NSW GOVERNMENT

To join the CTG Forum Webinar please click here if you work **INTERNALLY**.

To join the CTG Forum Webinar please click here if you work **EXTERNALLY**.

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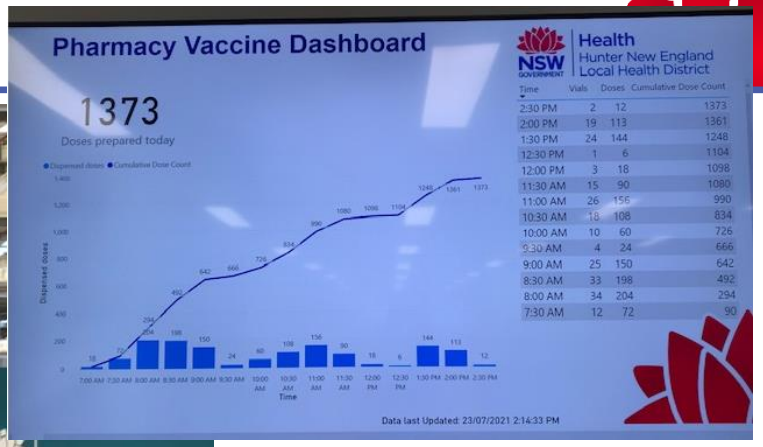
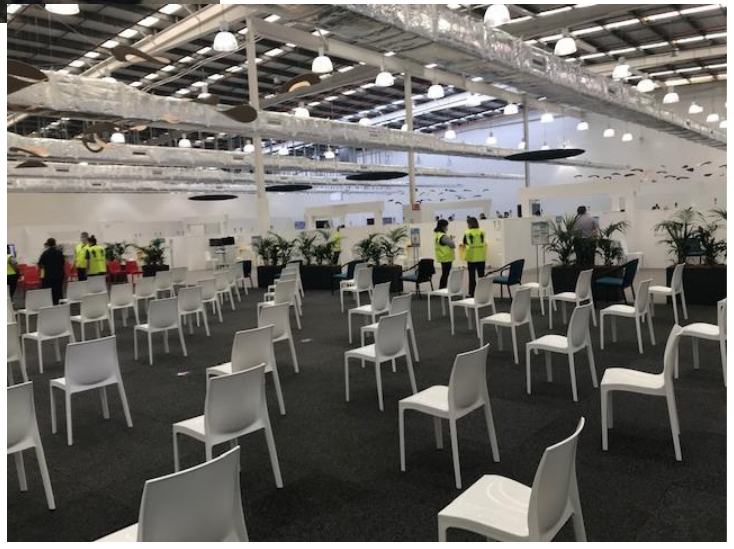
Thanks to HNE Hubs





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Immunisation

Immunisation for Prevention and Protection

Immunisation is one of the most effective and cost-efficient public health measures for the control of vaccine-preventable diseases.

Hunter New England Population Health provides support & information to providers and the general community about immunisation, excluding travel vaccinations, to ensure our population has the opportunity to receive all recommended vaccines.

Who, What, Why and How of COVID Adverse Events Following Immunisation (AEFI

Immunisation | HNE Health (nsw.gov.au)

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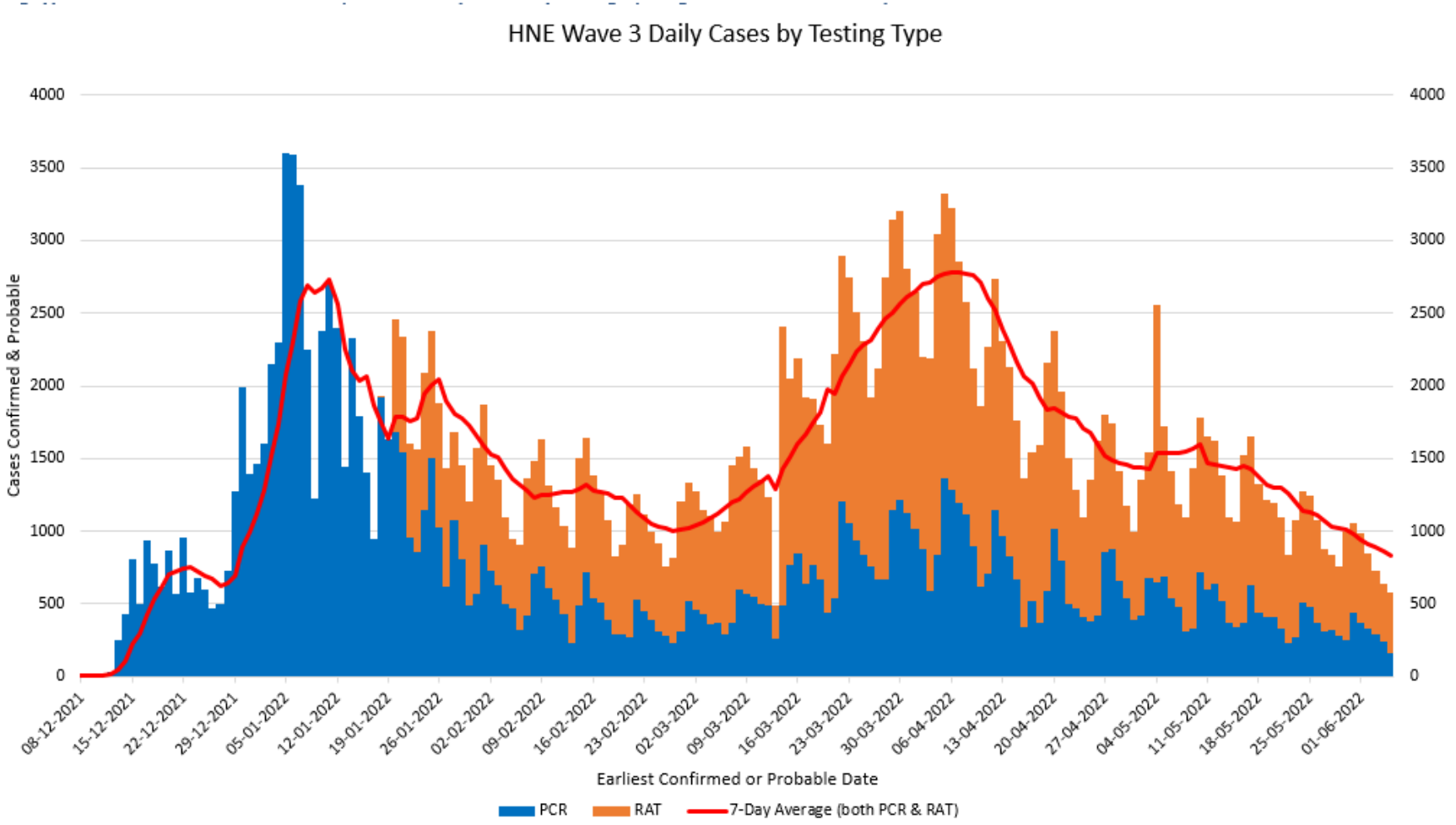
HNE Covid cases Dec 21 – Jun 22 Omicron



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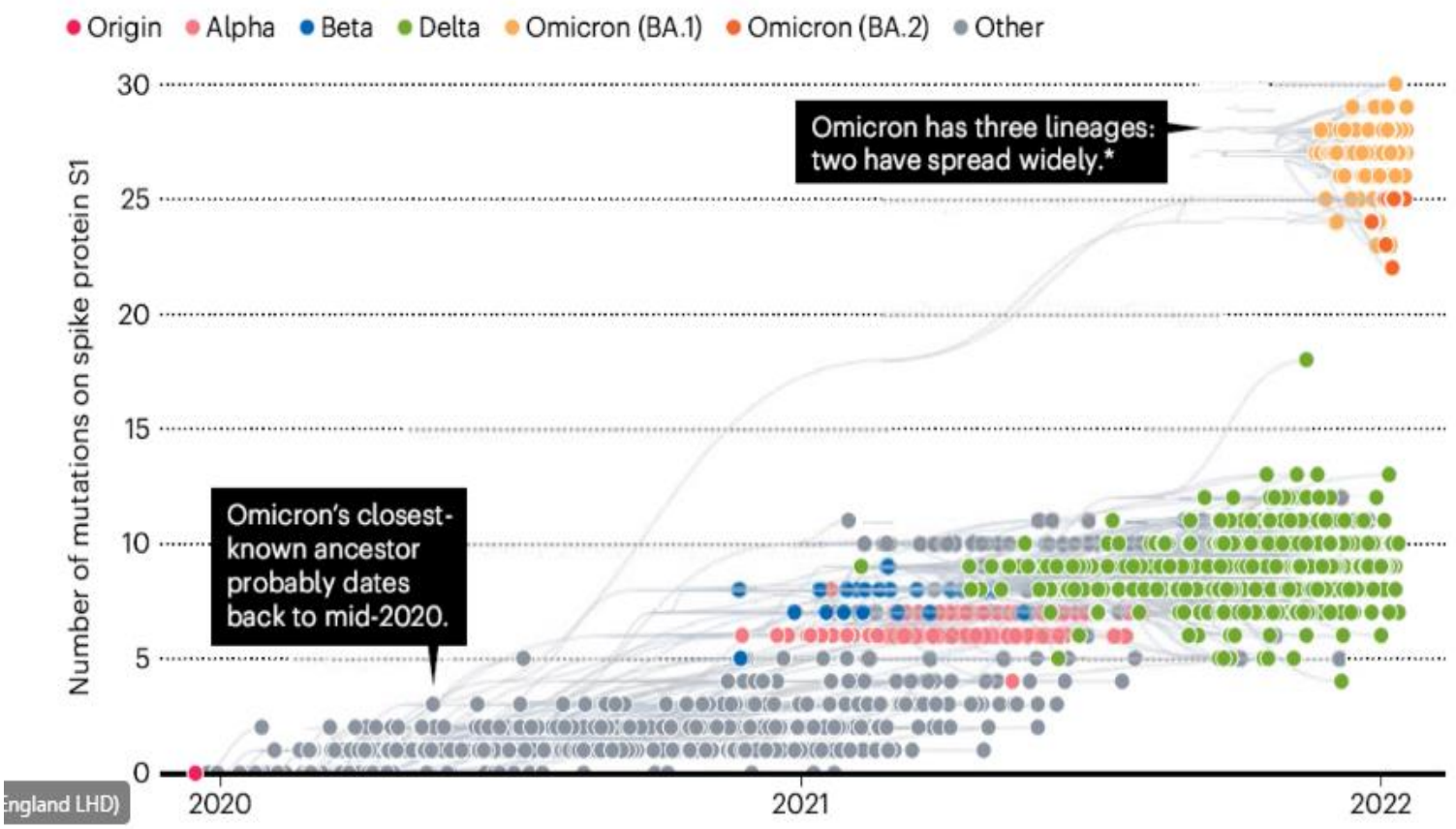
MOST MUTATED

The Omicron variant of the SARS-CoV-2 coronavirus has more mutations than any known predecessor. This chart shows mutations in the S1 subunit of the spike protein, which attaches to host cells.



