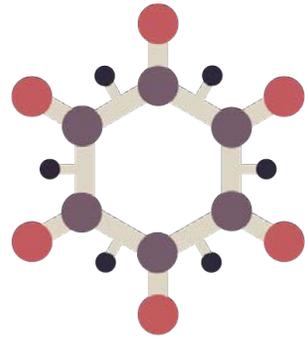


This webinar will start at
6:00pm AEDT
2022 Influenza Webinar

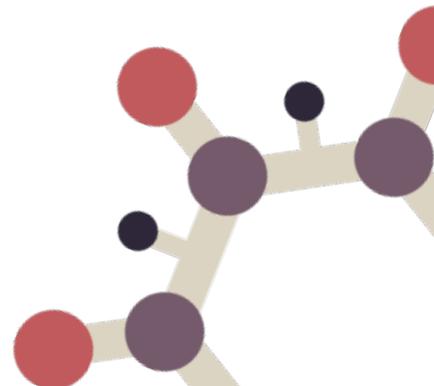


IMMUNISATION
C O A L I T I O N

The Immunisation Coalition's
mission:

- Protect Australians against infectious diseases
- Advocate for immunisation
- Promote evidence based, scientifically informed medical information.

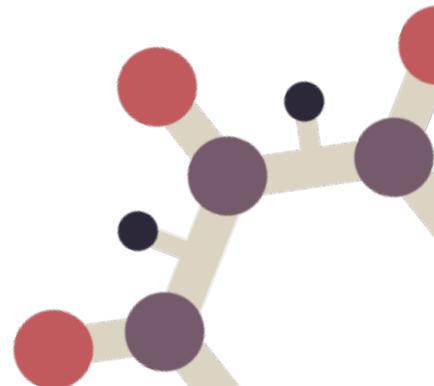
2022 Influenza Webinar



Questions & Answers



- ❁ Please type any questions for the speaker 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.



Influenza – the disease

What is influenza?

✿ Respiratory disease caused by influenza virus infection.

Influenza infection can cause a wide spectrum of disease

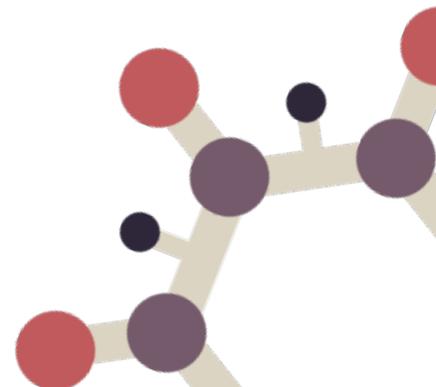
✿ Minimal to no symptoms

✿ Respiratory symptoms with **systemic features**

✿ **Progression to** viral pneumonia or secondary bacterial **pneumonia.**

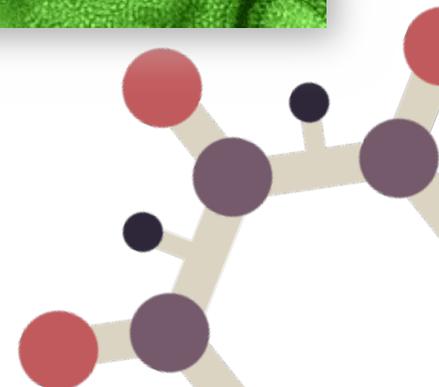
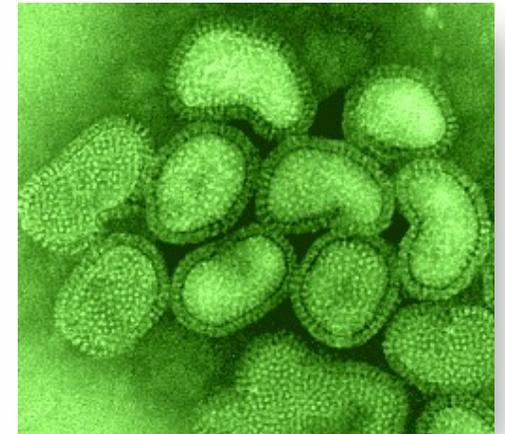
✿ **Worsening** of an underlying **comorbidity**

✿ **Precipitation** of events such as myocardial infarction



Influenza – the viruses

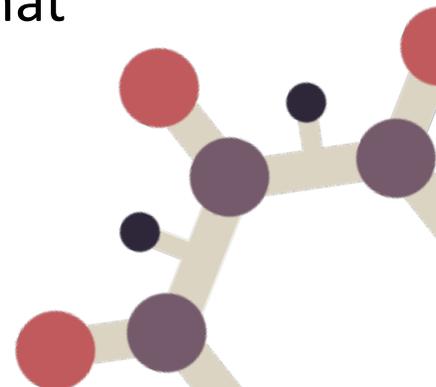
- ✿ During infection influenza virus enters the epithelial cells lining the airways. Replication of the virus leads to release of larger quantities of virus
- ✿ Influenza viruses have 2 surface glycoprotein antigens:
 - ✿ **Haemagglutinin (H)** – involved in cell attachment during infection
 - ✿ **Neuraminidase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



Poll 1

What best describes antigenic shift?

