2023 Annual Influenza Immunisation Update

Northern Sydney Public Health Unit

NSW GOVERNMENT Health

Learning Objectives

- **Identify influenza strain coverage & vaccines for the 2023 flu season**
- **Summarise the recent epidemiology of flu infection**
- Classify high-risk patient groups and outline the rationale for targeted vaccine promotion, particularly children aged 6months to less than 5 years
- Implement evidence-based guidelines for influenza antiviral use in vulnerable cohorts in the community

Influenza

- Acute viral illness that mainly affects the respiratory system.
- Causative agent Influenza viruses classified as type A, B or C
  - 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)

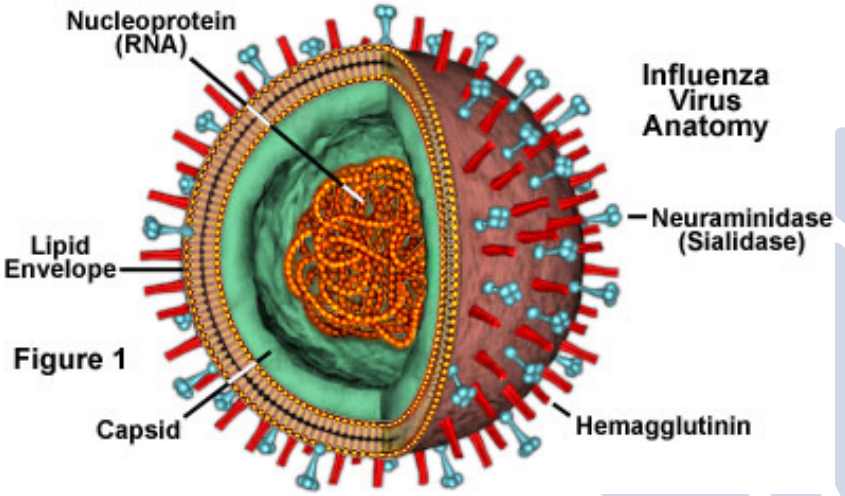

Figure 1

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- 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.

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

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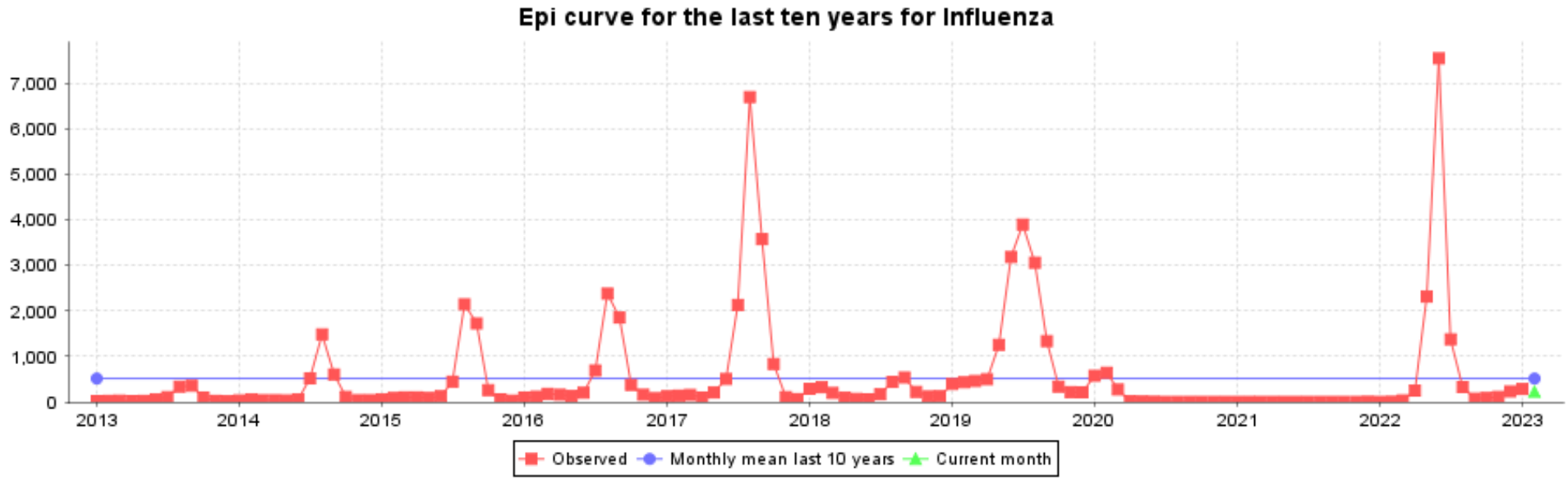
- More easily spread where large numbers of people gather together.
  - Infection rates may be 2–3 times higher in closed populations
    - (e.g. childcare centres, aged care facilities, households).

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

Epidemiology

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

- Annual influenza epidemics are most often due to a single virus subtype or lineage.
- Circulating subtypes/lineages can vary year to year and different subtypes/lineages may appear sequentially or simultaneously in the same season.



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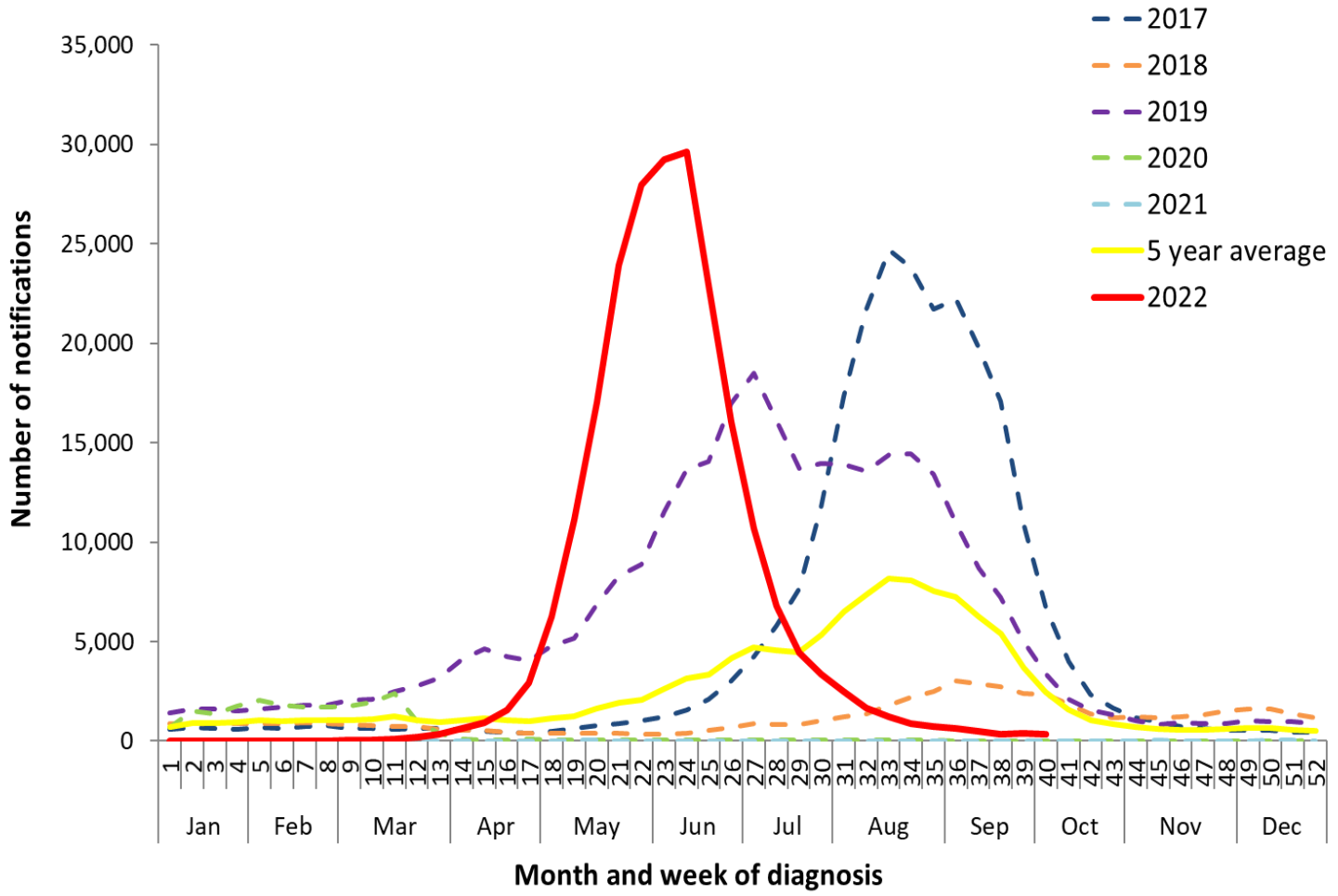
Influenza Notifications Over The Last 5 Years (Australia)



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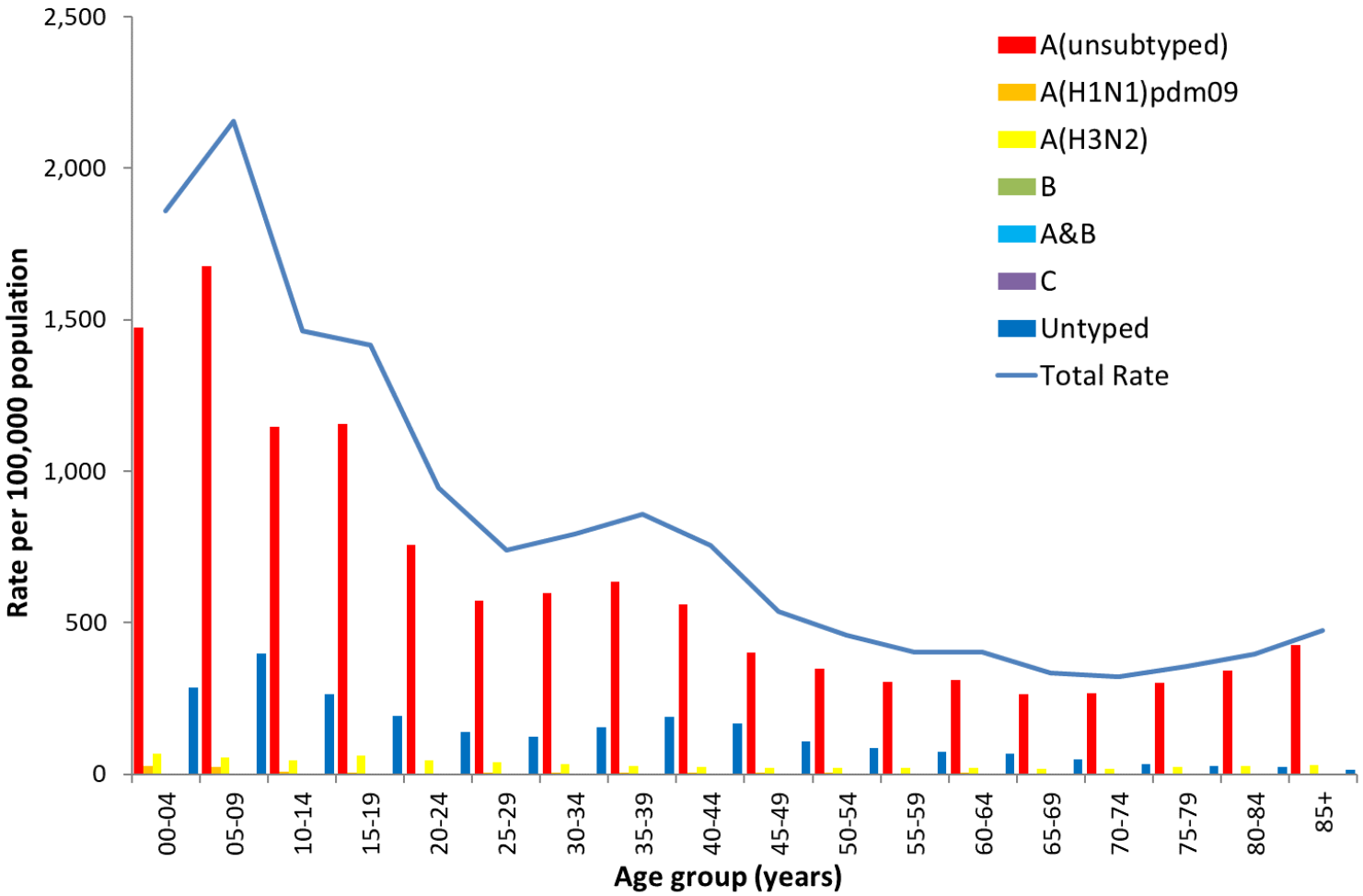
Rate of notifications of laboratory-confirmed influenza, Australia, 01 January to 09 October 2022, by age group and subtype*