O Macron

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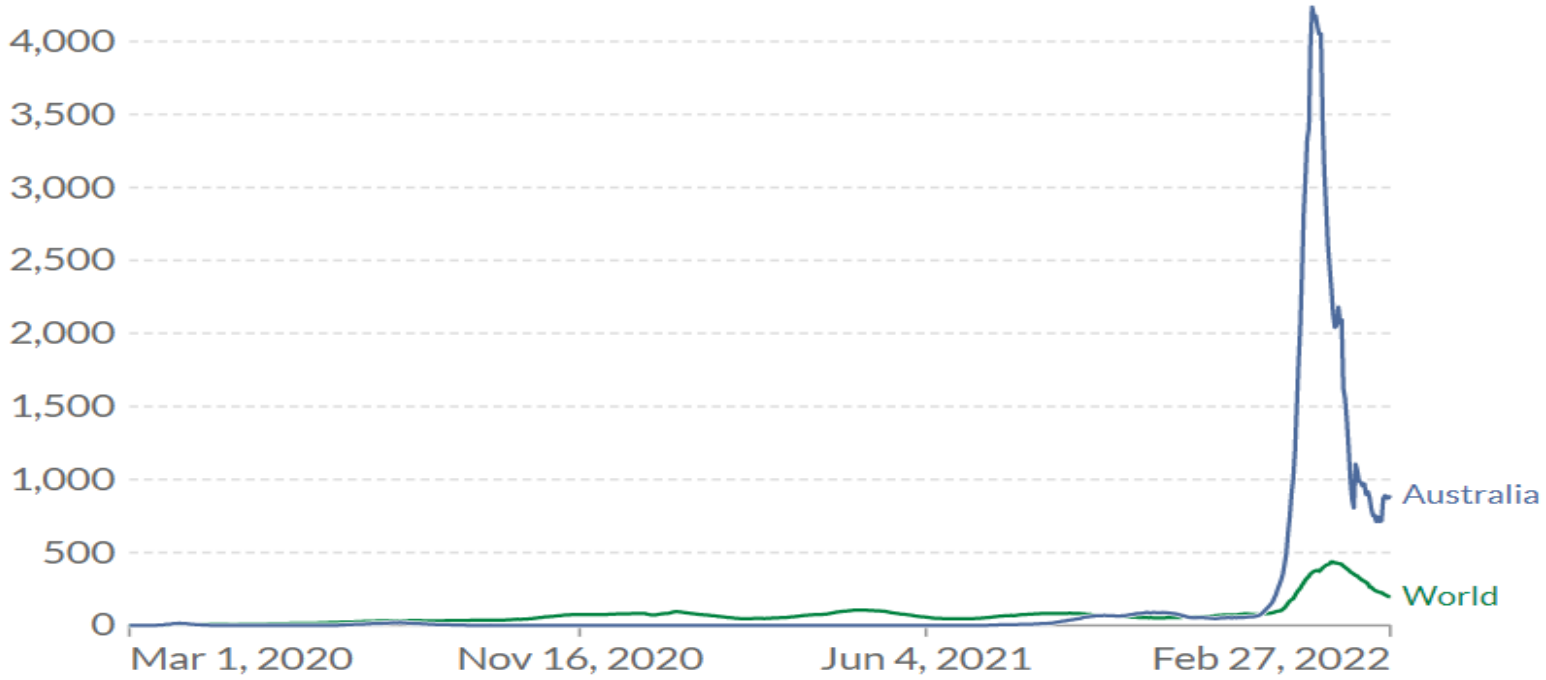
Daily new confirmed COVID-19 cases per million people

Our World in Data

7-day rolling average. Due to limited testing, the number of confirmed cases is lower than the true number of infections.

LINEAR | LOG



Source: Johns Hopkins University CSSE COVID-19 Data

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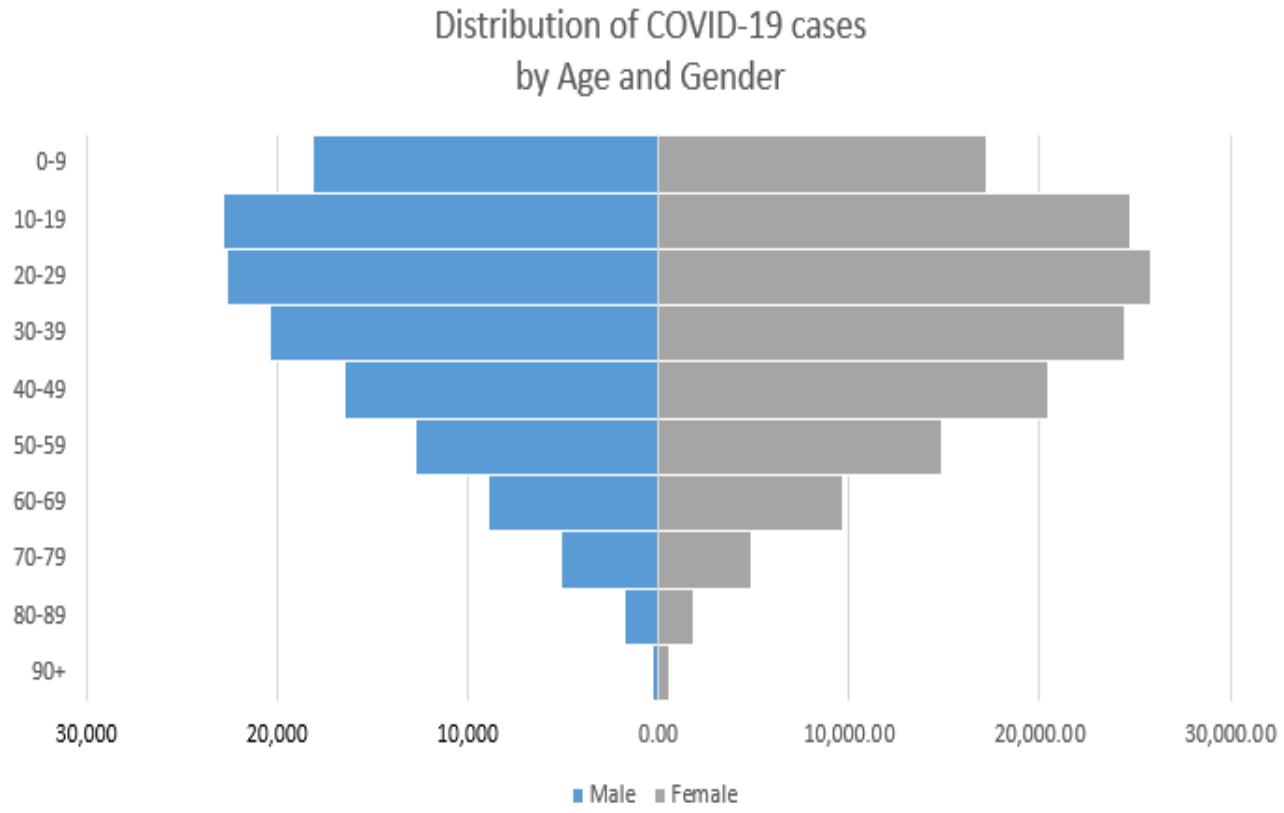
HNE Covid cases age distribution to 5 June

Distribution of COVID-19 cases from 06/12/2021-05/06/2022 (since emergence of Omicron as the dominate variant in HNELHD) by 10 year age groups & gender



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THE TEXAS TRIBUNE

CORONAVIRUS IN TEXAS

Texas has seen nearly 9,000 COVID-19 deaths since February. All but 43 were unvaccinated people.

> Preliminary data shows 99.5% of COVID-related deaths in Texas were among unvaccinated people, according to the Department of State Health Services.

BY **COLLEEN DEGUZMAN** JULY 21, 2021 UPDATED: JULY 23, 2021

5 antivax radio hosts dead from Covid in US

Dangerous transmissions: anti-vax radio shows reach millions in US while stars die of Covid

Media watchdogs suggest that some basic level of responsibility to the public should be required to keep a broadcast license

▲ Phil Valentine died of Covid after mocking the vaccines. Photograph: Larry McCormack/AP

Phil Valentine, a prominent Tennessee rightwing talk radio host, had released a song called Vaxman, an anti-Covid vaccination ditty based on the Beatles track Taxman.

Marc Bernier, a host in Daytona Beach, Florida, had declared himself "Mr Anti-Vax". Dick Farrel, also from Florida, urged his listeners not to get vaccinated, and Jimmy DeYoung asked on air whether the vaccine could be a "form of government control of the people".

All four men died in August of coronavirus. A fifth conservative radio host, Bob Enyart, died on 13 September, weeks after he told his listeners to boycott vaccines that were "immorally developed".

Dangerous transmissions: anti-vax radio shows reach millions in US while stars die of Covid | US news | The Guardian

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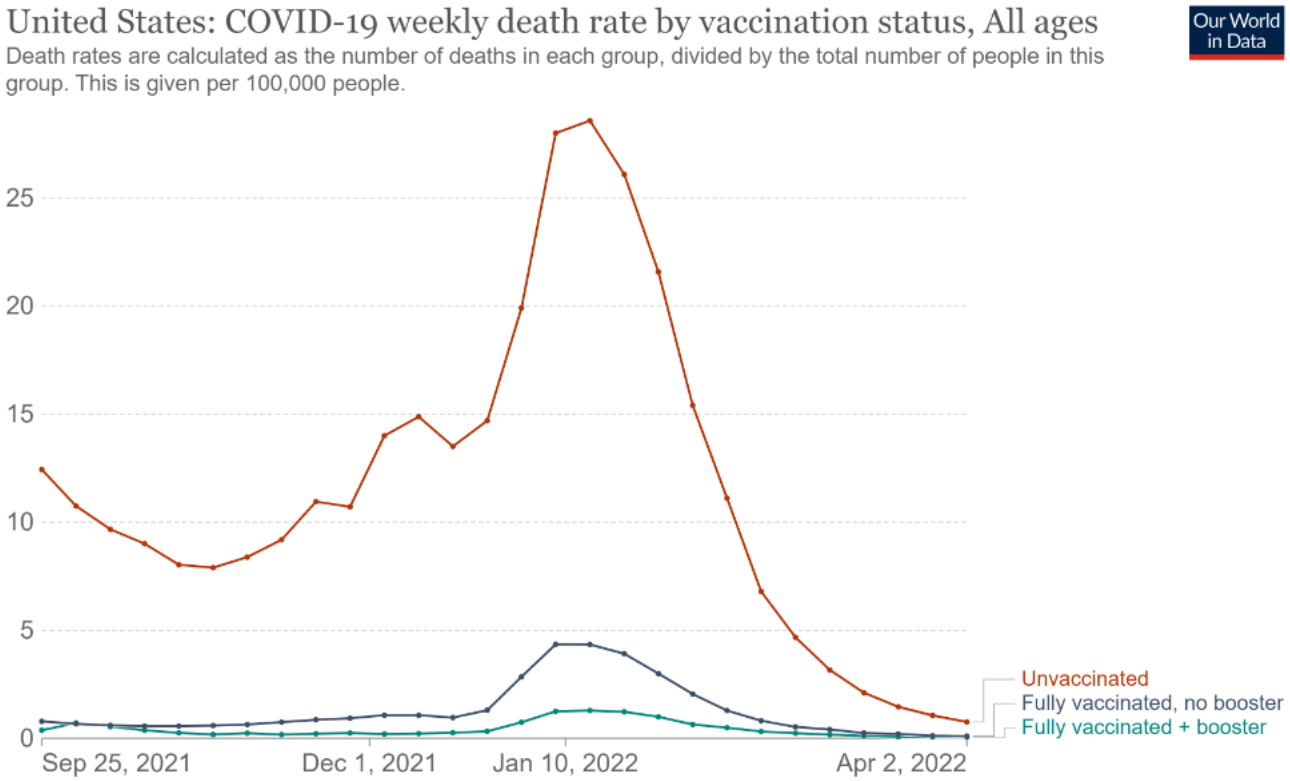

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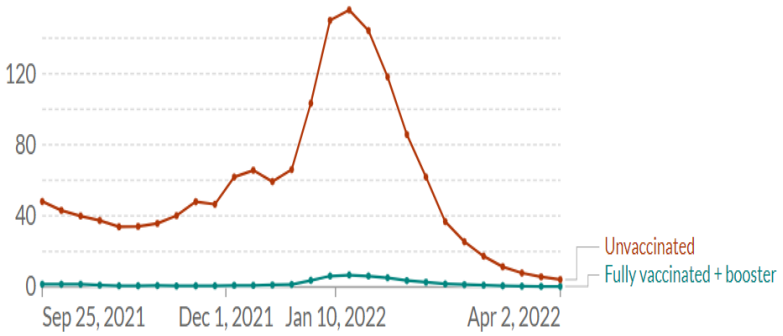
United States: COVID-19 weekly death rate by vaccination status, 65+

Our World in Data

Death rates are calculated as the number of deaths in each group, divided by the total number of people in this group. This is given per 100,000 people.

LINEAR LOG Change age group



Source: CDC COVID-19 Response, Epidemiology Task Force OurWorldInData.org/coronavirus • CC BY
Note: Unvaccinated people have not received any dose. Partially-vaccinated people are excluded. Fully-vaccinated people have received all doses prescribed by the initial vaccination protocol. The mortality rate for the 'All ages' group is age-standardized to account for the different vaccination rates of older and younger people.