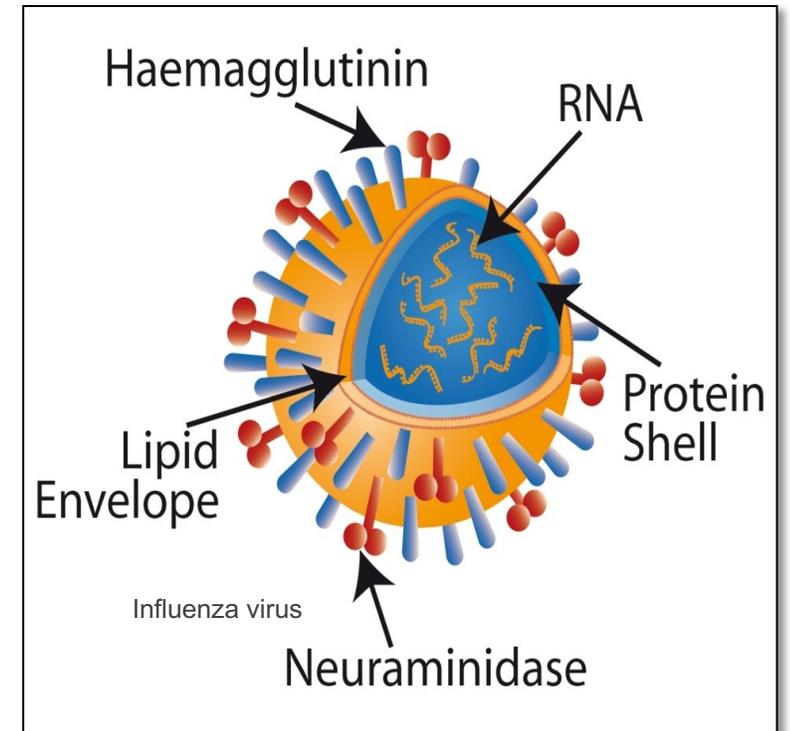
- A. A random genetic mutation of an infectious agent resulting in minor changes in proteins called antigens
- B. The accumulation of a series of minor genetic mutations
- C. Viruses that are closely related to one another. This can be illustrated by their location close together on a phylogenetic tree
- 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 - the 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 'quantum leap' - **new strains or reassortment of strains (shift)**,
 - ✿ **repeated outbreaks and epidemics of influenza (drift)**.
 - ✿ Reason why the **composition** of influenza vaccines is **reviewed yearly**.



Influenza – how does it 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

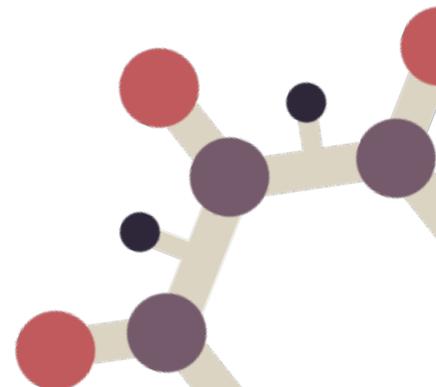
Incubation period of 1 to 3 days followed by abrupt illness, including:

- ✿ Cough, sore throat
- ✿ Feeling of discomfort (malaise)
- ✿ Fever
- ✿ Chills
- ✿ Headache
- ✿ Aching muscles (myalgia)
- May also be accompanied by nasal discharge and sneezing



Influenza - complications

- ✿ 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 (< 1 in 100,000)
- ✿ Death from pneumonia or cardiac failure



Burden of influenza disease

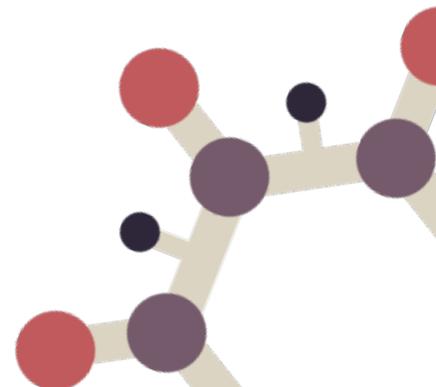


Annual influenza attack rates: 5-20%
Paediatric levels are higher ~30%.