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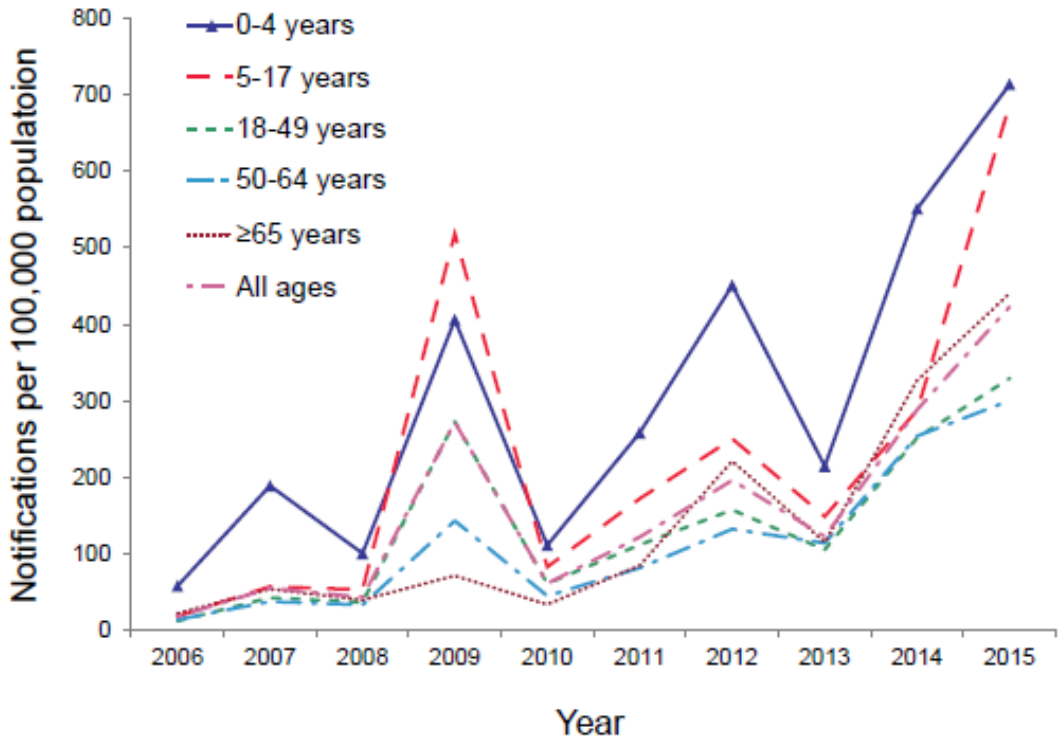
Historical Case Notifications in Australia



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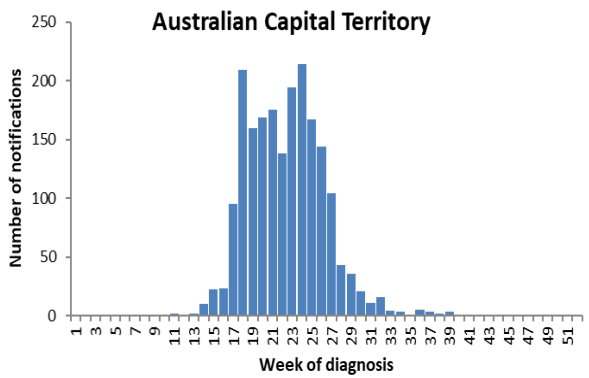

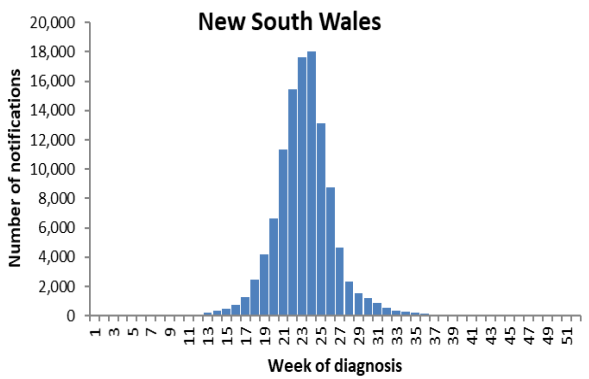

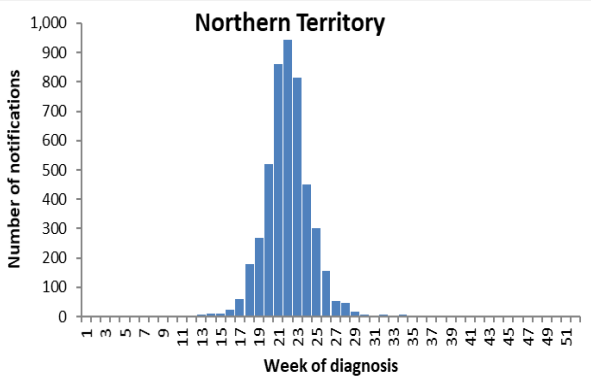

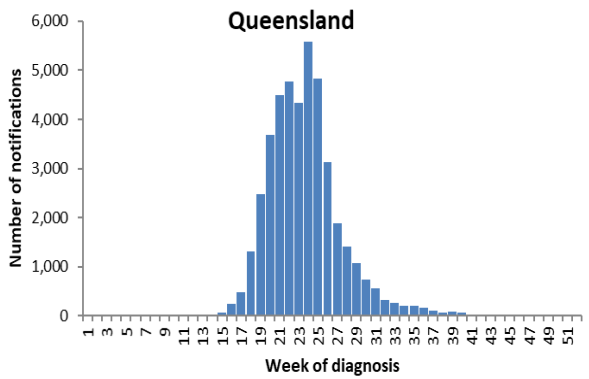

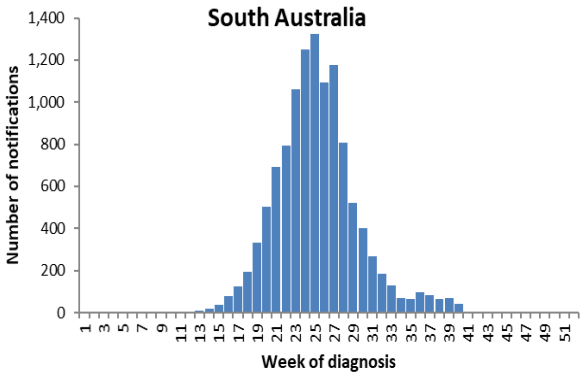

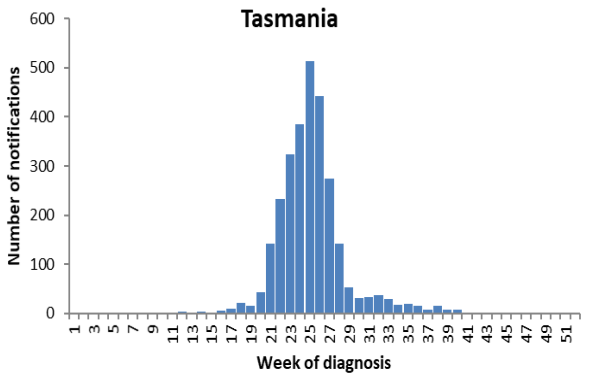

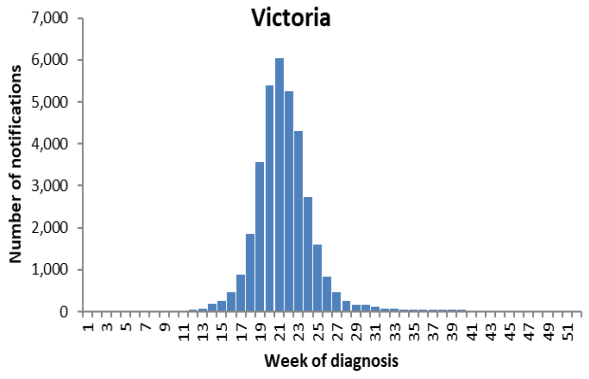

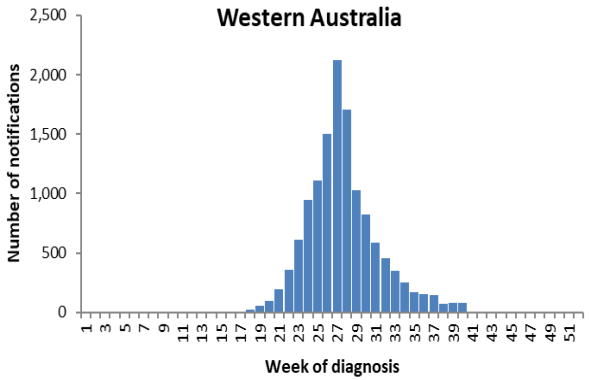

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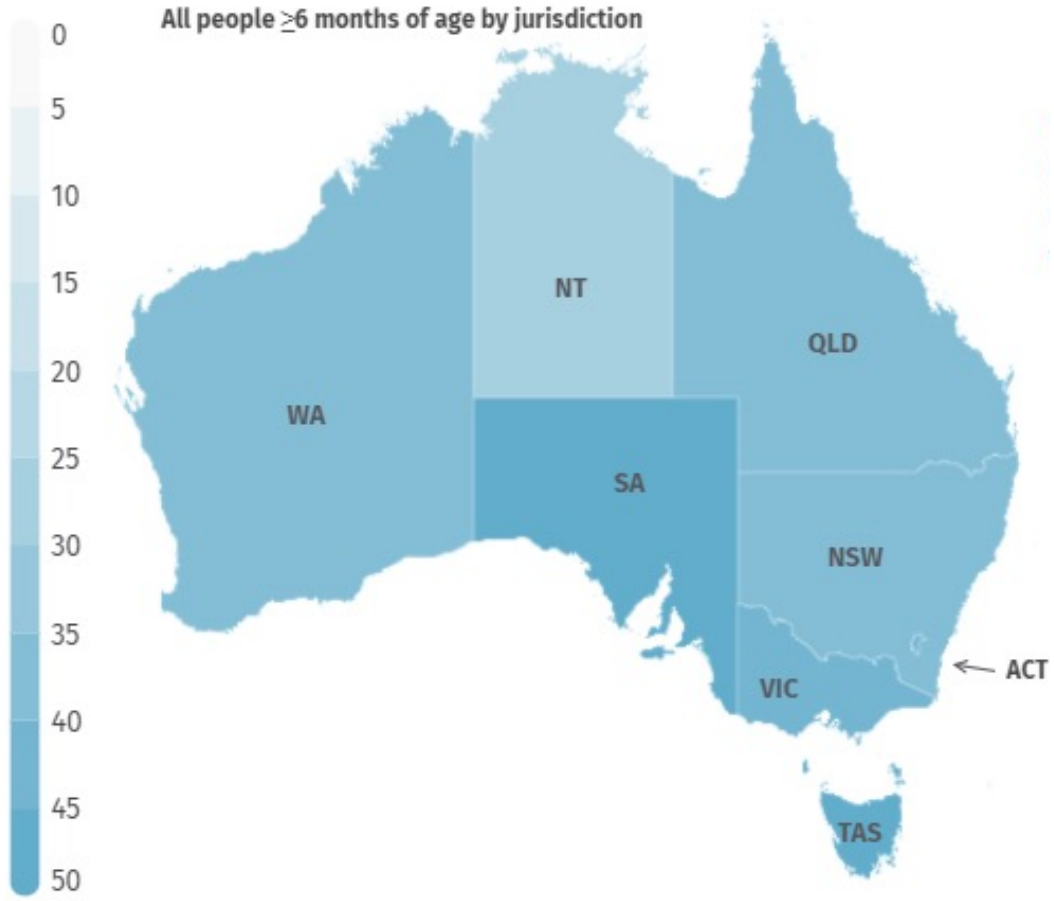
Notifications of laboratory-confirmed influenza*, 01 January to 09 October 2022, by state or territory and week of diagnosis