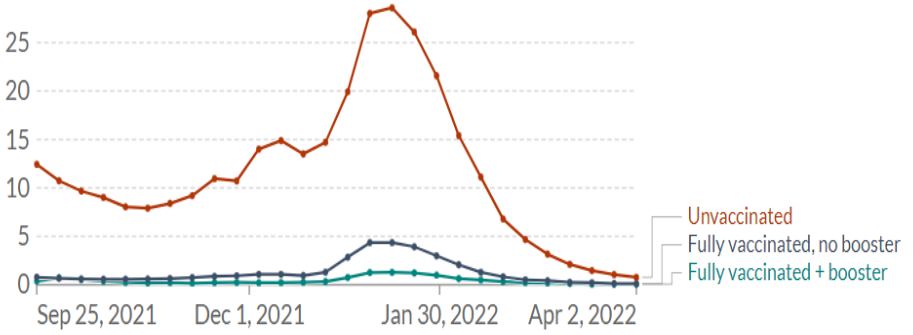
Sep 25, 2021 Apr 2, 2022

United States: COVID-19 weekly death rate by vaccination status, All ages

Our World in Data

Death rates are calculated as the number of deaths in each group, divided by the total number of people in this group. This is given per 100,000 people.

LINEAR LOG Change age group



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Sep 25, 2021 Apr 2, 2022

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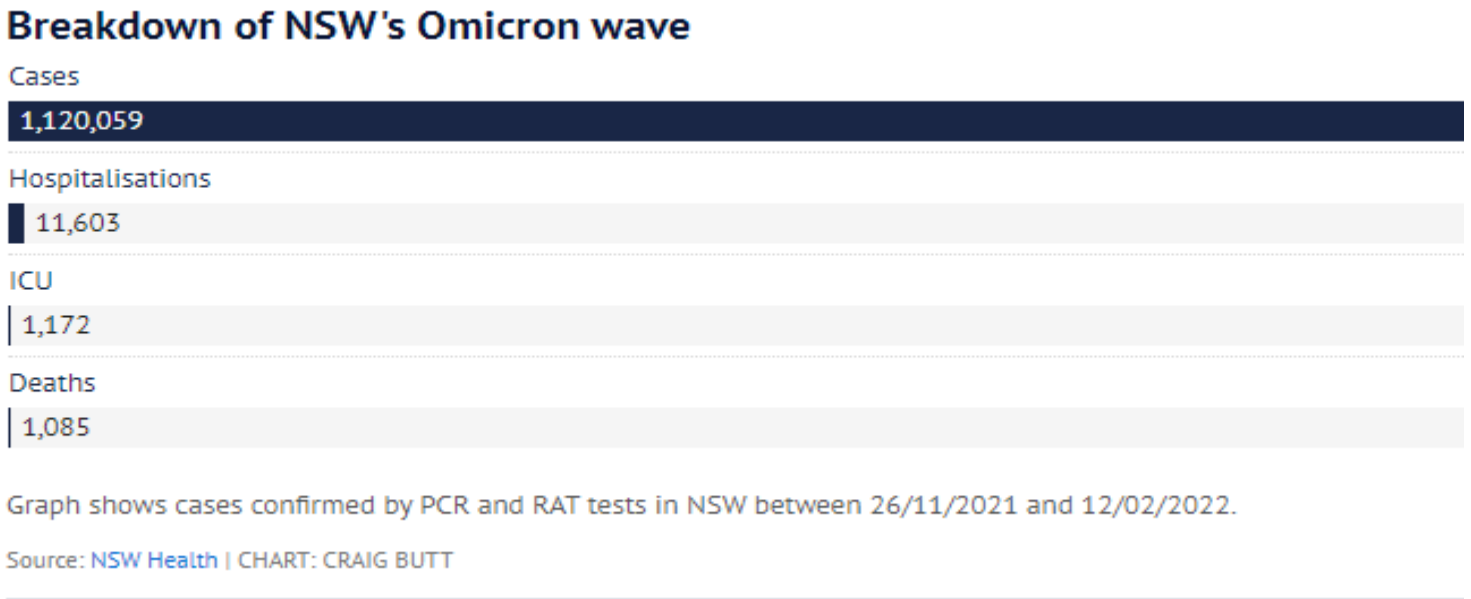
NSW Covid

- Between November 26 last year and February 12, about one in seven people in NSW tested positive for the virus, or 1.1 million people.



- Death rate est 1:3,000(Delta death rate 1:128)

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The Sydney Morning Herald

By **Mary Ward** and **Lucy Carroll**

February 24, 2022 — 11.30am

Data reported by the *Herald* earlier this week showed only one in five people in their 20s who were eligible for a booster dose had received one, although significant numbers only became eligible this week. The age group has had the highest rate of infection since December.

Two COVID cases led to 295 infections within the walls of Argyle House nightclub in Newcastle. DARREN PATEMAN

> Hunter New England Local Health District health protection director Professor David Durrheim said evidence from Britain and South Africa indicated that, while two doses of a COVID-19 vaccine provided "moderate" protection against hospitalisation with Omicron, vaccine protection clearly waned after two to three months.

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Case outcome comparison – delta vs omicron

Hunter New England	18 July 2021 - 07 Dec 2021 (Delta variant)	08 Dec 2021 - 15 Feb 2022 (Omicron variant)
Total cases	4,405	95,464
Hospitalised*	493 (11.2%)	1,785 (1.9%)
Admitted to ICU*	45 (10.2/1,000)	89 (0.9/1,000)
Deaths*	16 (3.6/1,000)	83 (0.9/1,000)

** Note, these categories are not mutually exclusive. Hospitalised includes cases admitted to ICU; deaths may occur with or without being admitted to hospital or ICU.*

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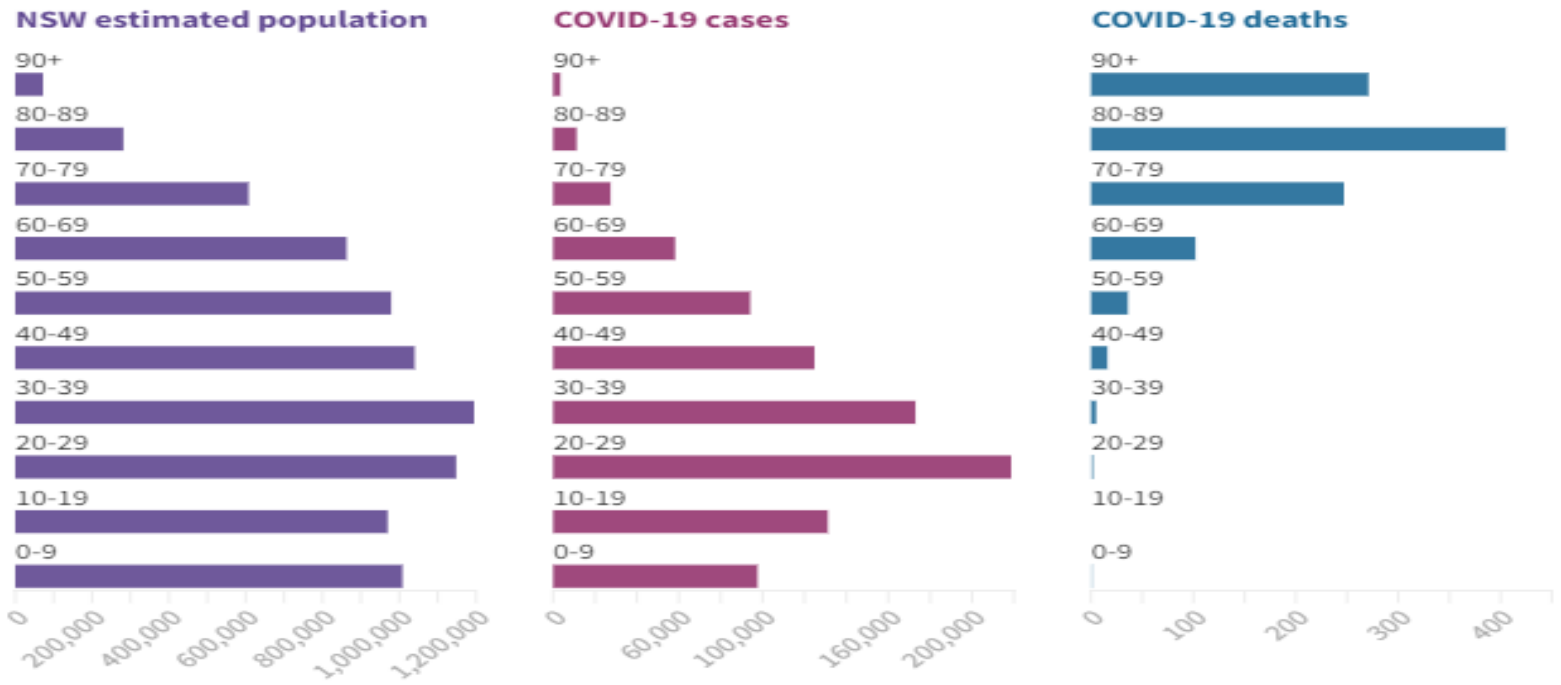
COVID-19 cases and deaths by age group during NSW's Omicron wave



Source: NSW Health, Australian Bureau of Statistics • COVID-19 case and death numbers are from 26/11/21 to 12/02/22.

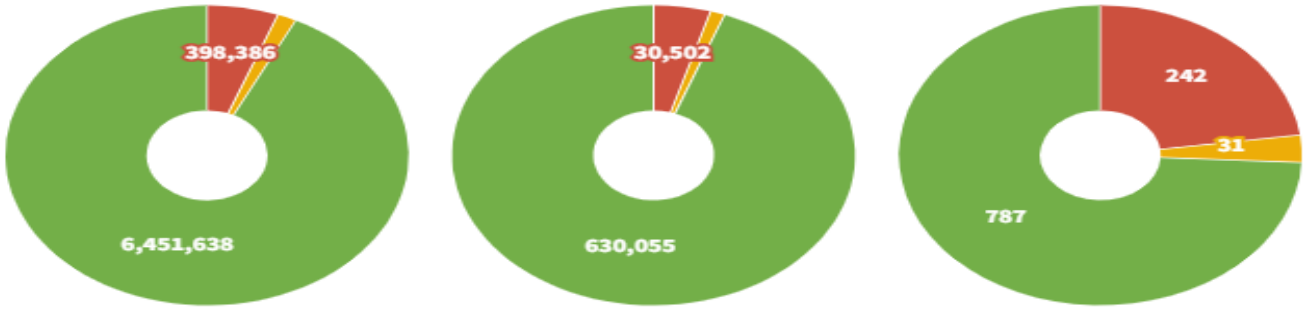
A Flourish chart

[Australia COVID: How many people are still dying? Is vaccination making a difference? (smh.com.au)]

Omicron wave cases and deaths by vaccination status in NSW

COVID-19 vaccination status No doses One dose Two or three doses

Estimated Population (12+)*	COVID-19 cases (10+)	COVID-19 deaths (10+)



Sources: NSW Health, Department of Health • COVID-19 cases and death numbers are from 26/11/21 to 12/02/2022. The vaccinated 12+ vaccinated population estimates are from January 4, around the midpoint of this time period. COVID-19 cases for which the vaccination status or age bracket was not known have been excluded from the graph.