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

In a typical year, estimated to be responsible for:

- 1,500,000 lost workdays
- >300,000 GP visits
- 18,000 hospitalisations
- 1,500 - 3,000 deaths

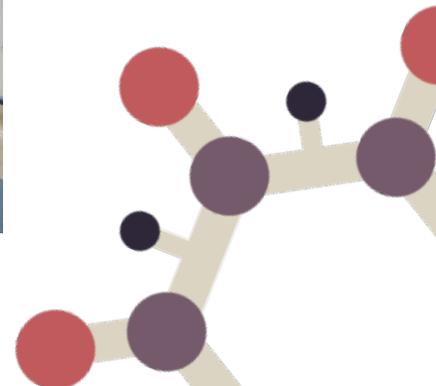


Burden of influenza disease

In Australia in 2020 & 2021

A significant reduction in cases, due to Covid-19 restrictions:

- ✿ Border closures
- ✿ Stay at home orders
- ✿ Masks and social distancing
- ✿ Regular handwashing



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, 905 influenza-associated deaths were notified to the NNDSS. The median age of deaths notified was 86 years (range <1 to 106 years).

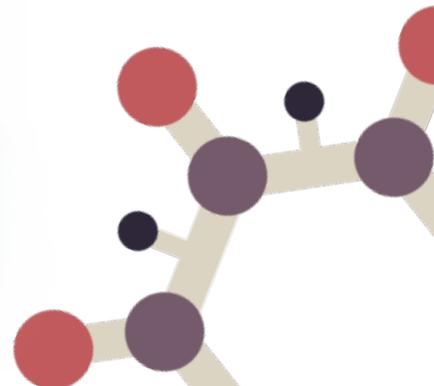
In 2020, 37 deaths reported.

In 2021, 0 deaths reported.



Who is at increased risk of complications from influenza infection?

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



Who is at increased risk of complications from influenza infection?

☼ **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**

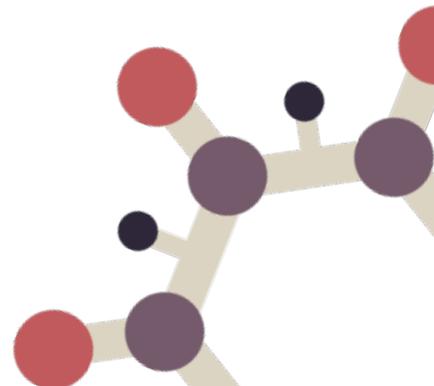
Diabetes mellitus

Chronic renal failure

Chronic metabolic diseases

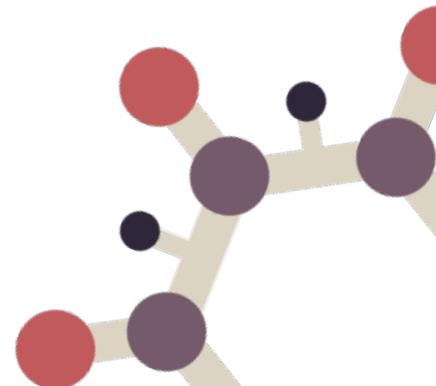
Haemoglobinopathies

Harmful use of alcohol



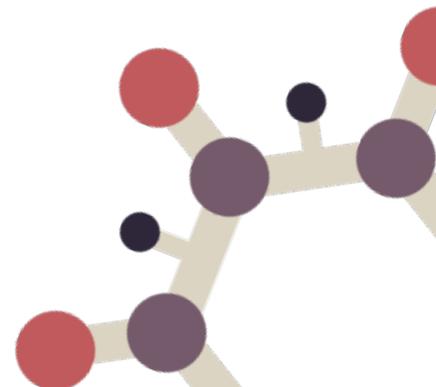
Who is at increased risk of complications from influenza infection?

- ❁ 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 >30kg/m²)



Who else is at risk from influenza infection?

- ✿ Every-one ≥ 5 years (even healthy individuals!)
- ✿ Residents ≥ 65 years in RACF's and other long term care facilities
- ✿ Homeless people (state funded vaccine in SA)
- ✿ Commercial poultry (avian) or pork (swine) industry staff
- ✿ Essential Services personnel
- ✿ Travellers