Influenza vaccination coverage 2022



Region	Fluvax % coverage
SA	45.8
TAS	45.7
ACT	44.5
VIC	41.3
NSW	**37.6**
WA	35.8
QLD	35.7
NT	28.5
Total	**38.7**

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Influenza vaccination coverage in Australia during the influenza season in 2022

Influenza vaccination % coverage* - by jurisdiction - all people

	ACT	NSW	VIC	QLD	SA	WA	TAS	NT	AUS
6 mo - <5 yrs	52.1	32.1	37.6	25.9	33.7	28.0	36.1	36.4	**32.4**
5 - <15 yrs	28.3	23.0	26.7	19.4	25.5	19.6	25.1	17.5	**23.0**
15 - <50 yrs	36.6	27.6	31.7	25.4	34.7	25.5	32.8	25.8	**28.7**
50 - <65 yrs	52.2	44.1	48.1	44.4	54.1	44.4	54.9	32.7	**46.1**
≥65 yrs	71.7	66.5	70.3	68.4	75.6	69.2	75.5	41.6	**68.9**

Influenza vaccination % coverage* - by jurisdiction - Aboriginal and Torres Strait Islander people

	ACT	NSW	VIC	QLD	SA	WA	TAS	NT	AUS
6 mo - <5 yrs	33.2	21.3	24.5	17.1	20.0	19.4	26.6	40.7	**21.5**
5 - <15 yrs	21.4	17.6	18.8	14.8	17.5	16.5	20.7	27.2	**17.6**
15 - <50 yrs	28.1	21.7	25.0	20.8	26.4	23.2	27.9	37.2	**24.1**
50 - <65 yrs	52.5	49.2	50.6	46.4	53.7	47.3	61.5	53.4	**49.4**
≥65 yrs	72.2	71.8	72.8	66.3	70.7	62.1	81.1	56.1	**68.3**

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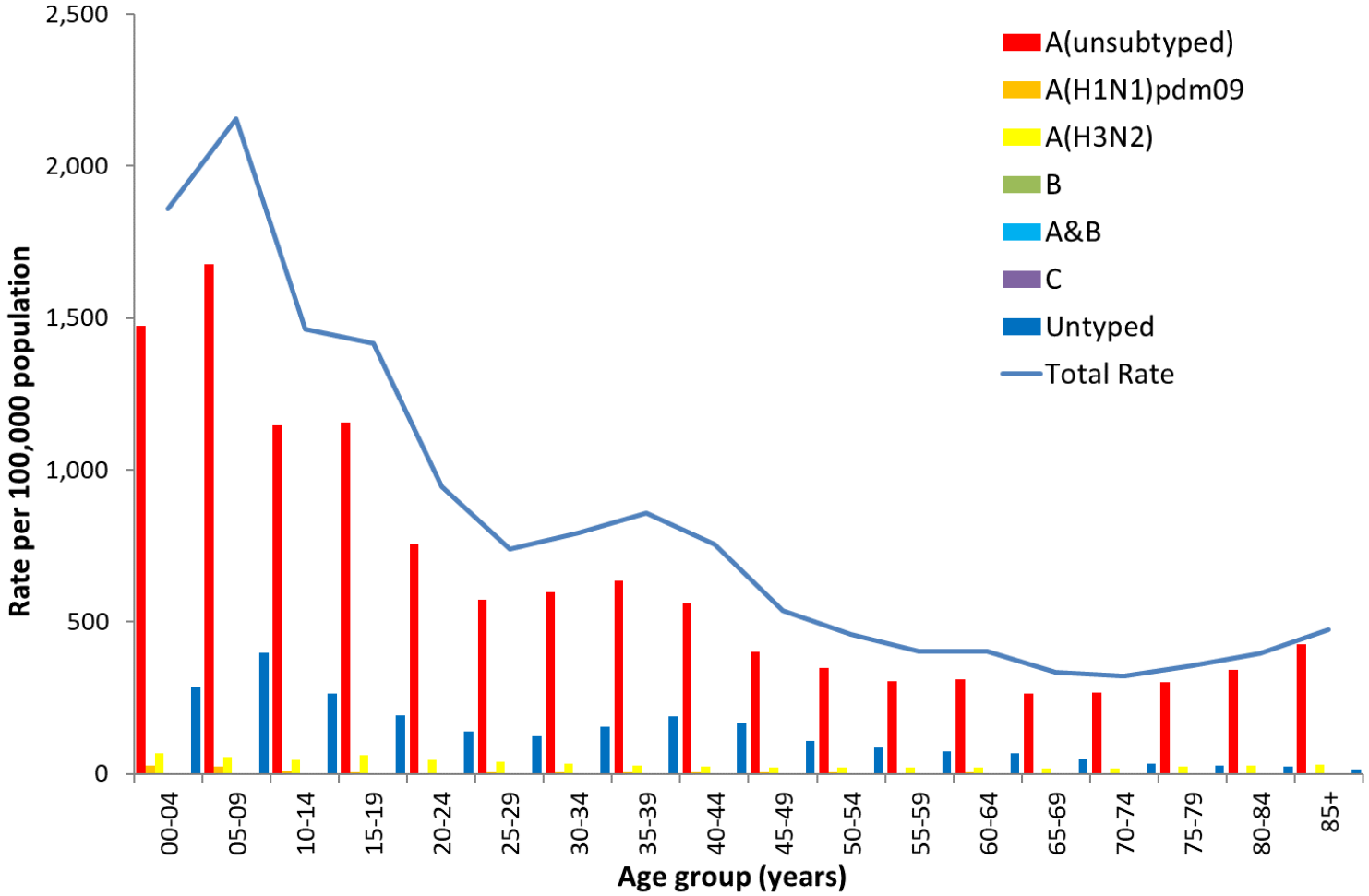
Rate of notifications of laboratory-confirmed influenza, Australia, 01 January to 09 October 2022, by age group and subtype*



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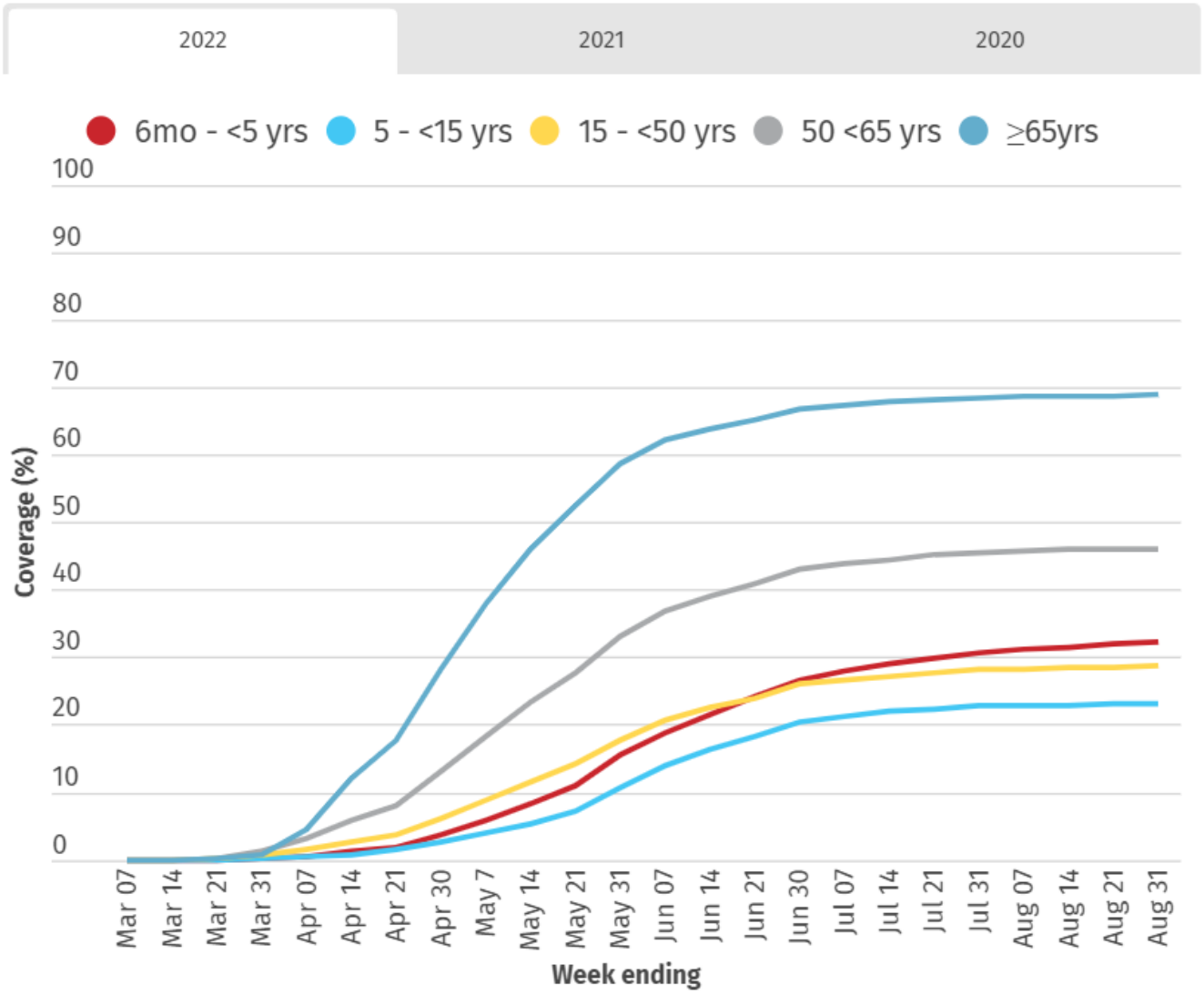
Influenza vaccination cumulative % coverage* by year - all people