- Unvaccinated 4.6% cases
- Unvaccinated 22.8% deaths
- Vaccinated 1:800 chance of dying
- Unvaccinated 1:126 chance of dying

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NSW Covid Hospitalisations, ICU & Deaths

Table 1. Number of people with a COVID-19 diagnosis in the previous 14 days who were admitted to hospital, admitted to ICU or reported as having died in the week ending 28 May 2022

	Admitted to hospital (but not to ICU)	Admitted to ICU	Deaths
Gender			
Female	247	12	44
Male	227	29	54
Age group (years)			
0-9	35	1	1
10-19	10	0	0
20-29	27	1	0
30-39	36	3	0
40-49	24	2	0
50-59	32	8	1
60-69	57	6	10
70-79	93	11	18
80-89	114	8	35
90+	46	1	33

There were 98 COVID-19 deaths reported this week. Of these, 97 were eligible for a third dose of a COVID-19 vaccine but only 64 (66%) had received a third dose. Five of the deaths reported were in people aged under 65 years

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UNITED STATES STUDIES CENTRE

17 May 2022

BEFORE YOU SAY, 'I TOLD YOU SO' TO THE UNVACCINATED

Victoria Cooper
Research Associate, United States Studies Centre

Older age remains the strongest determinant contributing to severe COVID-19 illness and death. The risk of death is 10 times higher for those who are unvaccinated, but for those over 65 years old, the risk is 97 times higher. Currently, 91 per cent of this cohort is vaccinated, and yet they still comprise over 81 per cent of COVID deaths

THE 'PANDEMIC OF THE UNVACCINATED', IS ACTUALLY A PANDEMIC OF THE VULNERABLE – NAMELY, THE OLD, SICK AND POOR

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Variants of concern

Table 3. Variants of concern (VOCs) identified by whole genome sequencing (WGS) of virus from people who tested positive for SARS CoV-2 by PCR, by test date, NSW, in the four weeks to 28 May 2022

Variant	Week ending			
	07 May	14 May	21 May	28 May
Omicron (BA.1)	2	4	4	1
Omicron (BA.2)	549	507	350	75
Omicron (BA.2.12.1)	17	26	36	10
Omicron (BA.3)	0	0	1	0
Omicron (BA.4)	9	7	22	9
Omicron (BA.5)	11	7	44	16
Recombinant BA.1/BA.2 (XE)*	0	0	0	1
Recombinant BA.1/BA.2 (unclassified)*	1	0	0	0
Total	589	551	457	112

* Recombinant virus sequences occur when two separate virus strains merge, forming a new, single strain that contains genomic regions of both co-infecting strains.

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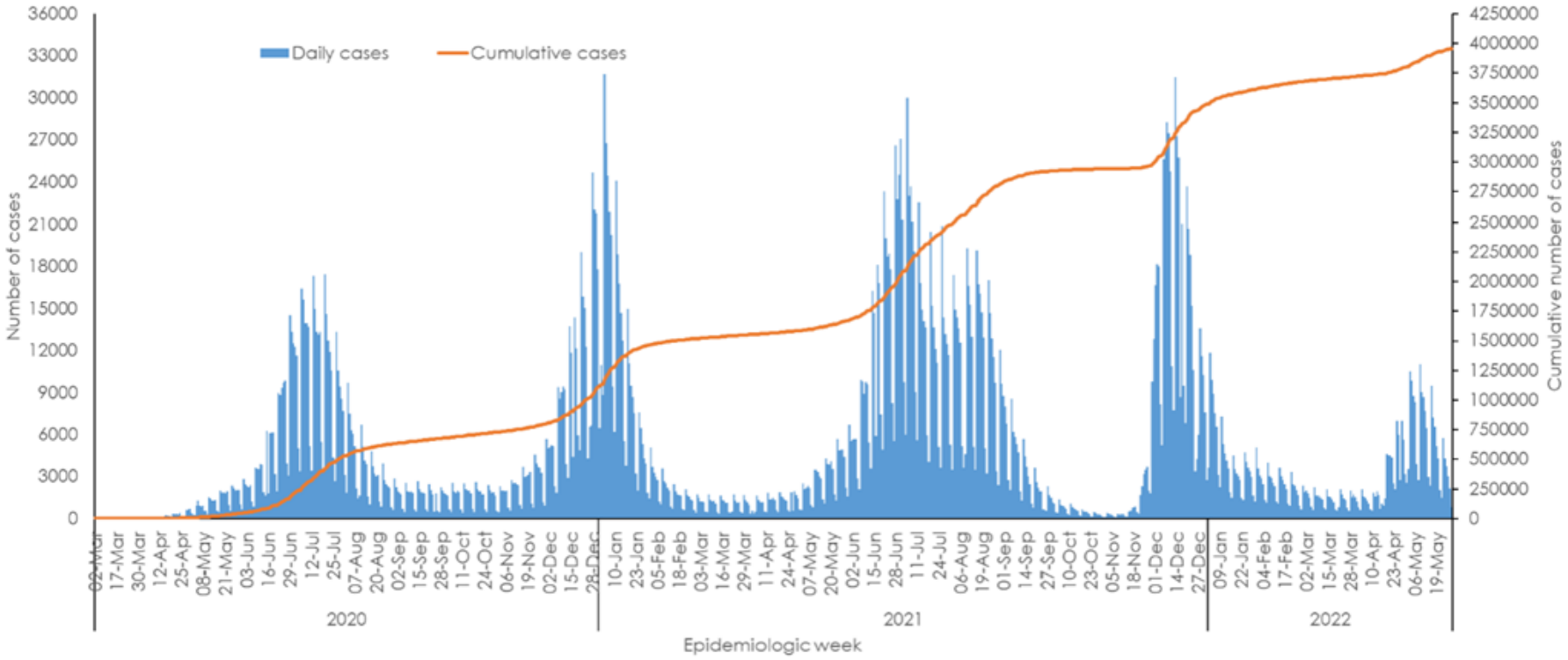
South Africa – Daily cases falling May 22

National and provincial trends of COVID-19 cases in South Africa



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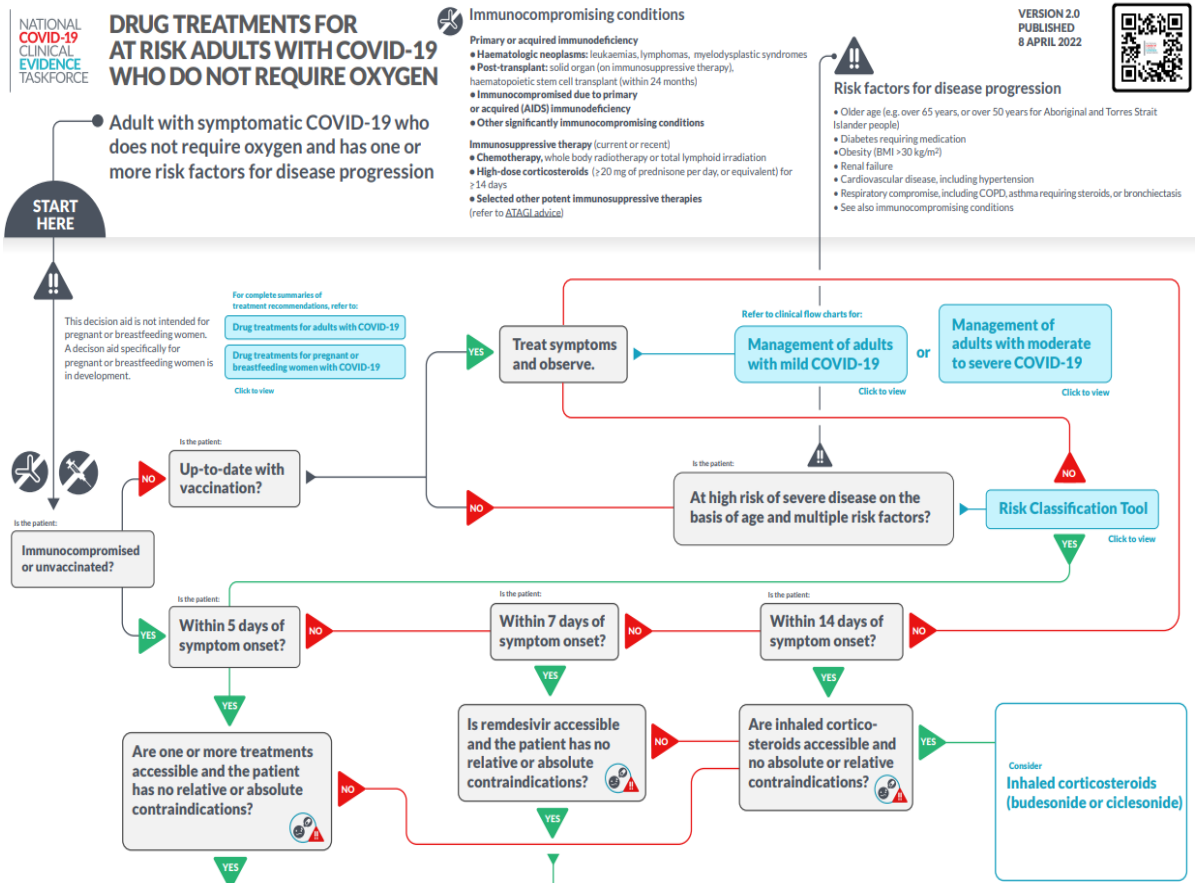
COVID-19 - Community HealthPathways Hunter New England

sotrovimab contact CCiC ^.

COVID Care in the Community (CCiC)

- For clinical advice contact the CCiC GP VMO:
  - phone **(02) 4923-6195** from 8.00 am to 4.30 pm, 7 days a week (**clinician-only phone number – do not give to patients**), or
  - email after-hours HNELHD COVIDCommunityDoctors@health.nsw.gov.au
- To refer patients with very high risk factors for hospitalisation v, or pregnant patients and those trying to conceive with clinical indications for sotrovimab v*:
  - refer via SeNT e-referral (preferred).
  - email HNELHD-GreaterNewcastleHITHCOVID@health.nsw.gov.au (use subject line: Escalation Referral).



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Vaccination Summary as of Sunday 5th June 2022 – End Week 67

SENSITIVE: NSW CABINET

Vaccinations by NSW Health

Total Number of Vaccines Administered (YTD)

Dose 1	Dose 2	Dose 3	Dose 4	Total
2,315,368	2,022,931	733,635	18,684	5,090,618

Total NSW Population Vaccination Rates

Dose 1	Dose 2	Dose 3 (16+ population)
86.7 %	84.1 %	63.8%

Vaccination Rates

	5 –11 years of age	12-15 years of age	16+ population
Dose 1	49.9%	82.9%	>95%
Dose 2	37.7%	79.2%	95.0%
Dose 3*	n/a	n/a	67.5%

Aboriginal 16+ population

Dose 1	Dose 2	Dose 3 *
87.3%	85.2%	49.4%

* 16+ years of age who received Dose 2 at least 3 months ago.

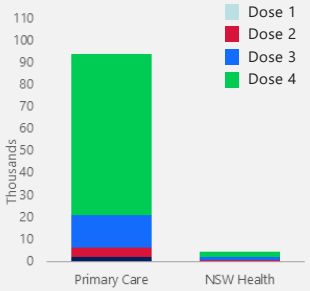
Note: A decrease in rates for the 5-11 and 12-16 age groups are due to unvaccinated children move to the next age bracket.

★ 16+ years of age who are immunocompromised and 65+ years of age who received Dose 3 at least 4 months ago

Weekly Vaccinations

NSW Health	4,225
Primary Care	93,246
Total	**97,471**

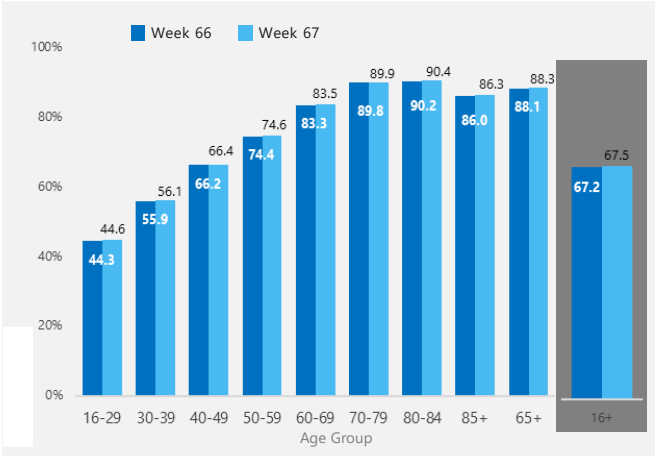
Weekly Total Breakdown

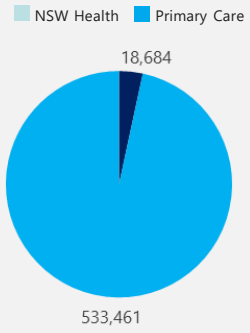


Supply Metrics

Total Administered

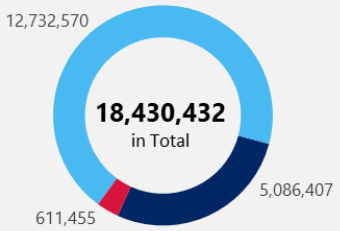
Pfizer	4,589,301
AstraZeneca	274,982
Moderna	71,337
Paediatric Pfizer	154,276
Novavax	722
Total	5,090,618