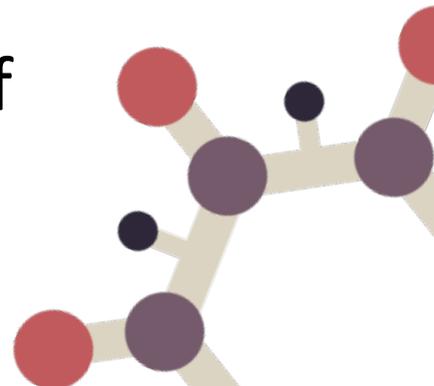


Influenza infection and cardiac disease

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



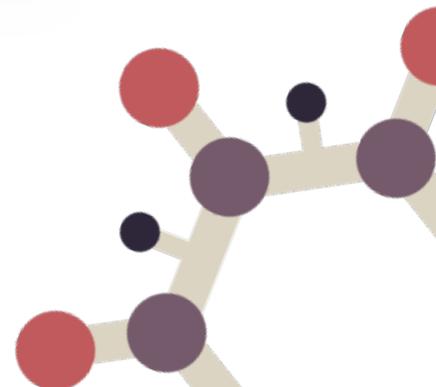
- ❑ Increased rates of myocardial infarction and coronary death often occur during the influenza season.
- ❑ Pulmonary congestion in chronic heart failure patients predisposes them to increased risk of respiratory infections.
- ❑ Patients with chronic heart failure are at increased risk of hospitalisations 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 lung disease



Asthma

- ☼ Asthmatic children experience a significantly greater incidence and longer duration of viral respiratory tract infections than non-asthmatics of same age
- ☼ Influenza can cause severe exacerbations of wheezing and about 10% of episodes of virus-induced wheezing are attributable to influenza.

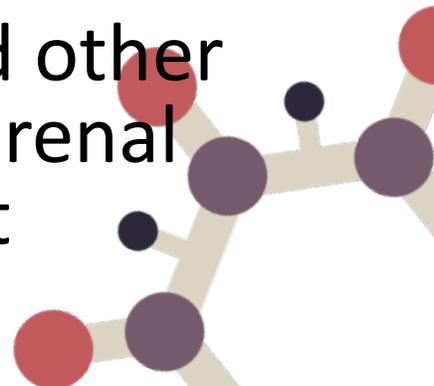
Suppurative lung disease, bronchiectasis, and cystic fibrosis

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



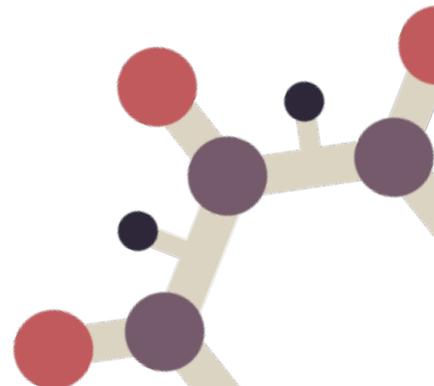
Influenza infection and diabetes

- ✿ May develop more severe disease.
- ✿ 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

- ❁ About 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 comparable non-diabetic people



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
 - 2019: 11.3 million
- ✿ Risk factors
 - Aeroplanes / Airports
 - Cruise ships (mostly elderly)
 - Hajj (~30% elderly)
 - Other mass gatherings



Ref: Marti F et al. Exp Rev Vaccines (2008); 75 (5): 679-687;
Australian Bureau of Statistics

Traveller: <https://www.traveller.com.au/most-popular-countries-for-australian-tourists-in-2019-named-in-abs-stats>
h1lwug#:~:text=In%202019%2C%2011.3%20million%20Australian,trips%20from%20the%20previous%20year.



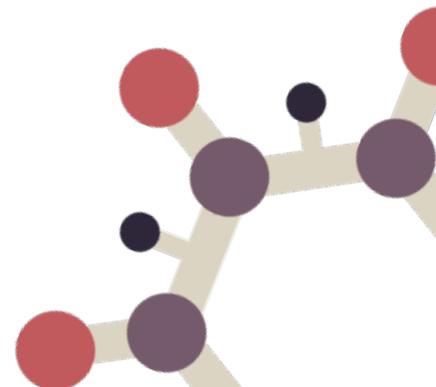
Influenza vaccination for at-risk groups: NHMRC recommendations

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.

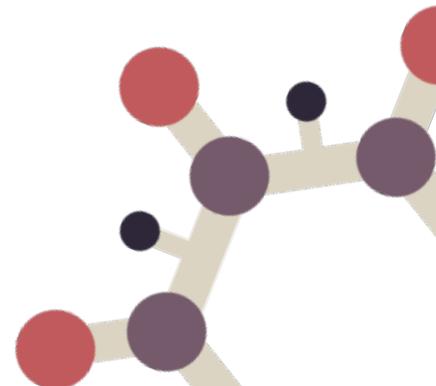
☼ **Advises** that influenza vaccination should be actively promoted in these groups.



