work until cleared by a medical professional. You need to ensure that the people you care for are protected and safe. People who have respiratory allergy symptoms such as allergic rhinitis (hay fever) and allergic asthma should stay home and get tested for COVID-19 at the onset of their symptoms and if they experience symptoms that are unexpected, seem different or worse than usual, or do not respond to their usual medication.

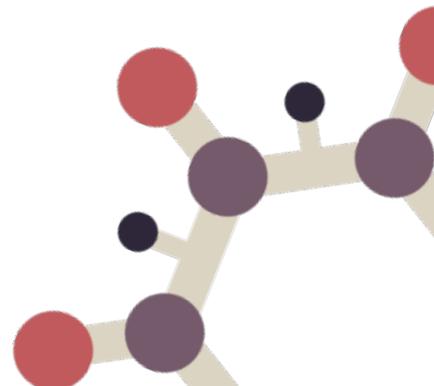
For more information about **Coronavirus (COVID-19)** go to [health.gov.au](https://www.health.gov.au)

Visit www.health.gov.au/resources/translated or for translating and interpreting services call 131 450.



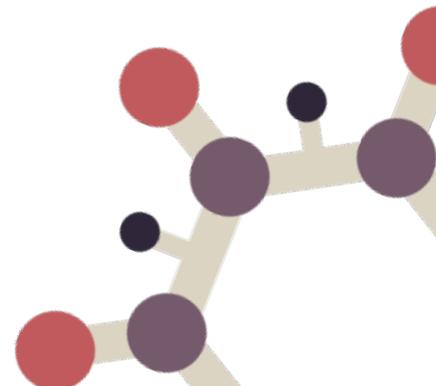
The practice nurse as an advocate for adult immunisation

- Accessible by patients.
- Trusted and credible.
- Ability to help educate and provide additional information:
 - Identify misconceptions e.g. “can get flu from the flu vaccine”
 - Address concerns
- General practice is at the forefront of healthcare in Australia and in a pivotal position to deliver preventive healthcare.



Conclusions

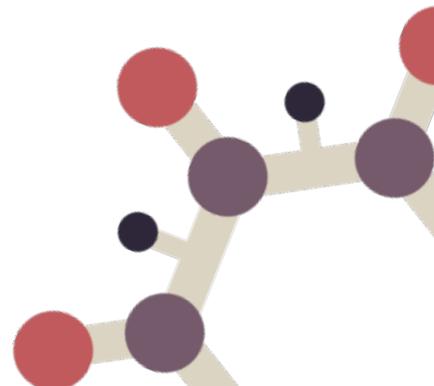
- ✿ Many people are at increased risk of severe influenza or influenza-related complications because of their underlying medical conditions such as diabetes, heart disease, or lung disease even where these are controlled by medication.
- ✿ In an effort to prevent the disease burden of influenza in at-risk individuals, Australian guidelines recommend **yearly influenza vaccination**
- ✿ Funding for the vaccines in certain at-risk groups is available through the NIP (National Immunisation Program)
- ✿ Only QIV vaccines available in 2021
- ✿ Free flu vaccines for children under 5 now on the NIP
- ✿ At-risk individuals should be encouraged to speak to their doctor about their influenza vaccination status.
- ✿ Vaccination of those in close contact with at-risk individuals can provide them with an additional level of protection.



Other take home messages:

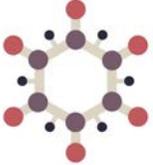
- ☼ Offer influenza vaccine to every individual aged ≥ 6 months of age
- ☼ Undertake robust pre-vaccination checklist to identify 'at risk' individuals

Thank you for attending this webinar!!



Check out more Immunisation Coalition Resources and events



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