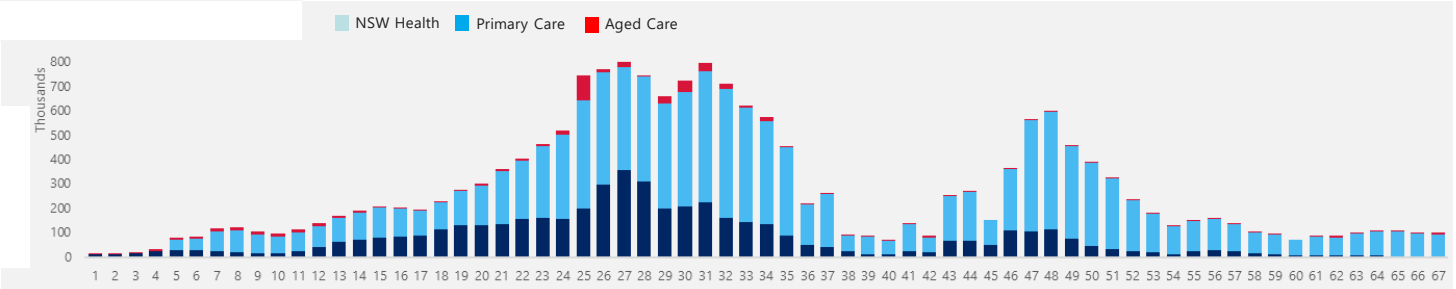




74,731 Winter Booster Dose 4 vaccinations administered in week 66

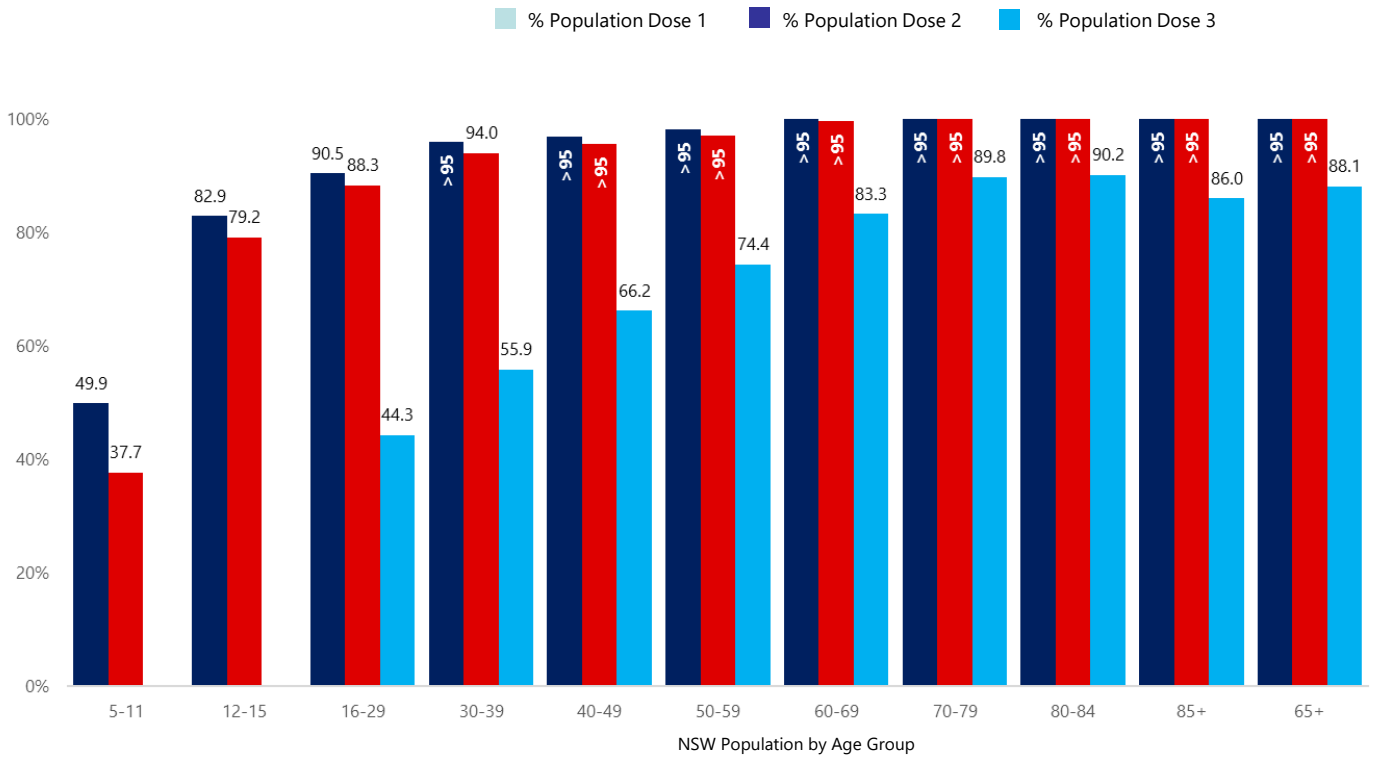
Total NSW Winter Booster / Dose 4: **552,145**

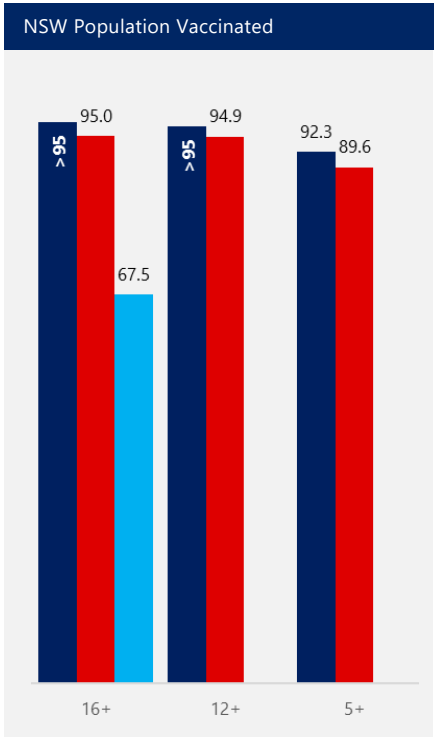




Vaccination Summary as of Sunday 5th June 2022 – End Week 67

NSW Population Vaccinated by Age Group





Source: Australian Immunisation Register (AIR) COVID Enterprise Data Warehouse. Data extracted 5th June 2022.
Note: % Population Dose 3 rates are calculated against the total NSW population for each age group.

Covid vaccine intervals

- No Interval between vaccine & influenza vaccine can be given same visit.
- 8 weeks between first 2 Covid doses.
- 3 Months from Covid disease to next dose
- 4 Months from Covid vaccine to next Booster dose.

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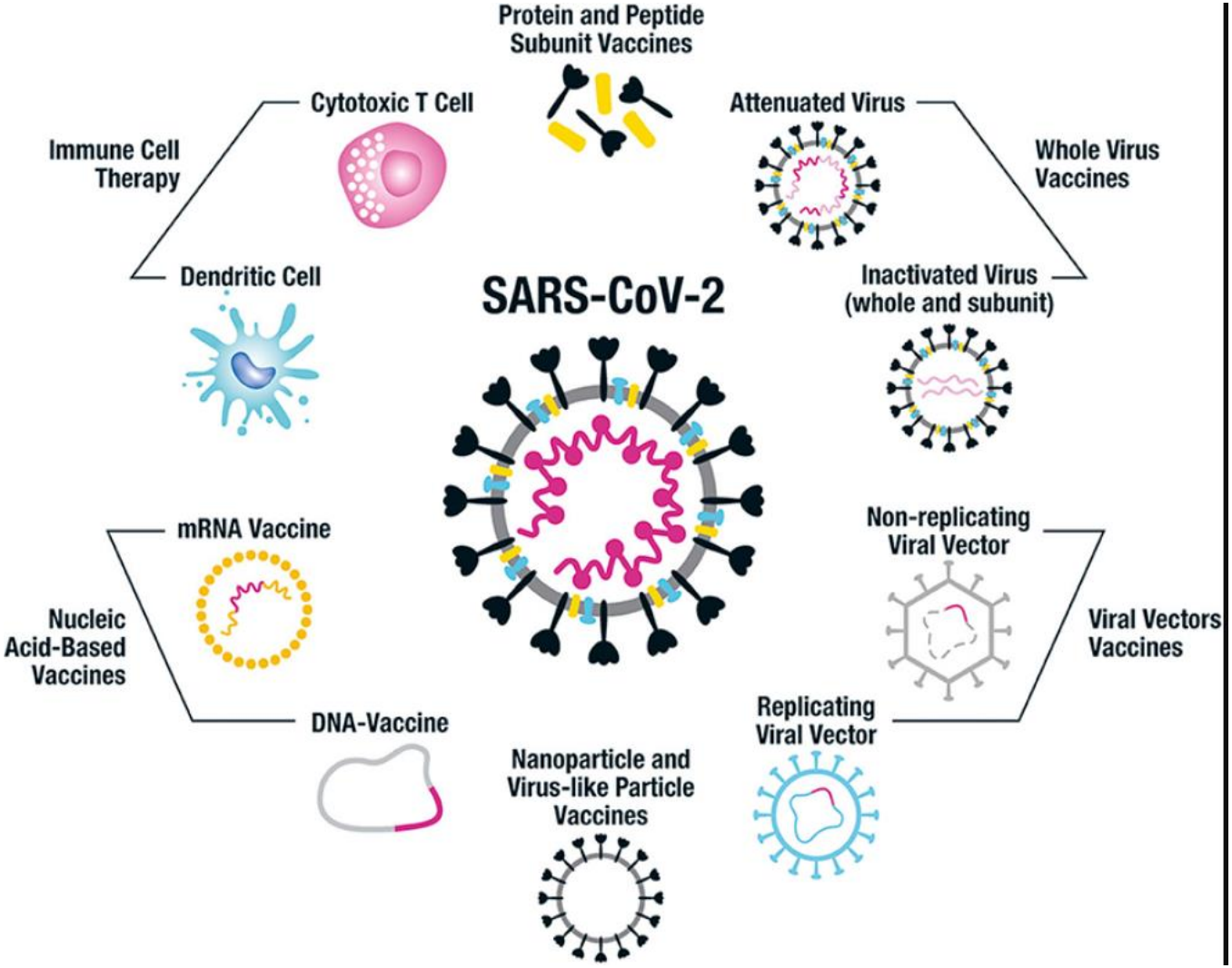
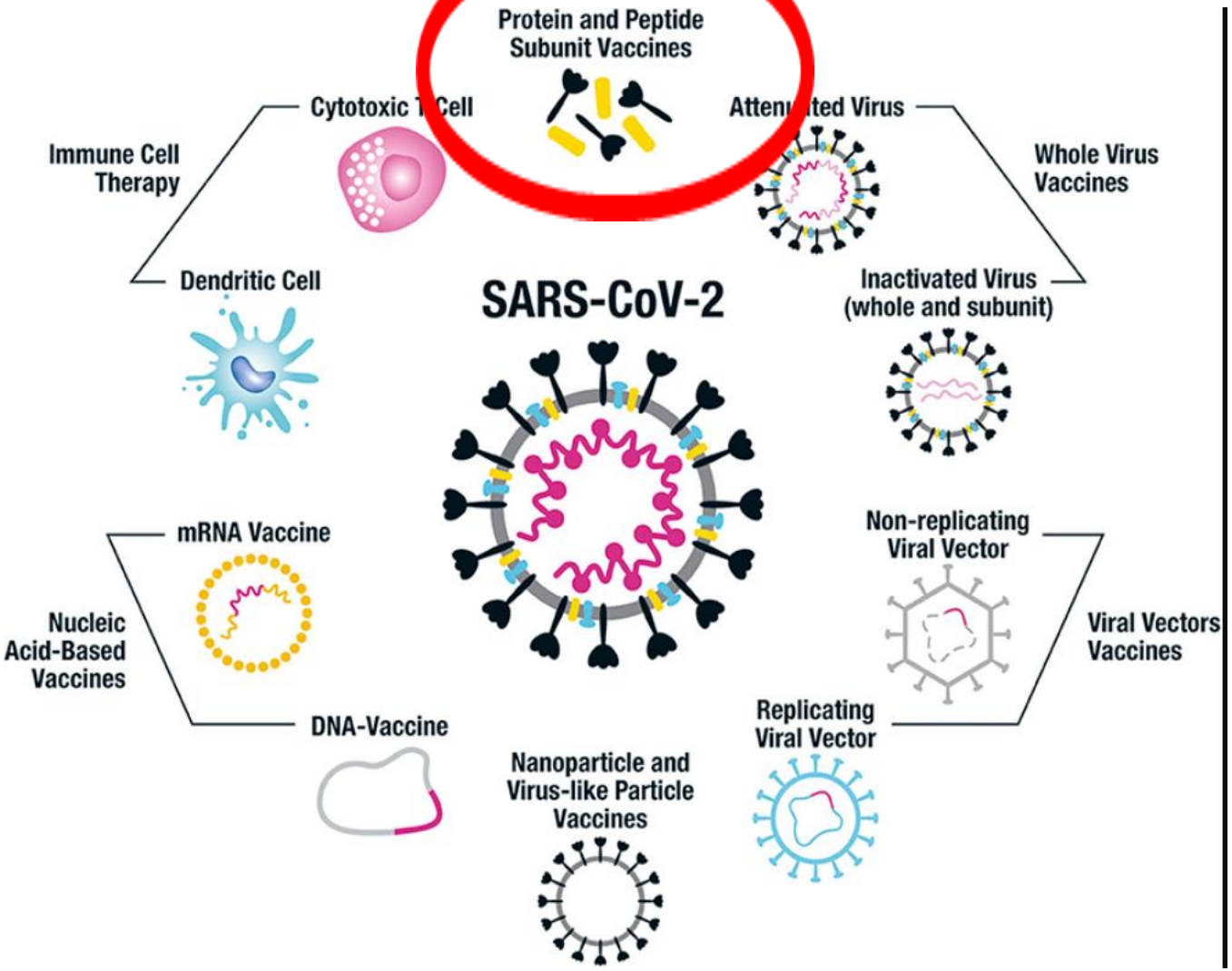
Vaccine platforms being employed for SARS-CoV-2 vaccine design