Poll 3

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

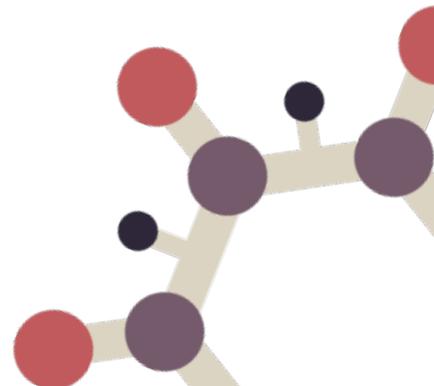
- A. Children <9 years receiving flu vaccine for the first time
- B. Individuals having flu vaccine for the first time post Solid Organ Transplant or Haematopoietic Stem Cell Transplant
- C. Women who have received a dose of influenza vaccine and then become pregnant in the same year
- D. All of the 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 – by ages

- ☼ Individuals aged ≥ 65 years
- ☼ All children aged ≥ 6 months to less than 5 years.
- ☼ All Aboriginal and Torres Strait Islander people aged ≥ 6 months
- ☼ Children aged 6 months to 10 years on long-term aspirin therapy



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 – by conditions

☼ Individuals aged ≥ 6 months with one or more of the following chronic conditions:

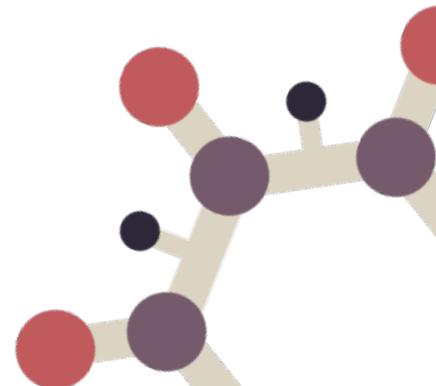
Cardiac disease

Chronic respiratory conditions

Chronic Neurological conditions

Diabetes mellitus, asplenia, renal disease, haematological malignancies, impaired immunity (due to disease or treatment)

☼ Pregnant women



When to administer influenza vaccine?

- ☼ Allow time for the full development of protective antibody levels (10-14 days).
- ☼ 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?

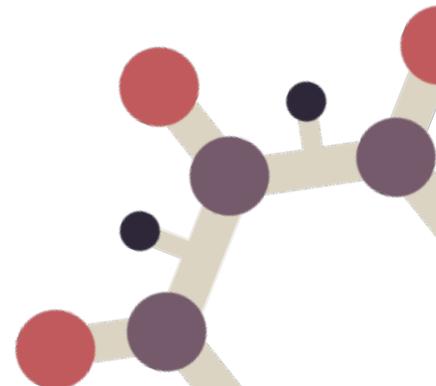
Annual vaccination is recommended

☼ 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

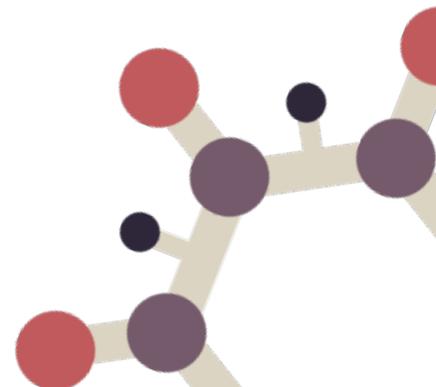
Adverse events

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 2022 Influenza Vaccine for Australia

In 2022, vaccine composition for **egg-based** flu vaccines:

☼ A/Victoria/2570/2019 (H1N1)pdm09-like virus

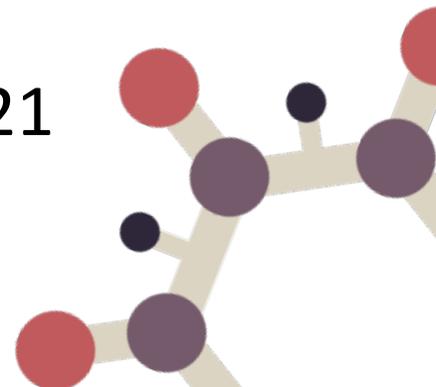
☼ A/Darwin/9/2021(H3N2)-like virus*

☼ B/Austria/1359417/2021 like virus (B/Victoria lineage)**

☼ B/Phuket/3073/2013-like virus (B/Yamagata lineage)

* Was A/Hong Kong/2671/2019 (H1N1)pdm09-like virus in 2021

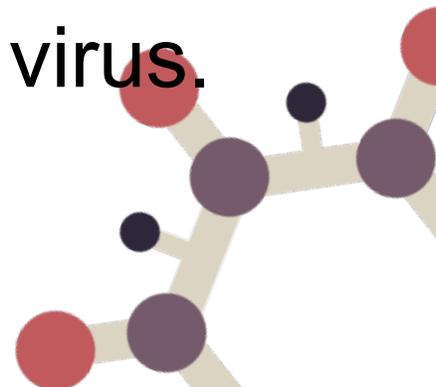
** Was B/Washington/02/2019-like virus in 2021



AIVC Recommendations for composition of 2022 Influenza Vaccine for Australia

In 2022, vaccine composition for **cell-based** flu vaccine:

- ☼ an A/Wisconsin/588/2019 (H1N1)pdm09-like virus;
- ☼ an A/Darwin/6/2021 (H3N2)-like virus;
- ☼ a B/Austria/1359417/2021 (B/Victoria lineage)-like virus; and
- ☼ a B/Phuket/3073/2013 (B/Yamagata lineage)-like virus.