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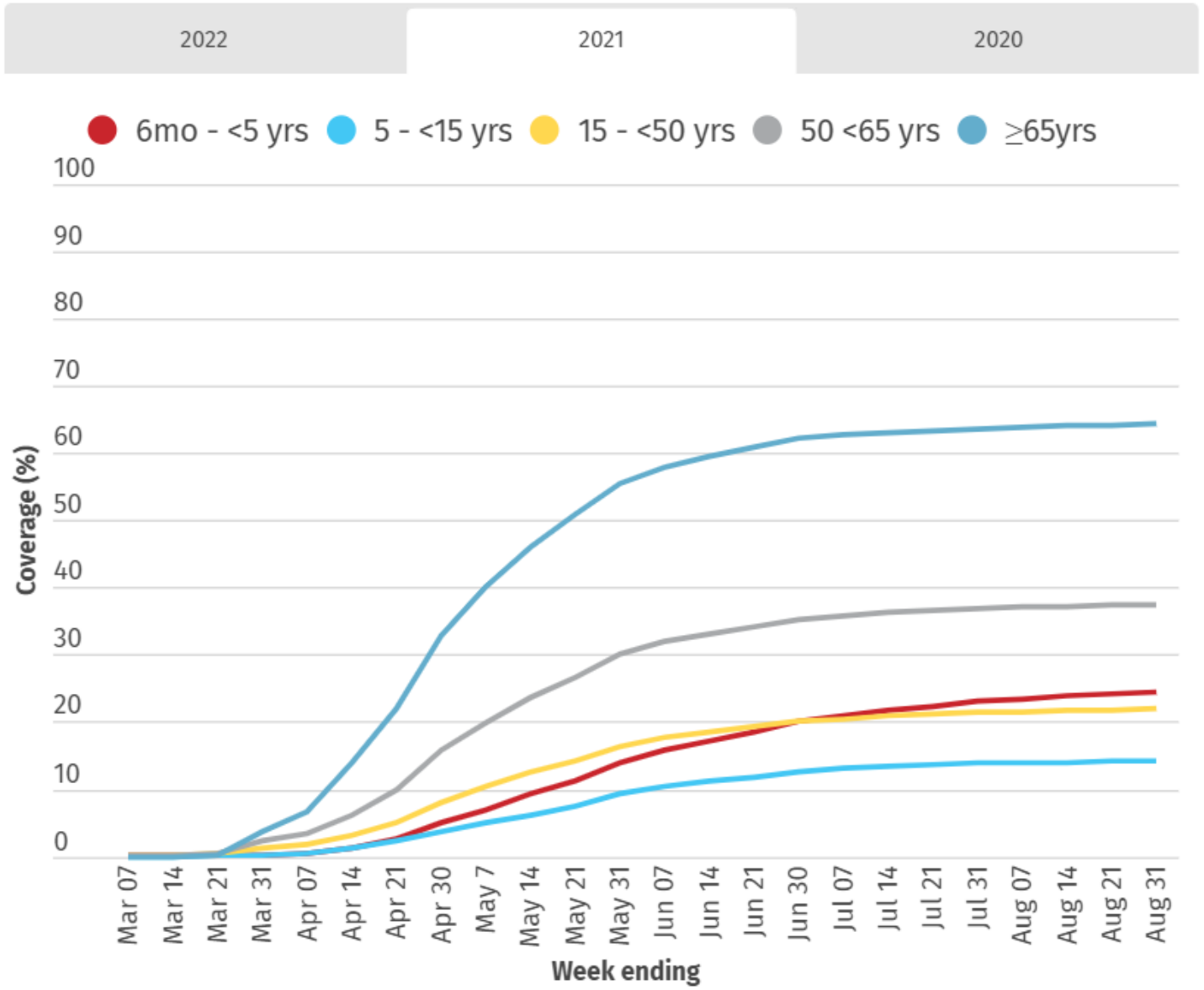
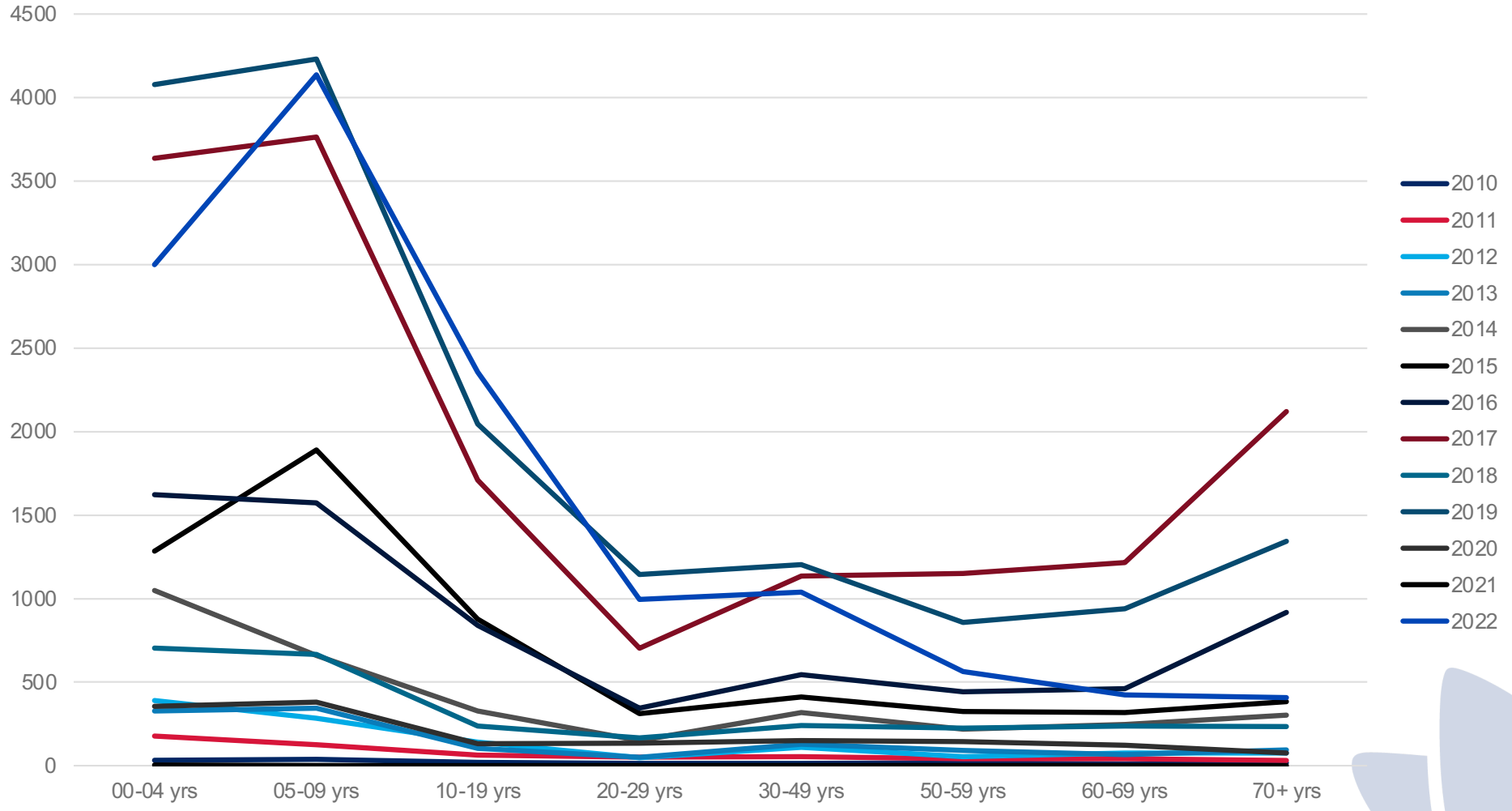


Summary of Influenza notifications in NSLHD



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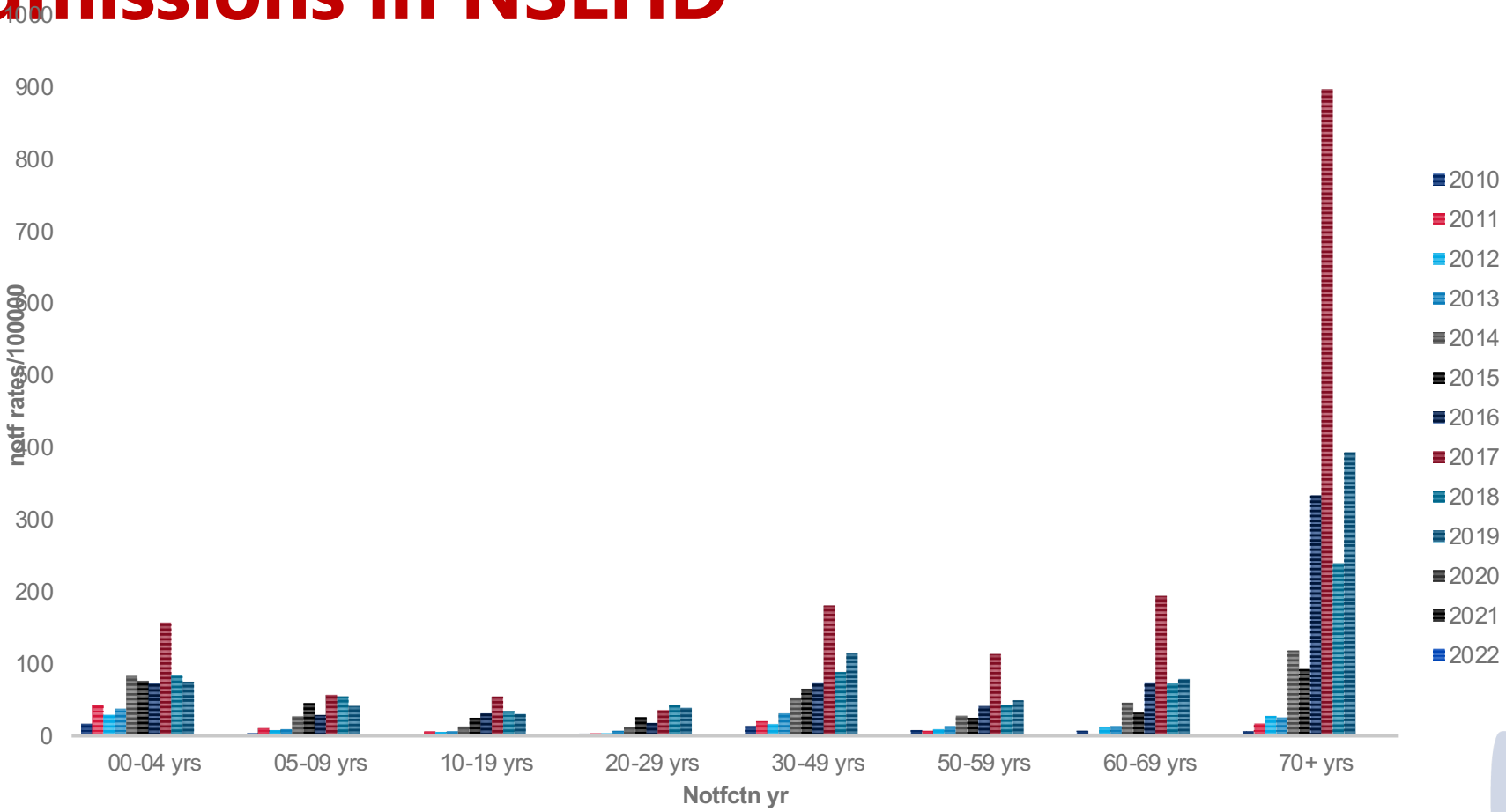
Summary of Influenza Hospital Admissions in NSLHD



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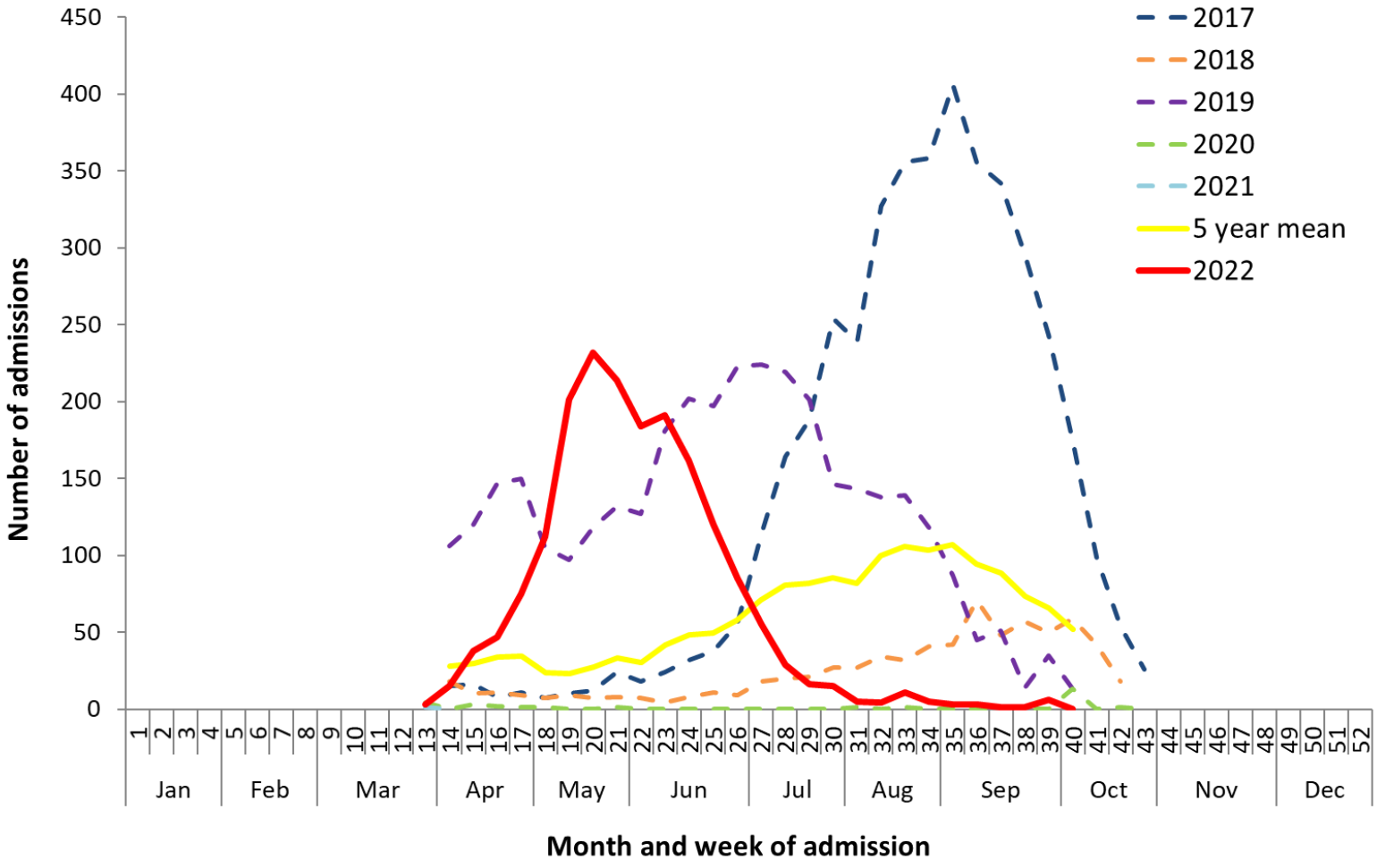
Number of influenza hospitalisations at sentinel hospitals, from April to October, 2017 to 2022 by month and week of diagnosis*