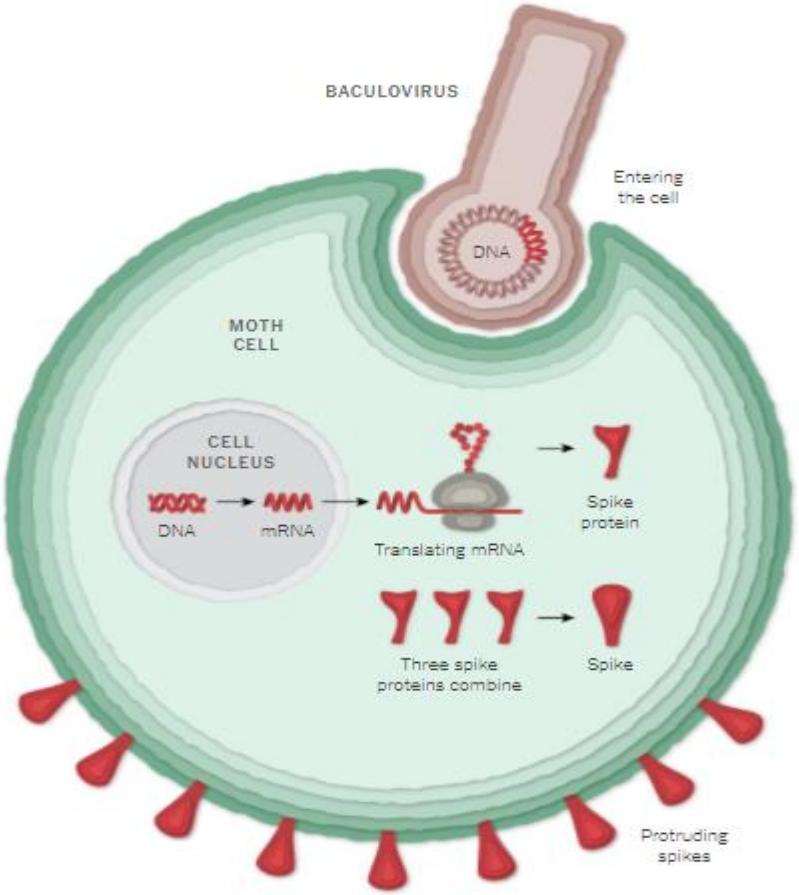
Flanagan KL, Best E, Crawford NW, Giles M, Koirala A, Macartney K, Russell F, Teh BW and Wen SCH (2020) Progress and Pitfalls in the Quest for Effective SARS-CoV-2 (COVID-19) Vaccines. Front. Immunol. 11:579250. doi: 10.3389/fimmu.2020.579250

Vaccine platforms being employed for SARS-CoV-2 vaccine design

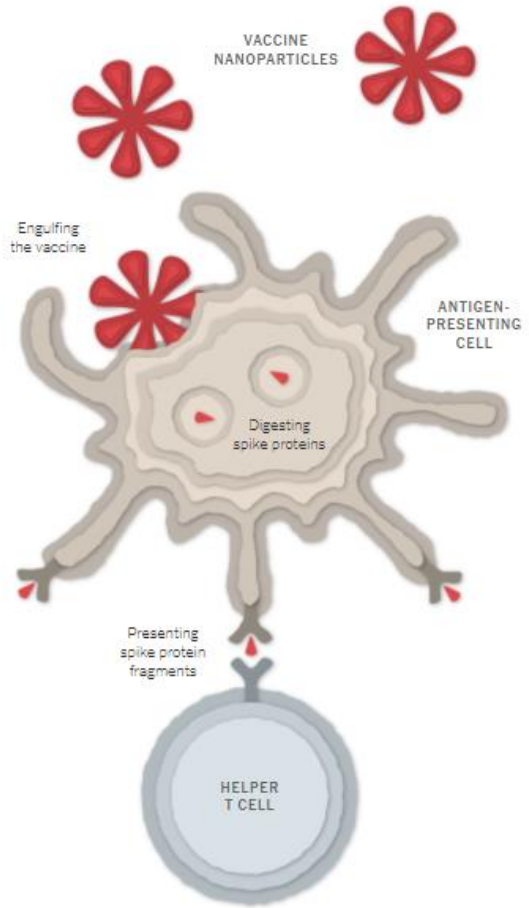


Novavax

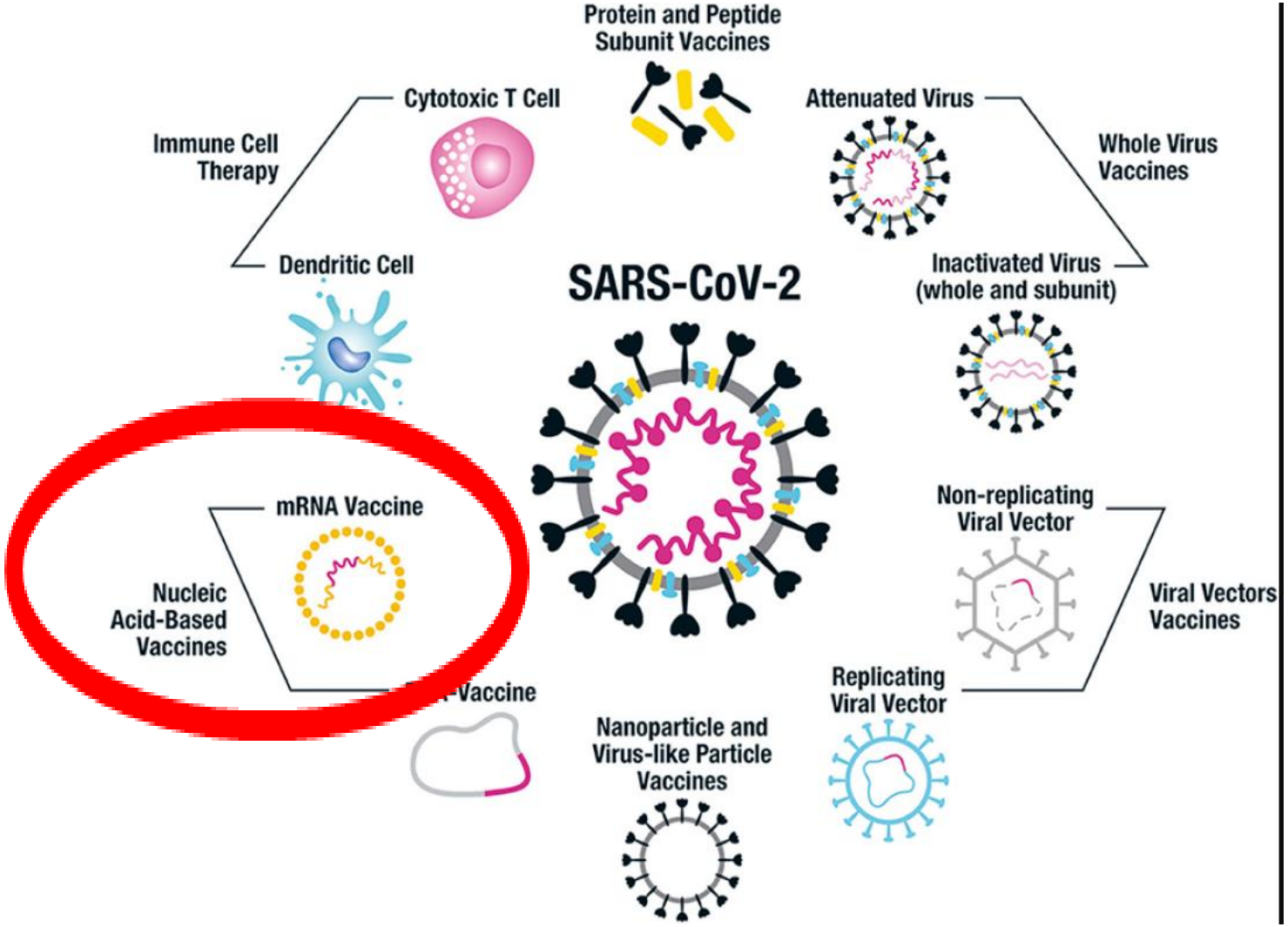
Similar to HPV vaccine – harvesting viral proteins



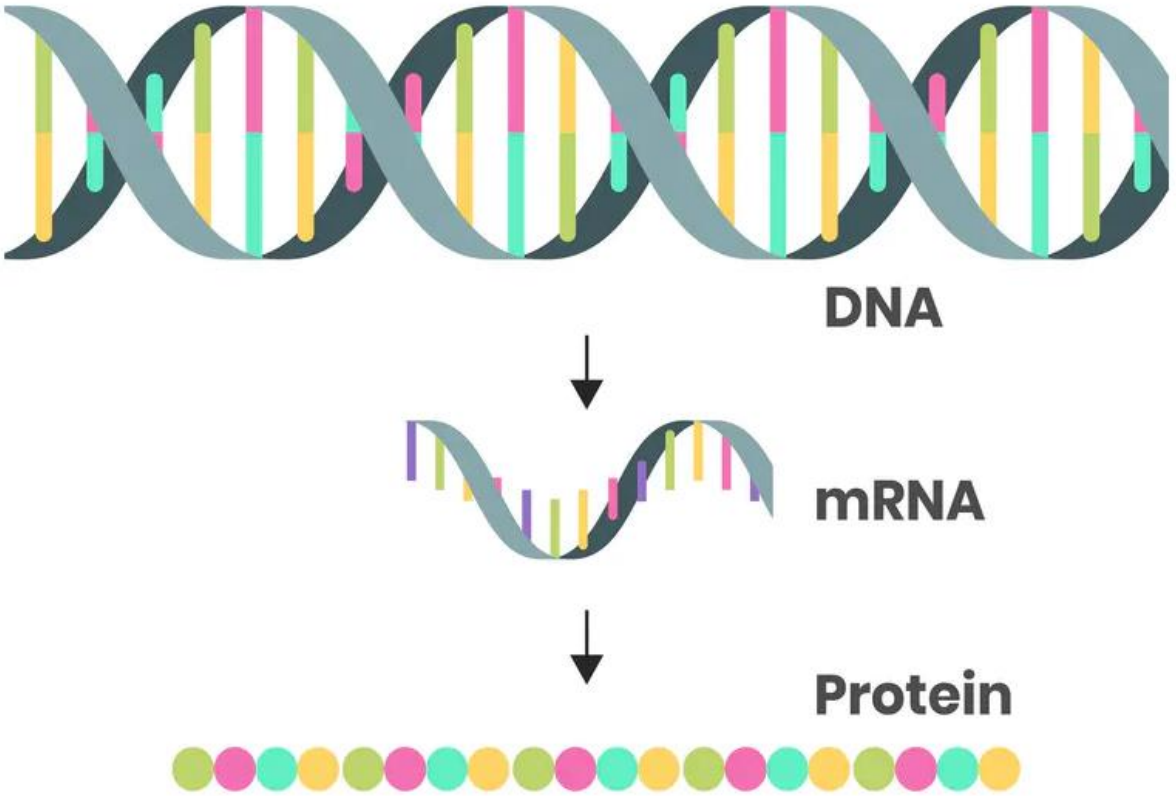
Novavax


VACCINE
NANOPARTICLES
Engulfing
the vaccine
ANTIGEN-
PRESENTING
CELL
Digesting
spike proteins
Presenting
spike protein
fragments
HELPER
T CELL