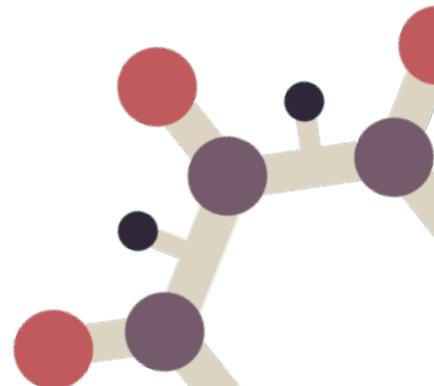
Influenza Vaccines registered for use in children

The vaccines **available for children under the NIP** this year are:

- ✿ Vaxigrip®Tetra 0.5ml for those aged 6 months and older.
- ✿ Fluarix®Tetra 0.5ml for those aged 6 months and older.
- ✿ Afluria®Quad 0.5ml is available on the NIP for children **5 years or over** who are either Aboriginal and Torres Strait Islanders or have underlying medical conditions that put them at risk of severe complications from influenza.

Other vaccines that are registered and available for children in 2022 which **are not** funded under the NIP are:

- ✿ FluQuadri® 0.5ml (all ages).
- ✿ Influvac®Tetra 0.5ml (all ages).
- ✿ Flucelvax®Quad 0.5 ml (from 2 years of age)



Influenza Vaccines registered for older people

There are 2 enhanced influenza vaccines available for older adults in 2022:

- ☼ Fludax®Quad 0.5ml for people aged 65 and over and **is funded** under the NIP.
- ☼ Fluzone®High-Dose Quad 0.7ml for people aged 60 and over but is **not funded** under the NIP.

For people aged 65 and over, Fludax®Quad is preferred over standard influenza vaccines.

However, there is no preference between Fludax®Quad and Fluzone®High-Dose Quad.

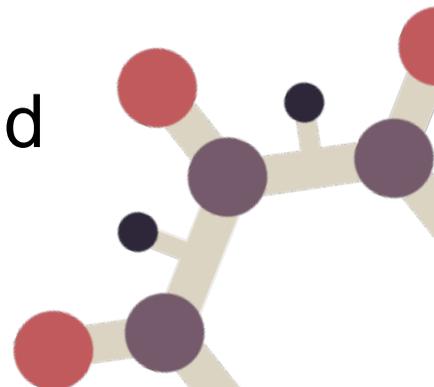


Figure 6. Rate of notifications of laboratory-confirmed influenza, Australia, 01 January to 07 November 2021, by age group and subtype