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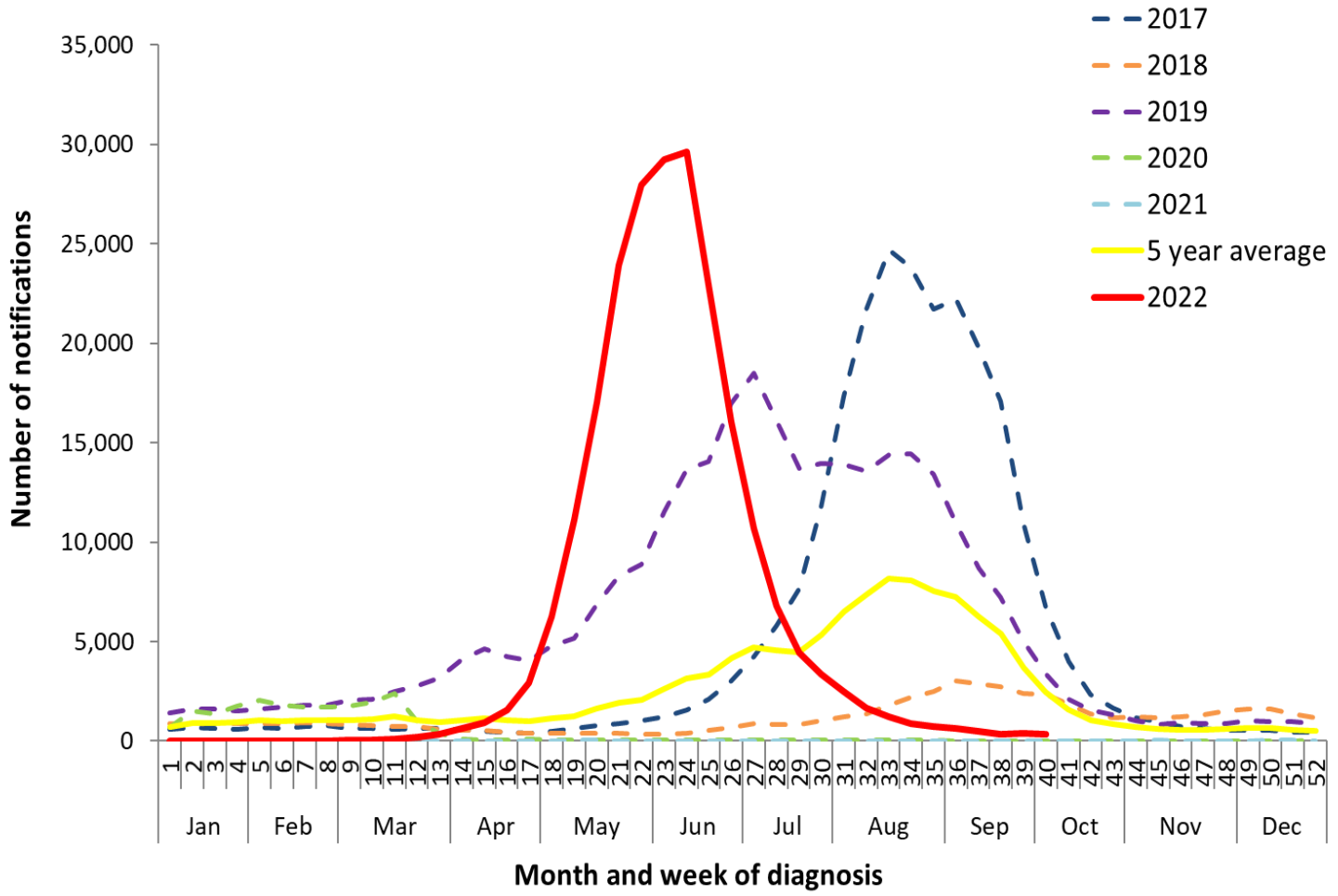
Influenza Notifications Over The Last 5 Years (Australia)



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Factors that influence vaccine effectiveness

- Likely to vary from season to season
- Vaccine viruses may not completely match the circulating influenza viruses that are infecting people.
- Epidemiological evidence of effectiveness usually requires the gathering of data at the end of season.
- Surveillance of circulating viruses during the season can provide an earlier assessment of vaccine match.

- In general, influenza vaccine effectiveness has been found to vary between 30-60%.
- The estimated effectiveness of the vaccine may depend on :
  - the outcome being measured,
  - the age group predominantly affected (vaccine effectiveness is generally lower in older people than in younger adults and children),
  - the match between vaccine and circulating influenza strains

Table 1. Australian influenza viruses typed by haemagglutination inhibition (HI) assay from the WHOCC, 01 January to 10 October 2022*

Type/Subtype	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	TOTAL
A(H1N1) pdm09	30	267	133	34	12	11	42	12	541
A(H3N2)	133	180	351	47	96	77	975	164	2,023
B/Victoria lineage	0	2	1	0	1	0	2	0	6
B/Yamagata lineage	0	0	0	0	0	0	0	0	0
Total	163	449	485	81	109	88	1019	176	2,570

WHOCC:

•92.4% influenza A(H1N1) isolates characterised in the year to date have been antigenically similar to the corresponding vaccine components.

•94.5% of influenza A(H3N2) isolates were antigenically similar to the corresponding vaccine components; and

•All six influenza B/Victoria isolates characterised in the year to date were antigenically similar to the corresponding vaccine components.

2023 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)	**Fluarix® Tetra** 0.50 mL (GSK)	**Afluria® Quad** 0.50 mL (Seqirus)	**Fluad® Quad** 0.50 mL (Seqirus)
<6 months	✗	✗	✗	✗
6 months to <5 years	✓	✓	✗	✗
5-64 years	✓[1]	✓[1]	✓[1]	✗
65 years and over	✓	✓	✓	✓[2]

Ticks indicate age at which a vaccine is registered and available. Shaded boxes represent funding under the NIP.

1 Funding only for Aboriginal and Torres Strait Islander people, pregnant women and people who have certain medical conditions.

2 Adjuvant QIV preferred over standard QIVs.

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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

2023 Influenza Vaccine strains (Southern Hemisphere)

- A/Sydney/5/2021 (H1N1)pdm09-like virus – new strain for 2023.
- A/Darwin/9/2021 (H3N2)-like virus;
- B/Austria/1359417/2021 (B/Victoria lineage) -like virus; and
- B/Phuket/3073/2013 (B/Yamagata lineage) -like virus.

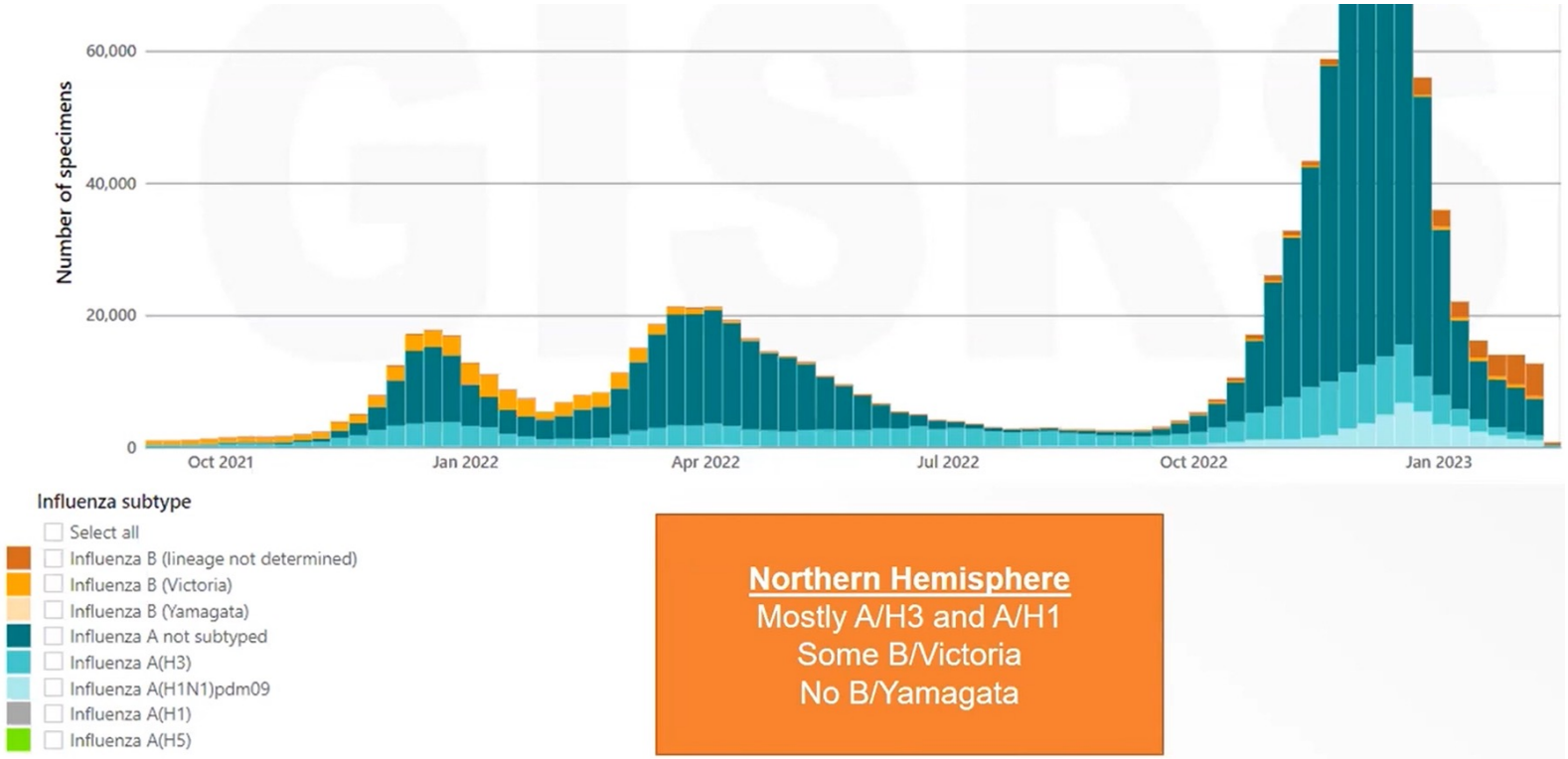
Over 65 Influenza vaccines

- 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.

- All available influenza QIV vaccines can also be used amongst people aged 65 years and over. (Not registered for use in people younger than 65 years)

- Fluad® Quad the specially formulated QIV 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.