Vaccine platforms being employed for SARS-CoV-2 vaccine design



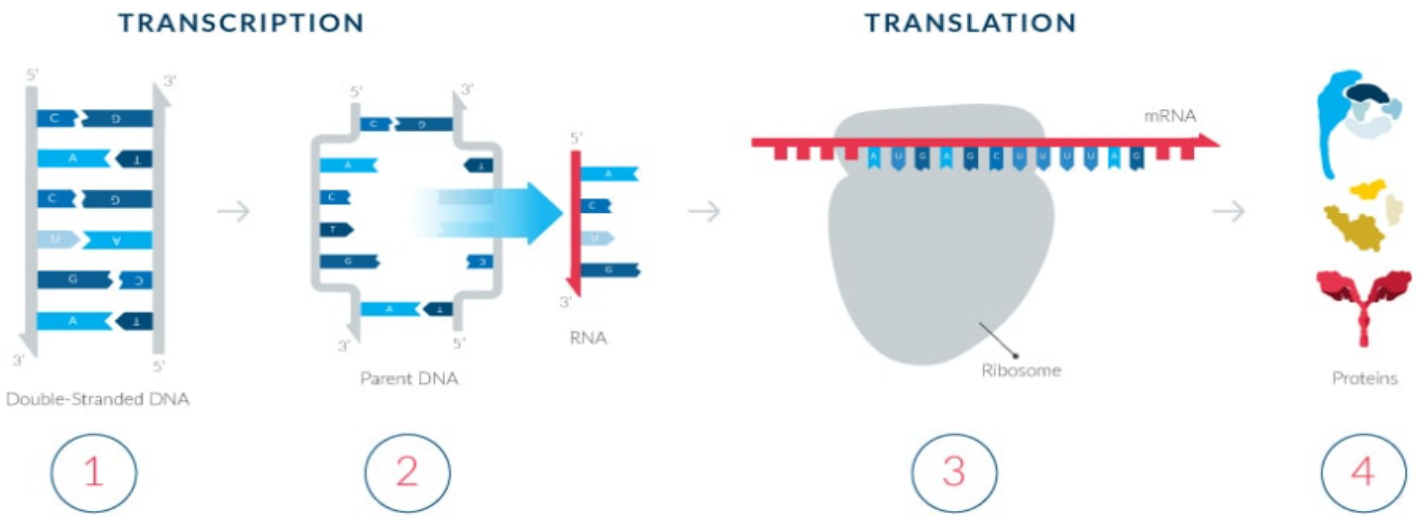
mRNA



The double-stranded DNA sequence is transcribed into an mRNA code so the instructions can be translated into proteins. AlkowiStock via Getty Images Plus

mRNA - Moderna

mRNA's role in protein synthesis



1 Through a process known as transcription, an RNA copy of a DNA sequence for creating a given protein is made.

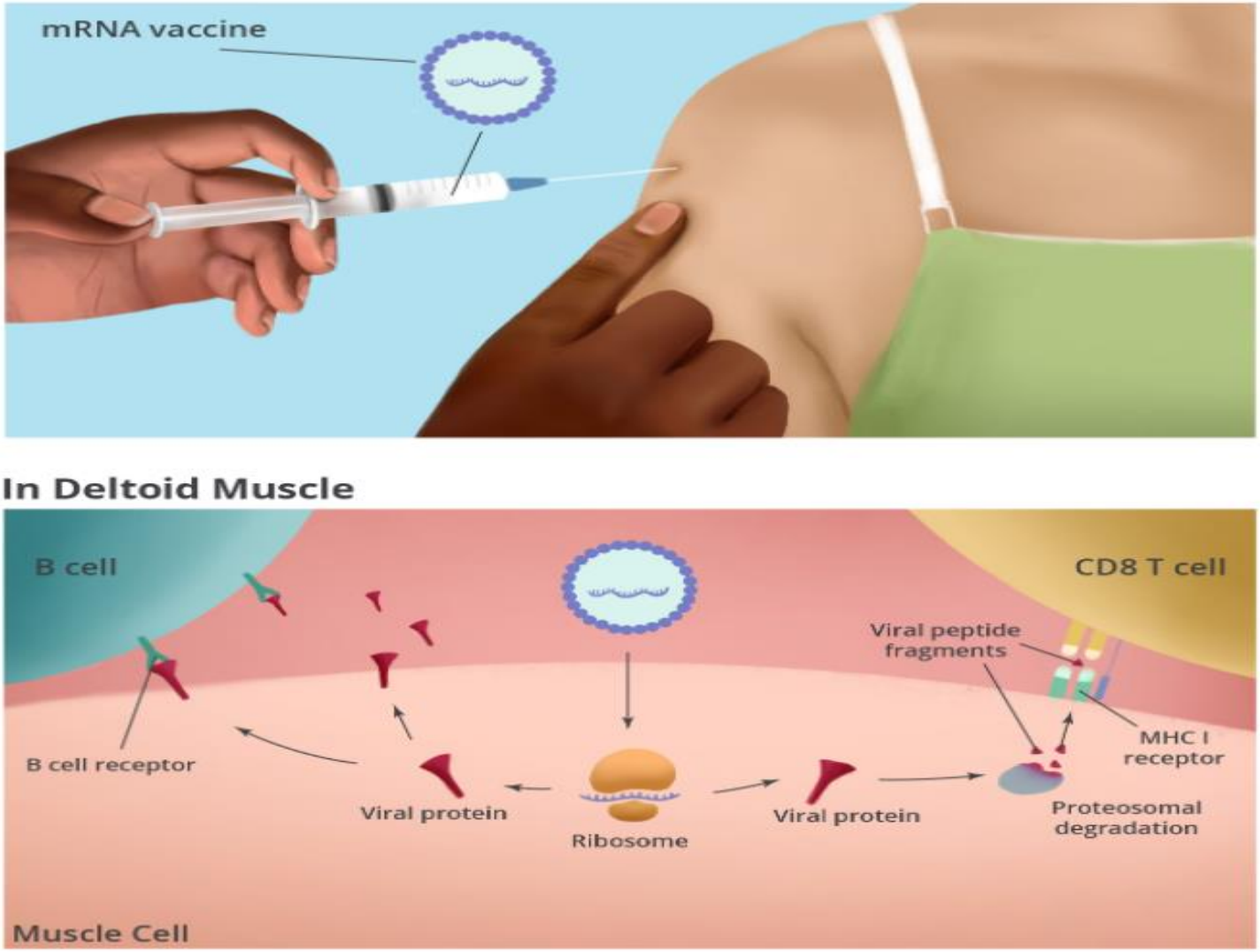
2 This copy – mRNA – travels from the nucleus of the cell to the part of the cell known as the cytoplasm, which houses ribosomes. Ribosomes are complex machinery in the cells that are responsible for making proteins.

3 Then, through another process known as translation, ribosomes 'read' the mRNA, and follow the instructions, creating the protein step by step.

4 The cell then expresses the protein and it, in turn, carries out its designated function in the cell or the body.

NSW GOVERNMENT

mRNA vaccine



[mRNA Vaccines for COVID-19 – How Do They Work? (ebsco.com)]

Ingredients mRNA vaccines

What's in the Pfizer jab?

- Nucleoside-modified messenger RNA — **active ingredient**
- ((4-hydroxybutyl)azanediyl)bis(hexane-6,1-diyl) bis(2-hexyldecanoate) (ALC-0315) — **lipid casing**
- 2-[(polyethylene glycol)-2000]-N,N-ditetradecylacetamide (ALC-0159) — **lipid casing**
- Distearoylphosphatidylcholine (DSPC) — **lipid casing**
- Cholesterol — **lipid casing**
- Potassium chloride — **salt**
- Monobasic potassium phosphate — **salt**
- Sodium chloride — **salt**
- Dibasic sodium phosphate dihydrate — **salt**
- Sucrose — **sugar**
- Water for injections

mRNA – Moderna's also uses mRNA technology to build antibodies against COVID-19.

Lipids

SM-102
1,2-dimyristoyl-rac-glycero3-methoxypolyethylene glycol-2000 [PEG2000-DMG]
cholesterol
1,2-distearoyl-snglycero-3-phosphocholine [DSPC]

Acids

Acetic acid

Acid Stabilizers

Tromethamine & Tromethamine hydrochloride

Salts

Sodium acetate

Sugar

Sucrose

NSW GOVERNMENT

Molecular Therapy
Nucleic Acids
Original Article

Treatment of Hemophilia A Using Factor VIII Messenger RNA Lipid Nanoparticles

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Hemophilia A (HemA) patients are currently treated with costly and inconvenient replacement therapy of short-lived factor VIII (FVIII) protein. Development of lipid nanoparticle (LNP)-encapsulated mRNA encoding FVIII can change this paradigm. LNP technology constitutes a biocompatible and scalable system to efficiently package and deliver mRNA to the target site. Mice intravenously infused with the luciferase mRNA LNPs showed luminescence signals predominantly in the liver 4 h after injection. Repeated injections of LNPs did not induce elevation of liver transaminases. We next injected LNPs carrying mRNAs encoding different variants of human FVIII (F8 LNPs) into HemA mice. A single injection of B domain-deleted F8 LNPs using different dosing regimens achieved a wide range of therapeutic activities rapidly, which can be beneficial for various usages in hemophilia treatment. The expression slowly declined yet remained above therapeutic levels up to 5–7 days post-injection. Furthermore, routine repeated injections of F8 LNPs in immunodeficient mice produced consistent expression of FVIII over time. In conclusion, F8 LNP treatment produced rapid and prolonged duration of FVIII expression that could be applied to prophylactic treatment and potentially various other treatment options. Our study showed potential for a safe and effective platform of new mRNA therapies for HemA.

An alternative for protein replacement therapy is to utilize gene therapy to introduce a functional FVIII gene into patients for longer-term FVIII expression, thus reducing the treatment frequency while also reducing risk of spontaneous bleeding events. However, the method of delivery needs careful consideration. For example, using viruses carrying genetic material increases the risk of oncogenic mutagenesis due to viral integration.[4–6] In addition, FVIII transgene expression needs to be achieved and maintained at therapeutic levels, and sensitive genotoxicity detection assays remain yet to be developed for clinical gene therapy. Furthermore, immune responses to viral vectors and transgenes precluded its application to a significant portion of HemA patients. To avoid these problems encountered by DNA delivery using viral vectors, messenger RNA (mRNA)-based genetic materials can be used to rescue insufficient FVIII expression in HemA patients.