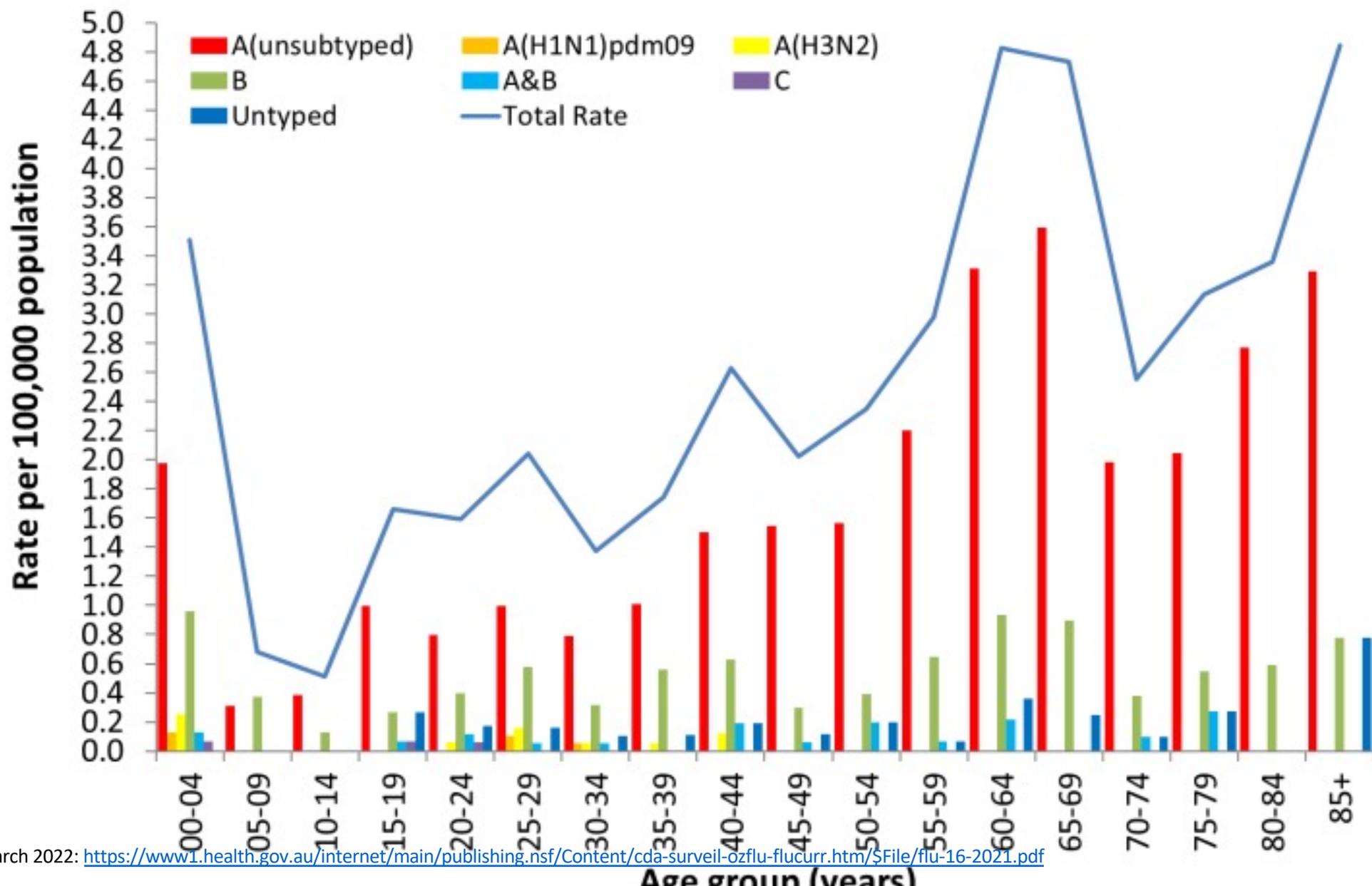


Table 1. Seasonal influenza vaccines registered and available for use in Australia in 2022, by age

Vaccine Registered age group	Vaxigrip Tetra 0.5 mL (Sanofi)	Fluarix Tetra 0.5 mL (GSK)	Afluria Quad 0.5 mL (Seqirus)	FluQuadri 0.5 mL (Sanofi)	Influvac Tetra 0.5 mL (Mylan)	Flucelvax Quad 0.5 mL (Seqirus)	Fluad Quad 0.5 mL (Seqirus)	Fluzone High-Dose Quad 0.7 mL (Sanofi)
6 to 24 months (<2 years)	✓	✓	X	✓	✓	X	X	X
≥2 to <5 years	✓	✓	X	✓	✓	✓	X	X
≥5 to <60 years	✓*	✓*	✓*	✓	✓	✓	X	X
≥60 to <65 years	✓*	✓*	✓*	✓	✓	✓	X	✓
≥65 years	✓	✓	✓	✓	✓	✓	✓	✓

Ticks indicate age at which a vaccine is registered and available. White boxes indicate availability for free under the NIP.

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

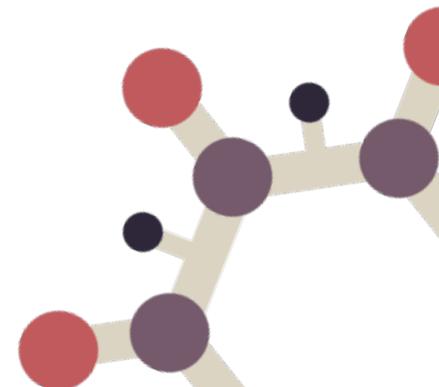


Vaccination coverage

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

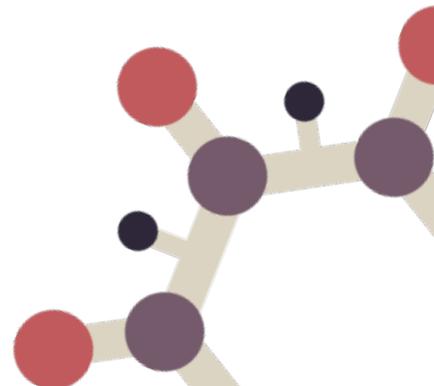
Reporting all adult vaccinations, including influenza vaccinations to the AIR will give us a better understanding of vaccine uptake.