2022-2023 Influenza epidemiology in Northern Hemisphere



Northern Hemisphere
Mostly A/H3 and A/H1
Some B/Victoria
No B/Yamagata

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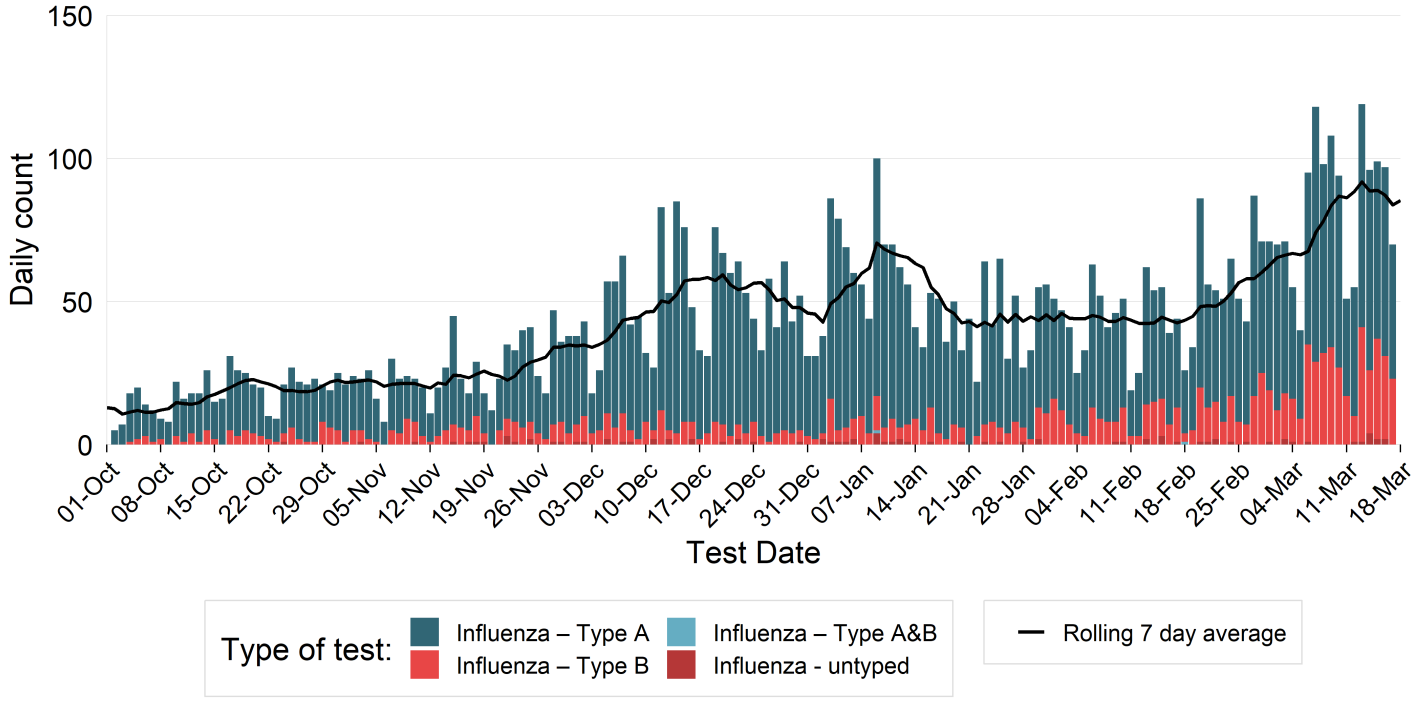
Source: Prof Allan Cheng NCIRS

Fluzone High Dose

- Registered for use in people aged ≥60 years.
- 60 µg haemagglutinin of each of the 4 recommended influenza virus strains
- There are no studies that directly compare high-dose quadrivalent influenza vaccine and adjuvanted quadrivalent influenza vaccine.
- Sstudies comparing high-dose trivalent influenza vaccine and adjuvanted trivalent influenza vaccine in adults aged ≥65 years show little to no difference between these two vaccines in effectiveness against a range of influenza outcomes

Influenza and other respiratory viruses

Figure 11. People notified with influenza, by date of test and virus type, NSW, 01 October 2022 to 18 March 2023



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Timing of vaccination

- Vaccination before the onset of each influenza season is recommended.
- The period of influenza circulation is typically June to September in NSW.
- The Australian Technical Advisory Group on Immunisation (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.

- NIP Program Deliveries of funded vaccine will commence around late March / early April 2023, depending on the delivery of vaccines into the NSW Vaccine Centre.
- Advice on delivery dates for private vaccines should be sought directly from wholesalers.
- Upon receipt of your delivery, you must acknowledge your order on the online ordering system.
- To support providers, vaccine basket stickers will be sent with influenza vaccine deliveries. clearly label their influenza vaccine stock to minimise the risk of inappropriate administration to an incorrect age-group.

Timing with other routine vaccines

- Once-off Prevenar® 13 (70 years and over) and Zostavax® (70-79 years of age) vaccines should also be offered to eligible people
- Zostavax catch up is available for 71–79-year-olds until 31/10/2023.
- COVID-19 vaccines can be administered on the same day, based on the latest ATAGI advice

Allergies:

- Egg allergy not a contraindication to influenza vaccine.
- People with an egg allergy, including anaphylaxis, can be safely vaccinated with influenza vaccines.
  - influenza vaccine in a medical facility with staff experienced in recognising and treating anaphylaxis •
  - remain under supervision in the clinic for at least 30 minutes after vaccination •
  - receive a full age-appropriate vaccine dose; do not split the dose into multiple injections
  - For children with severe egg allergy, vaccination under medical supervision can also be arranged at the NSW Immunisation Specialist Service (NSWISS) by calling 1800 679 477.

- All influenza vaccines supplied under the NIP in 2023 are latex free.

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Cell-based influenza vaccine (Flucelvax)

- Prepared in Madin-Darby canine kidney (MDCK) cells
  - different from the traditional method of producing standard influenza vaccines, which involves hens' eggs
  - Concern that the replication of influenza viruses in eggs during vaccine production results in antigenic changes that could make them less closely related to the circulating strains.
  - Diversifies the supply lines and theoretically mitigates the 'antigenic mismatch' issue of egg-based vaccine production.
  - the cell-based influenza vaccine has a similar efficacy and safety profile to standard influenza vaccines.
  - There is no preferential recommendation for its use over the standard influenza vaccines.

Click on the hyperlinks in the following slides to jump to resources

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Learning Objectives

- Identify influenza strain coverage & vaccines for the 2023 flu season
- Summarise the recent epidemiology of flu infection
- **Classify high-risk patient groups and outline the rationale for targeted vaccine promotion, particularly children aged 6 months to less than 5 years**
- **Implement evidence-based guidelines for influenza antiviral use in vulnerable cohorts in the community**

Eligible High-risk Populations

Flu vaccination strongly recommended & funded on NIP

- People aged ≥ 6months, identified as Aboriginal or Torres Strait Islander
- Children aged 6 months to < 5 years
- Pregnant women
- People with at-risk medical risk conditions*
- People aged ≥ 65 years

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See: NSW Health Eligibility for free influenza vaccine

Eligible Medical Risk Conditions for Funded Flu Vaccination

Flu vaccination strongly recommended & funded on NIP

- **Cardiac Disease**
  Incl. cyanotic congenital heart disease, coronary artery disease & congestive heart failure

- **Chronic respiratory conditions**
  Incl. suppurative lung disease, chronic obstructive pulmonary disease, severe asthma (for which frequent medical consultations or the use of multiple medications is required), cystic fibrosis, bronchiectasis & chronic emphysema

- **Chronic neurological conditions**
  Incl hereditary and degenerative central nervous system diseases (including multiple sclerosis), neuromuscular disorders, spinal cord injuries & seizure disorders

- **Immunocompromising conditions**,
  Incl. immunocompromised due to disease or treatment (e.g. malignancy, solid organ or haematopoietic stem call transplantation +/- chronic steroid use), asplenia or splenic dysfunction & HIV infection

- **Chronic metabolic disorders**
  Incl. Type 1 or 2 diabetes, mitochondrial disorders, porphyrias

- **Chronic renal failure**

- **Haemoglobinopathies**

- **Children aged 6 months to 10 years on long term aspirin therapy**

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See: NSW Health Eligibility for free influenza vaccine

Rationale for Targeted Vaccination of Priority Populations

People aged ≥ 65 years

- Between 1997 and 2016, 80% of all influenza deaths were in people of this age group[1]

First Nations Peoples

- 3.8% of our population [2]
- 6.5% of our flu hospitalisations in 2017[3] & 7.7% in 2019[4]
- 7.9% of our paediatric flu hospitalisations between 2010 to 2019[5]

People with medical co-morbidities

- Consistently shown to experience increased odds of ICU admission with flu hospitalisations (odds ratio [OR] 1.67 in 2017[3] & OR 1.79 in 2019[4])
- Children with co-morbidities also more likely to be admitted to ICU, require respiratory support, experience increased length of stay and in-hospital mortality[5]

Pregnant Women

- 2.5 times more likely to be admitted to hospital with influenza than other women[6]
- Approx. 50% more likely to experience preterm birth and low birthweight[7]
- Risk of stillbirth is raised more than 3.5 times with influenza infection[8]

Children

- Children < 5 years were hospitalised at almost three times the rate of adults aged >65 years between 2006 to 2013 (111 cases per 100,000 pop vs 40 cases per 100,00 pop)[9]
- 59.2% of kids admitted with flu do not have an underlying medical condition[5]
- <50% of children aged 6 months to <5 years were vaccinated against flu in 2022[10]

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[1] AIHW 2018 – Flu in Aust

[2] ABS - Prelim Popn Estimate 2021 Census

[3] Cheng et. al (2019) CDI Report 2017 Aust Flu Season Surveillance

[4] Cheng et. al (2019) CDI Report 2019 Aust Flu Season Surveillance

[5] Norman et. al (2021) Flu Hosp in Aus Kids 2010-2019

[6] Mertz et. al (2017) Pregnancy & Severe Flu – Sys R/V & meta-analysis

[7] Regan et. al (2020) Intl Cohort Study Birth Outcomes

[8] Wang et al (2021) Flu in Pregnancy – Sys RV & meta-analysis

[9] Li-Kim-Moy et. al (2016) Aust Influenza Epi Review 2006-2015

[10] Internal data

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- Risk of stillbirth is raised more than 3.5 times with influenza infection[8]

Children

- Children < 5 years were hospitalised at almost three times the rate of adults aged >65 years between 2006 to 2013 (111 cases per 100,000 pop vs 40 cases per 100,000 pop)[9]
- 59.2% of kids admitted with flu do not have an underlying medical condition[5]
- <50% of children aged 6 months to <5 years living in Northern Sydney Local Health District were vaccinated against flu in 2022[10]

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[1] AIHW 2018 – Flu in Aust

[2] ABS - Prelim Popn Estimate 2021 Census

[3] Cheng et. al (2019) CDI Report 2017 Aust Flu Season Surveillance

[4] Cheng et. al (2019) CDI Report 2019 Aust Flu Season Surveillance

[5] Norman et. al (2021) Flu Hosp in Aus Kids 2010-2019

[6] Mertz et. al (2017) Pregnancy & Severe Flu – Sys R/V & meta-analysis

[7] Regan et. al (2020) Intl Cohort Study Birth Outcomes

[8] Wang et al (2021) Flu in Pregnancy – Sys RV & meta-analysis

[9] Li-Kim-Moy et. al (2016) Aust Influenza Epi Review 2006-2015

[10] Internal data

Clinician Challenges

- **Patient/parental misconceptions**
- **Balancing competing consultation priorities within resource & time constraints**

Clinician Challenges #1

- **Patient/parental misconceptions** along the lines of[1,2]
  - *"flu vaccines give people the flu"*
  - *"don't need a vaccine, kids/patients need to build own immunity"*
  - *"I had a flu vaccine and I still got sick"*
  - *over-estimating the effectiveness of non-vaccine preventative measures*

Healthcare workers are trusted advisors of medical information & influencers of vaccination decisions[3]

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[1] Biezen et. al (2018). Qual Study Aus Parents & PCPs

[2] Nowak et. al (2015). Promoting fluvax – meta-analysis

[3] Paterson et. al (2016). Vaccine hesitancy & HCPs

Patient FAQs

Question	Answer
When is peak flu season?	Typically between June to September. ***It's never too late to vaccinate***
How long will the flu vaccine protect me?	Optimal protection occurs within the first 3-4 months of vaccination ***Vaccination from mid-April is ideal to provide coverage through expected peak season***
How effective is the influenza vaccine?	• Varies annually, dependent upon age, immunocompetence, level & severity of flu activity, and match between the vaccine & circulating viral strains [1] • An Aust study estimated overall effectiveness against hospitalised flu between 2010 to 2019 was 57% (ranging from 43% for A/H3N2, 76% for A/H1N1, 56% for Influenza B)[2] ***Vaccination is the only way to specifically reduce the risk of influenza infection and its complications***
Is it safe to have on the same day as other vaccines?	✓ routine childhood vaccinations (✓ 13vPCV co-admin in infants - small possible incr risk of fever)[3] ✓ COVID vaccines ✓ antenatal pertussis vaccines ✓ Zostavax ✻Shingrix – acceptable to co-administer with adjuvanted flu vaccine (Fluad® Quad) but ***preferable to separate by a few days due to paucity of safety data on co-admin[4]***