Ref: Australia Institute of Health and Welfare 2011. 2009 Adult Vaccination Survey: Summary results. Cat. no. PHE 13. Canberra: AIHW.



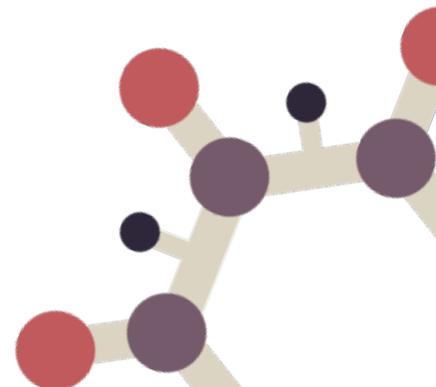
COVID-19 & influenza

- Symptoms are similar
- At risk groups are also similar
- Most people experience mild disease
- Vaccination against influenza will not protect from COVID-19
- Important to be vaccinated against influenza
- If infection by influenza is followed by infection from COVID-19, it could have devastating effects.....and vice versa
- **COVID-19 and Influenza vaccines can now be co-administered**



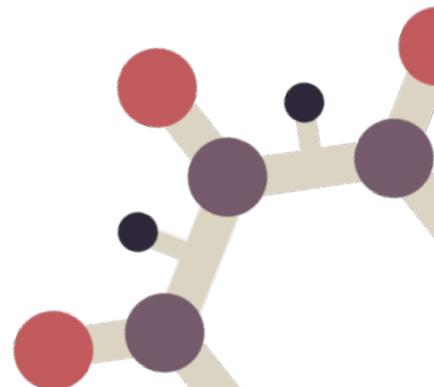
The practice nurse as an advocate for adult immunisation

- 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

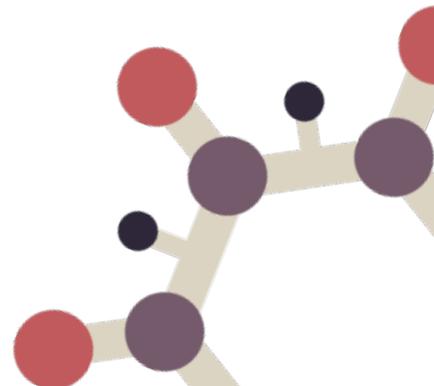
- ❁ Many people are at increased risk of severe influenza or influenza-related complications
- ❁ Australian guidelines recommend **yearly influenza vaccination**
- ❁ Funding for the vaccines in at-risk groups is available through the NIP
- ❁ Free flu vaccines for children under 5 on the NIP
- ❁ At-risk individuals should be encouraged to speak to their doctor about influenza vaccination.
- ❁ Vaccination of those in close contact with at-risk individuals can provide the at-risk with an additional level of protection.
- ❁ Prevent influenza in 2022



Other take home messages:

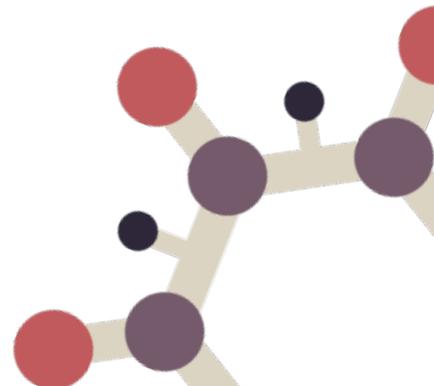
- ☀ Offer influenza vaccine to every individual aged ≥ 6 months of age
- ☀ Undertake pre-vaccination checklists to identify 'at risk' individuals

Thank you for attending this webinar!!



Other topics?

- ❁ Diagnosis and testing
- ❁ Isolation and quarantine
- ❁ Treatment (oseltamivir, zanamivir, peramivir)
- ❁ Egg-based versus cell-based vaccines
- ❁ Booster doses
- ❁ Co-administration
- ❁ Combined SARS-CoV-2/Influenza vaccine
- ❁ Who can administer influenza vaccine to children and infants?



Immunisation Coalition Events & Resources



Make informed decisions about vaccination and your health with our COVID-19 Risk Calculator.

- ✓ Immunisation Art Prize 2022
- ✓ Influenza Vaccination Day Melbourne & Sydney 29th April 2022
- ✓ PneumoSmart Vaccination Tool (PVT)
- ✓ CoRiCal COVID-19 Risk Calculator
- ✓ Healthcare Professional Disease Guides

IMMUNISATION
COALITION

2022 

ART PRIZE

PneumoSmart
Vaccination Tool (PVT)

IMMUNISATION 
ACTION 20
WEEK 22