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[1] NCIRS

[2] Norman et. al (2021) Flu Hosp in Aus Kids 2010-2019

[3] Aust Imm Handbook

[4] ATAGI

Clinician Challenges #2

- **Balancing competing consultation priorities within resource & time constraints**

- ***Recall & reminder systems – consistently shown to be effective in improving influenza vaccination uptake[1]***
  - ***Use existing processes to reach patients***
    - ***Mid-season review of vaccine uptake → additional reminders to at-risk patients who are overdue***
      - ***May be recorded as a mini-audit for Nursing & Medical CPD***

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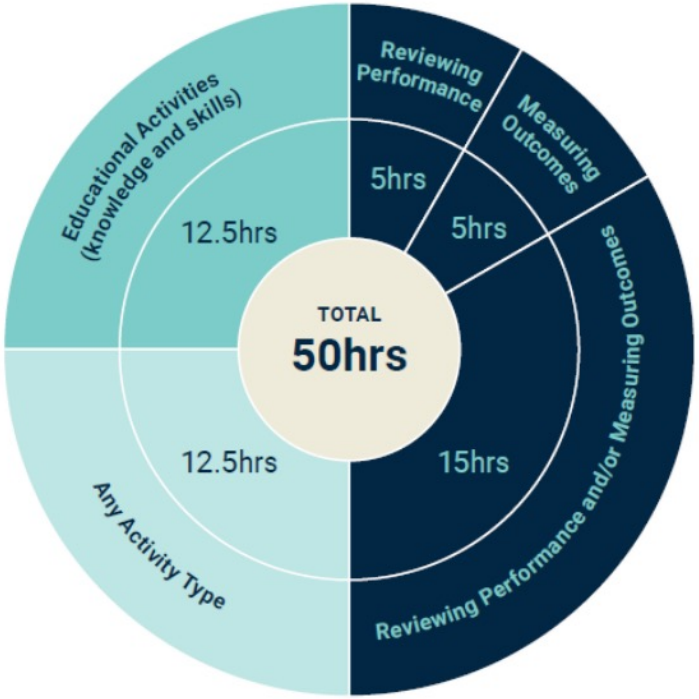
[1] Mohammed et. al (2021). Strategy RV to improve fluvax uptake Aus

Flu Vaccine Coverage Review – CPD mini-audit

Nursing and Midwifery Board Ahpra	Medical Board Ahpra	
Standard 3 Maintains the capability for practice (3.3)	**Tonight's webinar** RACGP NSW Flu Vaccination Update 2023 NSW Health Cold Chain Management module	**Educational Activities**
Standard 1 Thinks critically & analyses nursing practice (1.1, 1.7)	**Reviewing current processes around flu vaccine reminders & administration**	**Reviewing Performance**
Standard 7 Evaluates outcomes to inform nursing practice (7.1, 7.2, 7.3)	**Mid-season review & mini-audit**	**Measuring Outcomes**



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Flu Vaccine Coverage – mid-season review & mini-audit

1. March 2023

Identify the audit need and target population e.g. all children aged 6 months to <5 years are strongly recommended to receive annual influenza vaccination (which is government-funded for this cohort)

2. April 2023 to end of flu season

Implement routine practises around flu season to promote flu vaccine availability and administer vaccines to patients, including the identified population in Step 1

3. May/June 2023

Review vaccine uptake and implement recalls/reminders to target population identified in Step 1 who have not yet presented/are delayed for a second dose, if appropriate

4. End of flu season (late October 2023)

a. Identify vaccination rates for selected population from Step 1 and compare to
i. comparable cohort of the Practice's population in prior years, OR/
ii. state or national averages in prior years (See NCIRS for flu vaccine coverage by year, state & age-group)

b. After review, compile any new initiatives for consideration of implementation in 2024 flu season. This may serve as the basis for another audit in 2024.

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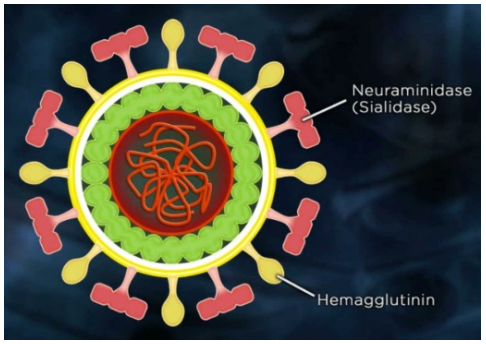
Influenza Antivirals as Treatment

- Neuraminidase inhibitors block the activity of the neuraminidase enzyme, stopping the release of virus from infected cells



- Three types registered in Australia
  - **Oseltamivir (Tamiflu®) – oral**
  - Zanamivir (Relenza®) – inhaled
  - Peramivir (Rapivab®) – intravenous infusion

- **Mixed evidence for benefits of antivirals**
  - Observational studies (older, more complex cohort) – fewer complications, hospital admissions & deaths
  - RCTS – (usually include healthy, low-risk adults) – reduce duration of illness by ~ 1 day

- Recommended as treatment of confirmed, or highly suspected, influenza infection, **within 48 hrs of symptom onset** in people at risk of severe disease.
  - Children aged <5 years
  - Pregnant women
  - People aged ≥ 65 years
  - Aboriginal or Torres Strait Islander people of any age
  - People with at-risk medical conditions
  - Residents of long-term residential facilities

Influenza Antivirals as Prophylaxis

- Oseltamivir recommended as postexposure prophylaxis for persons at increased risk of severe disease from influenza – **primarily during influenza outbreaks in Residential Aged Care Facilities** but also consider use in:
  - Children aged <5 years
  - Pregnant women
  - People aged ≥ 65 years
  - Aboriginal or Torres Strait Islander people of any age
  - People aged ≥ 6 months with at-risk medical conditions
  - healthcare workers to prevent transmission after unprotected exposure to influenza
- Start postexposure prophylaxis as soon as possible after exposure, within 48 hours.

Case Studies

Clinical Scenario #1

Ava – *32y, G2M1P0, 14/40 gestation, presents on 1st July 2023 for antenatal care. Received private flu vaccine through local pharmacy on 1st March 2023. No significant PMHx. NKDA*

Should Ava be offered another flu vaccine?

a. No further flu vaccine required this year
b. Offer additional privately-funded flu vaccine
c. Offer additional government-funded flu vaccine

Clinical Scenario #1 - Ava

✓ Offer additional government-funded flu vaccine

- Women who received a flu vaccine before becoming pregnant should be revaccinated during pregnancy to protect the unborn infant

- Vaccination in the second or third trimester results in transplacental transfer of antibodies which can protect infants for the first 6 months of life

- Aust Imm Handbook
- RANZCOG

National Immunisation Program influenza vaccines by age group

CHECK *you have the correct vaccine for the person's age. Age range is identified on the*

2023 NIP-funded influenza vaccines			
Age group	Vaxigrip Tetra® 0.50 mL (Sanofi)	Fluarix® Tetra 0.50 mL (GSK)	Afluria® Quad 0.50 mL (Seqirus)
6 months to <5 years	✓	✓	DO NOT USE
5 to <65 years	✓	✓	✓

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Clinical Scenario #2

Mia – *33yo, G3P2, 23/40 gestation presents with one day history of sudden onset fever, sore throat, cough, myalgia & lethargy.*

Ari, her 3 year old, *was sent home from preschool earlier this week with a fever & acute respiratory symptoms. Some of his friends from preschool have also been kept home in the last few weeks with similar symptoms. The latest preschool newsletter reports one child has been formally diagnosed with influenza after being reviewed & tested by their General Practitioner.*

Mia received influenza and dTpa vaccines at the Practice just under a week ago.

Which of the following are appropriate for our consultation today?
Choose all that apply

a. Nasopharyngeal swab to assist with diagnosis

b. Discuss appropriate supportive treatment, respiratory hygiene & safety-netting

c. Discuss commencing influenza antiviral therapy based on provisional diagnosis today

Clinical Scenario #2 - Mia

✓ **Nasopharyngeal swab**

– *ideal for diagnosis but should not delay antiviral commencement when suspicion for influenza is high*

✓ **Supportive treatment, respiratory hygiene advice & safety-netting**

– *paracetamol for symptomatic treatment*

✓ **Influenza antiviral medication**

– *antiviral treatment is strongly recommended for women in the second or third trimester to reduce the severity of maternal disease*

Clinical Scenario #2 – Flu Antiviral Medication

	Oseltamivir Tamiflu®	Zanamivir Relenza®
Adult dosage	75mg q12hrly for 5 days, PO	10mg q12hrly for 5 days, by inhalation
TGA	B1	
Aust Meds Handbook	Oseltamivir & zanamivir are considered safe to use in pregnancy	
First Trimester use	Shared decision-making	
Second & third trimester use	Strongly recommended [1]	
PBS?	Privately funded (Non-PBS)	
More common potential side effects	Nausea, vomiting	Bronchospasm

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Clinical Scenario #2

***Mia** also asks for advice on caring for her **second child, Zara**.*

***Zara is 18 months old**, has no significant PMHx and is currently asymptomatic. She sleeps in a cot in her parents' bedroom and is breastfed. Mia's spouse is away for two weeks for work & they don't have any other family close by to assist.*

What advice could we give Mia to reduce the risk of transmission to her daughter?
There may be more than one correct answer

a. Attempt to position Zara's cot at least one metre from where Mia sleeps

b. Encourage Mia to wear a surgical mask where possible when breastfeeding/feeding, bathing & having cuddles with Zara

c. Utilise good hand hygiene & respiratory hygiene practices

d. Mia will be considered non-infectious once she has completed 72 hours of influenza antiviral therapy

e. Mia will be considered non-infectious after 7 days from symptom onset if she declines to take influenza antiviral therapy

Clinical Scenario #2 - Mia

What advice could we give Mia to reduce the risk of transmission to her daughter?

- ✓ Attempt to position Zara's cot at least one metre from where Mia sleeps
- ✓ Encourage Mia to wear a surgical mask where possible when breastfeeding/feeding, bathing & having cuddles with Zara
- ✓ Utilise good hand hygiene & respiratory hygiene practices
- ✓ Mia will be considered non-infectious once she has completed 72 hours of influenza antiviral therapy
- ✓ Mia will be considered non-infectious after 7 days from symptom onset if she declines to take influenza antiviral therapy

- Influenza Pregnancy Information for Clinicians

Clinical Scenario #3

Vivek - *attends with family for his "4 Year Check" (Infanrix® IPV or/ Quadracel®).*

He has a history of mild egg allergy which results in a rash. He has never experienced anaphylaxis and his Paediatrician advises he is not required to carry an EpiPen®. Vivek has not received a flu vaccine in the past.

What should we offer today?

Choose the single best option

a. Offer routine vaccination only

b. Offer routine vaccination; advise family that an egg allergy is a contraindication to receiving a flu vaccine

c. Offer routine vaccination; refer Vivek to NSW Immunisation Specialist Service (NSWISS) for supervised flu vaccination in Specialist Clinic

d. Offer both flu vaccine AND routine vaccination today. Offer to monitor Vivek in the Practice for 30mins post vaccination

Clinical Scenario #3 - Vivek

Offer both flu vaccine AND routine vaccination today. Offer to monitor Vivek for 30mins post vaccination

- The only absolute contraindications to influenza vaccines are:
  - Anaphylaxis after a previous dose of any influenza vaccine
  - Anaphylaxis after any component of an influenza vaccine

    - AIH

2023 NIP-funded influenza vaccines		
Age group	Vaxigrip Tetra® 0.50 mL (Sanofi) 	Fluarix® Tetra 0.50 mL (GSK) 
6 months to <5 years	✓	✓

- **Egg allergy, including anaphylaxis, is not a contraindication** to receiving an influenza vaccine. People with an egg allergy can be safely vaccinated with influenza vaccines.
- People with a history of anaphylaxis to egg should
  - receive their influenza vaccine in a medical facility with staff experienced in recognising and treating anaphylaxis
  - remain under supervision in the clinic for at least 30 minutes after vaccination

    - ASCIA

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Clinical Scenario #3 – Vivek, 4 years old

Vivek bravely receives both the DTPa-IPV and influenza vaccines on the same day. His parents accept the offer of 30 minutes of observation in the Practice and Vivek gets to enjoy four episodes of Bluey.

Given this is the first time Vivek has received an influenza vaccination, he is booked in for a second dose in a month's time.

His parents enquire about the funding arrangement for his second vaccine dose at the next visit.

Which of the following is correct about the cost of the second vaccine dose?

Choose single best option

a. It will be Government-funded

b. It will need to be privately-funded

Clinical Scenario #3 – Vivek, 4 years old

Vivek bravely receives both the DTPa-IPV and influenza vaccines on the same day. His parents accept the offer of 30 minutes of observation in the Practice and Vivek gets to enjoy four episodes of Bluey.

Given this is the first time Vivek has received an influenza vaccination, he is booked in for a second dose in a month's time.

His parents enquire about the funding arrangement for his second vaccine dose at the next visit.

Which of the following is correct about the cost of the second vaccine dose?

a. It will be Government-funded

b. It will need to be privately-funded

Clinical Scenario #3 – Vivek, 5 years old

Vivek does not end up receiving the second dose of influenza vaccine in 2023. The family urgently travelled to Egypt a week after his "4 Year Check", remaining there several months looking after unwell family members.

In mid-April 2024, Vivek & his family present for vaccination for the 2024 flu season.

He's recently seen his Paediatrician for routine follow up and his egg allergy is stable. His Paediatrician has also mild diagnosed asthma & Vivek is trialling intermittent inhaled salbutamol. He has never required hospitalisation or Emergency Department review for his breathing.

Recalling the advice received last year, his parents ask about the number of doses required & funding arrangement for Vivek's flu vaccination this year.

Q. What do we advise about number of doses and funding arrangement? ***Choose single best option***

a. Two doses recommended in 2024 - both Govt-funded
b. Two doses recommended in 2024 - one Govt-funded, the other privately funded
c. Single dose recommended in 2024 - Govt-funded
d. Single dose in 2024 – privately funded

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Clinical Scenario #3 – Vivek, 5 years old

✓ ***Vivek, aged 5 years old, is recommended a single dose of privately-funded flu vaccine in 2024***

- Children aged < 9 years of age who are receiving the influenza vaccine for the first time should receive 2 doses of the vaccine, 4 weeks apart
- All children aged 6 months to <5 years are eligible for free influenza vaccine as part of the National Immunisation Program. **If two doses are indicated** (for children who have never received influenza vaccine before) **both doses are free if they are under 5 years of age.**
- In **subsequent years only one dose is required**.

- Children who only received one dose in their first year of vaccination still only require one dose in subsequent years.

- *Influenza vaccine is also available free for children aged 5+ years with **specified medical conditions**, and Aboriginal and Torres Strait Islander people.*

See: NSW Health: Seasonal Flu Vaccination FAQs

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Clinical Scenario #4 – Evie

Evie *– is 64 years old with her next birthday coming up August 2023.*
PMHx - T2DM on metformin, last HbA1c 6.7%
Presents in May 2023 expecting to receive Fluad Quad® as she is aware it stimulates a better immune response in older adults

What advice could we give her? **More than one option may apply**

a. Fluad Quad® stimulates a better immune response in older adults

b. Fluad Quad® is not licensed for people aged <65 years

c. It is not advisable to wait until Evie's 65th birthday to receive her preferred vaccine given the risk of catching "the flu" over Winter

d. She is eligible to receive a standard NIP-funded flu vaccine today

e. She may consider purchasing a private "Fluzone High-dose Quad" vaccine this year

Clinical Scenario #4 – Evie, 64 years old

Evie *– is 64 years old with her next birthday coming up August 2023.*
PMHx - T2DM on metformin, last HbA1c 6.7%
Presents in May 2023 expecting to receive Fluad Quad® as she is aware it stimulates a better immune response in older adults

What advice could we give her?

a. Fluad Quad® stimulates a better immune response in older adults

b. Fluad Quad® is not licensed for people aged <65 years

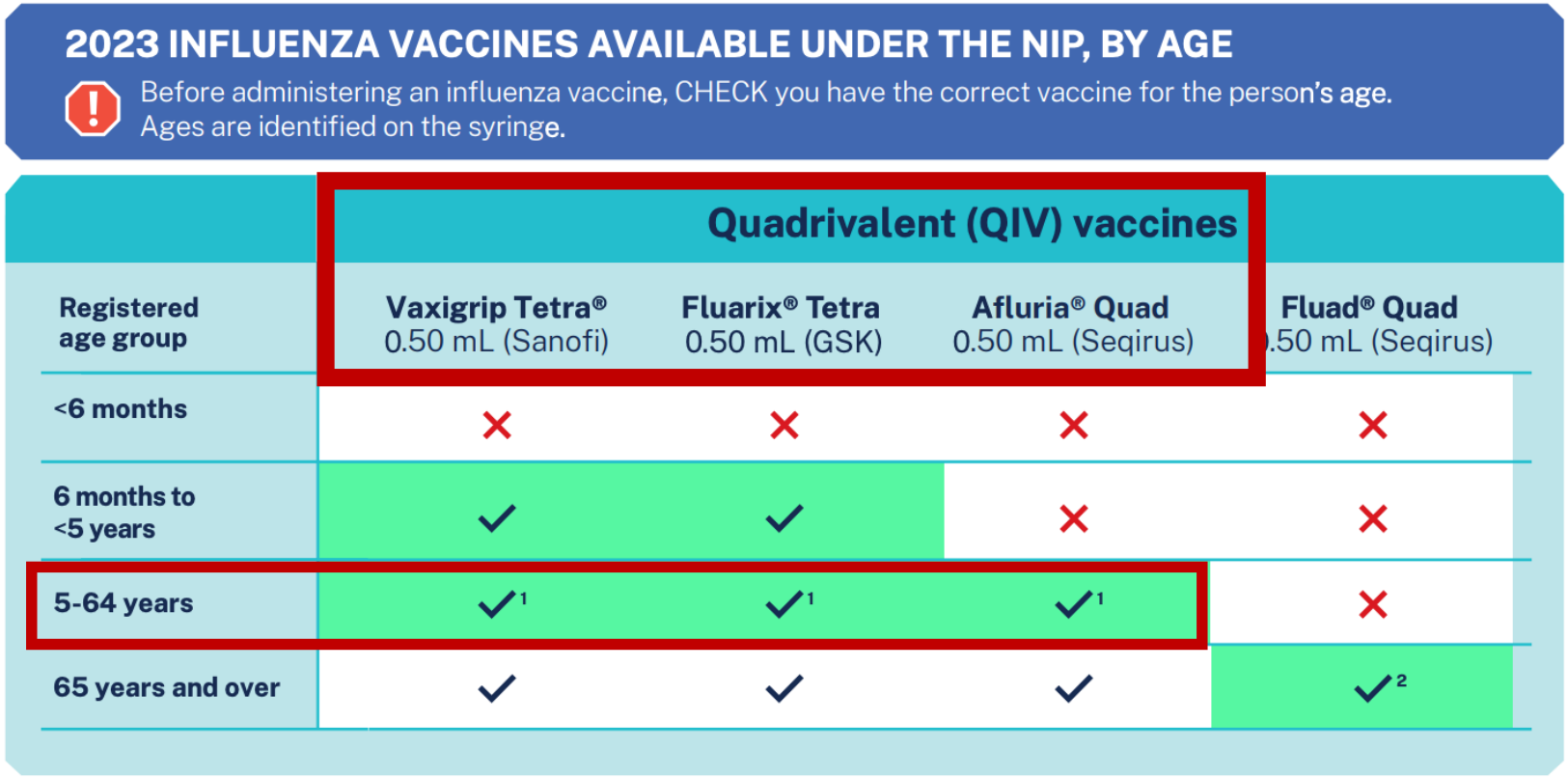
c. It is not advisable to wait until Evie's 65th birthday to receive her preferred vaccine given the risk of catching "the flu" over Winter

d. She is eligible to receive a standard NIP-funded flu vaccine today

e. She may consider purchasing a private "Fluzone High-dose Quad" vaccine this year

✓ **All of the above**

Clinical Scenario #4 –Evie, 64F



2023 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.

Registered age group	Quadrivalent (QIV) vaccines			
	Vaxigrip Tetra® 0.50 mL (Sanofi)	Fluarix® Tetra 0.50 mL (GSK)	Afluria® Quad 0.50 mL (Seqirus)	Fluad® Quad .50 mL (Seqirus)
<6 months	✗	✗	✗	✗
6 months to <5 years	✓	✓	✗	✗
5-64 years	✓[1]	✓[1]	✓[1]	✗
65 years and over	✓	✓	✓	✓[2]

Ticks indicate age at which a vaccine is registered and available. Shaded boxes represent funding under the NIP.

1 Funding only for Aboriginal and Torres Strait Islander people, pregnant women and people who have certain medical conditions.

2 Adjuvant QIV preferred over standard QIVs.

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See: Influenza Vaccination Provider Toolkit 2023

NIP = National Immunisation Program

Clinical Scenario #4 –Evie, 64F

- *Fluad® Quad is available and NIP funded for people aged ≥ 65 years.*
- *Fluzone High Dose Quadrivalent is available for people aged ≥ 60 years but is not NIP funded.*
- *Both Fluad® Quad and Fluzone High Dose Quadrivalent are preferentially recommended over standard influenza vaccine in people aged ≥ 65 years. There is no preference for use between either Fluad® Quad or Fluzone High-Dose Quadrivalent.*

Table 1. Seasonal influenza vaccines registered and available for use in Australia in 2023, 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 (Viatris)	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.

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See: ATAGI Statement on Seasonal Influenza Vaccines 2023

NIP = National Immunisation Program

Key Messages

- Vaccination is the only way to specifically reduce the risk of influenza infection and its complications
- Recommendation to vaccinate by a Healthcare Professional is a key factor in patients' and families' decision to vaccinate
- ***Almost 60% of children admitted to hospital with the flu do not have medical co-morbidities – key target demographic***
- Role for antivirals is focused – *primarily patients at risk of severe flu, or in Residential Care Facility Outbreaks*
- Preventative healthcare is our bread & butter – ***make it count for CPD***

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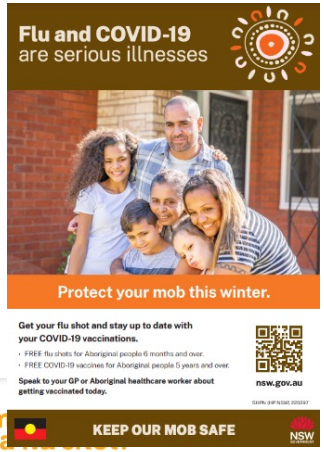
Additional resources

- ***FAQs on Seasonal Flu Vaccine - NSW Health***
- ***Influenza Vaccination Provider Toolkit – NSW Health***
- ***NSW Health Influenza Resources***
  - Free order posters & factsheets
- *Mumbubvax.org.au*
- Sharing Knowledge About Immunisation (SKAI) – National Centre for Immunisation Research & Surveillance
  - ***Providers***
  - ***Parents***
- ***New South Wales Immunisation Specialist Service (NSWISS)***
- ***NSW Health Antiviral Pre-assessment Form***



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We want to hear from you!

- **Northern Sydney Local Health District has comparatively higher influenza vaccine coverage** than other Local Health Districts in the state.
- **We want to learn from you – what strategies are being used** in General Practices to promote awareness of flu vaccine availability each season
- **Short questionnaire accessed via the QR code** or by **clicking on the secure link here** or the link address below
- **All responses are anonymous**

Mirror links to questionnaire

https://rnsapmredcap.nslhd.health.nsw.gov.au/redcap/surveys/?s=NKJFEYAY9RD8HAP8

https://redcap.link/g71wq25b

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Northern Sydney Public Health Unit

Contact us via email on NSLHD-PHUInfectiousDiseases@health.nsw.gov.au or NSLHD-PHUImmunisation@health.nsw.gov.au or call. 9485 6911 and choose from following options:

#4 – RACF Liaison Team

for. management of COVID, influenza & other acute respiratory illnesses

#5 – Communicable Diseases Team

for. notifications of communicable/infectious disease

#6 – Immunisations Team

for. cold chain breaches, catch-up vaccine schedules, rabies post exposure prophylaxis

 # 7 - Environmental Health Team

for environmental health concerns

#8 - Other enquiries

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