The advantages of mRNA therapy include no risk of oncogenic mutagenesis and rapid protein expression, as mRNAs do not translocate to the nucleus and are instead processed via translation in the cytoplasm. Recently, it was shown that functional protein was efficiently produced by using a 5-methoxy-U-modified codon-optimized mRNA successfully delivered into specific sites.[7] For example, intradermal injections of modified mRNA encoding vascular endothelial growth factor A (VEGF-A) led to local functional VEGF-A protein expression and transient skin blood flow enhancement in

[Treatment of Hemophilia A Using Factor VIII Messenger RNA Lipid Nanoparticles (cell.com)]

Effectiveness of BNT162b2 Vaccine against Critical Covid-19 in Adolescents

Samantha M. Olson, M.P.H., Margaret M. Newhams, M.P.H., Natasha B. Halasa, M.D., Ashley M. Price, M.P.H., Julie A. Boom, M.D., Leila C. Sahni, Ph.D., M.P.H., Pia S. Pannaraj, M.D., M.P.H., Katherine Irby, M.D., Tracie C. Walker, M.D., Stephanie P. Schwartz, M.D., Aline B. Maddux, M.D., Elizabeth H. Mack, M.D., et al., for the Overcoming Covid-19 Investigators*

Vaccine Efficacy = How well vaccine works in trial
Vaccine Effectiveness = How well vaccine works in real world

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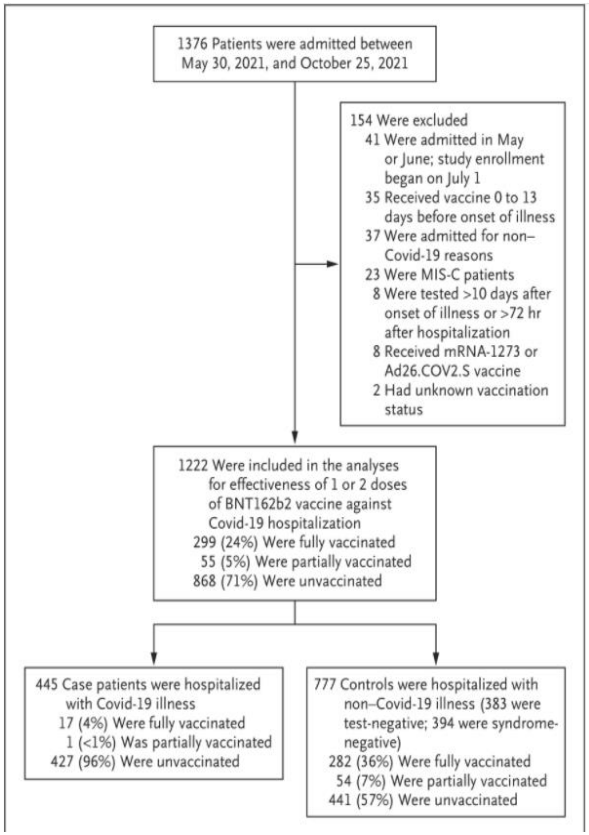
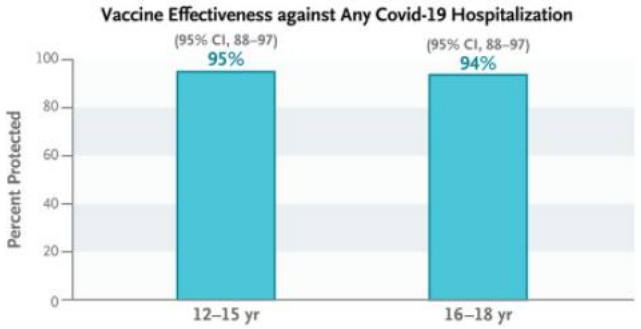
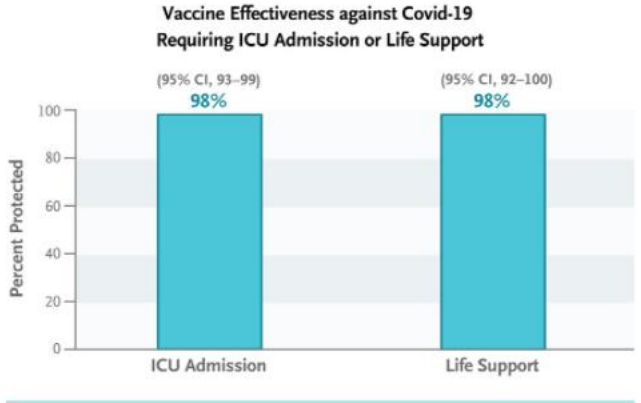


445 Case patients were hospitalized with Covid-19 illness
17 (4%) Were fully vaccinated
1 (<1%) Was partially vaccinated
427 (96%) Were unvaccinated

Figure 1. Study Enrollment and Outcomes (July 1–October 25, 2021).

Among the case patients between 12 and 18 years of age who were hospitalized with coronavirus disease





All 7 deaths occurred in patients who were unvaccinated.

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Protection against SARS-CoV-2 after Covid-19 Vaccination and Previous Infection

Victoria Hall, F.F.P.H., Sarah Foulkes, M.Sc., Ferdinando Insalata, M.Sc., Peter Kirwan, B.Sc., Ayoub Saei, Ph.D., Ana Atti, M.Sc., Edgar Wellington, M.Sc., Jameel Khawam, M.Sc., Katie Munro, M.Sc., Michelle Cole, D.B.M.S., Caio Tranquillini, M.D., Andrew Taylor-Kerr, M.P.P., et al., for the SIREN Study Group*

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35,768 participants

Between December 7, 2020, and September 21, 2021

Among previously uninfected participants who received BNT162b2 vaccine, adjusted vaccine effectiveness decreased from 85% 14 to 73 days after the second dose to 51% at a median of 201 days

Infection-acquired immunity waned after 1 year in unvaccinated participants but remained consistently higher than 90% in those who were subsequently vaccinated, even in persons infected more than 18 months previously.

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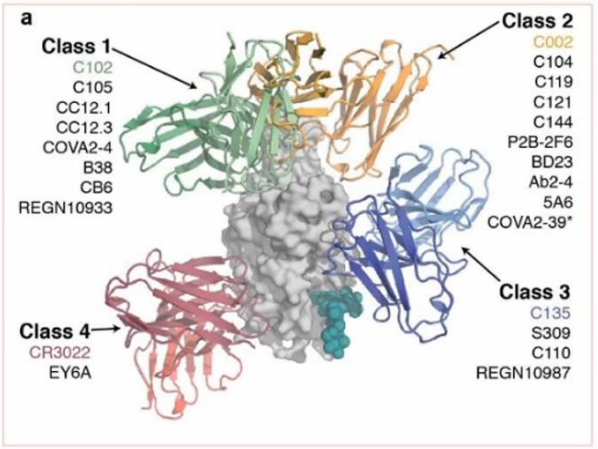
Need 3rd dose

Human mAbs to SARS-Cov-2: Multiple B cell targets



COVID-19 human neutralising antibodies in complex with the SARS-CoV-2 spike RBD

Classes 1 – 3 are neutralising; class 1 & 2 block ACE2 binding

Grey is Receptor Binding Domain

Multiple sites on the protein are targets for Ab

Not all sites are equally targeted – dominance of some and they may not be protective

Multiple B cells target the same site

The targets that provide immunity is unknown to the system - so use neutralising ones in vaccine, if known

A single aa change in the target can negate a class of Ab

Barnes et al. Nature 2020

Doherty Institute

A joint venture between The University of Melbourne and The Royal Melbourne Hospital

Institute for Infectious Diseases

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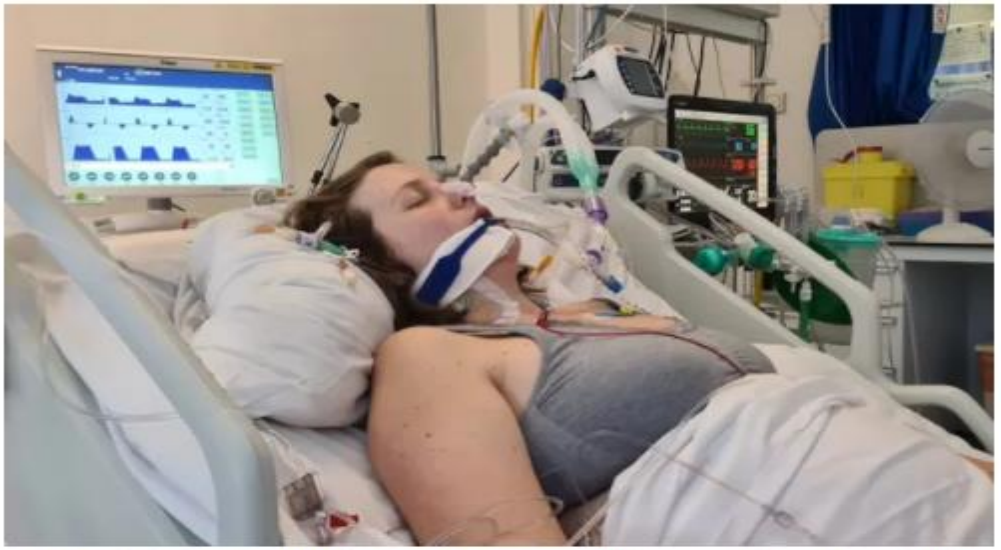
Search
The Guardian
For 200 years
Australian edition

One in six most critically ill NHS Covid patients are unvaccinated pregnant women

NHS England release statistics after evidence Covid can cause serious problems for mothers-to-be and their babies

- Coronavirus - latest updates
- See all our coronavirus coverage



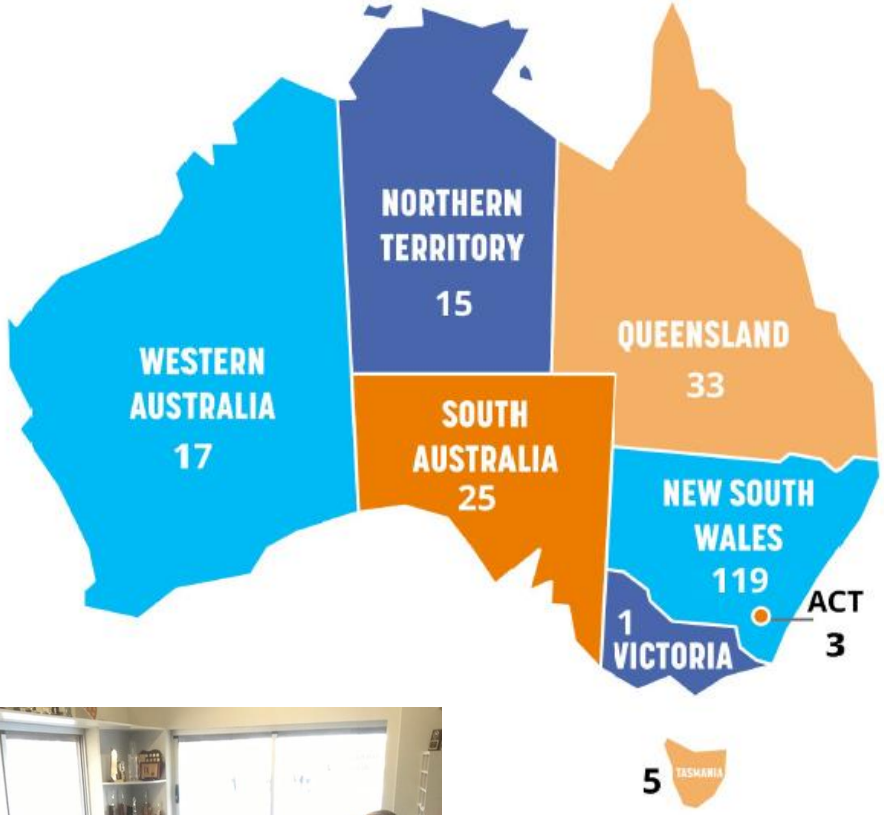
NHS England is keen to persuade pregnant women to get fully vaccinated to minimise health risks. Photograph: NHS England/PA

One in six Covid patients requiring the NHS's highest form of life-saving care are unvaccinated pregnant women, new figures reveal.

Twenty of the 118 patients with Covid who received extra corporeal membrane oxygenation (Ecmo) between July and September were mothers-to-be, NHS England said.

Of these, 19 had not had a jab and the other had only had one dose of a vaccine.

2021 Covid vaccination clinics using Vaxtracker by direct deposit or QR code



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Vaxtracker Covid Clinics

Calvary Clinic

Canberra Hospital

Danila Dilba Darwin

Danila Dilba Palmerston

Aspen Medical

Awabakal Cardiff

Awabakal Hamilton

Awabakal Maitland

Awabakal Raymond Terrace

Bulgarr Ngaru Casino

Dunedoo Pharmacy

La Perouse Community Health Centre

Mansfield Pharmacy

Pine Gap Medical Clinic

Pius X

RFDS & TAMS Youthie Clinic

RFDS Tamworth Sports Dome

RFDS West Tamworth Leagues club

Royal Flying Doctor Service

Shortis & Timmins Pharmacy

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Medical Service

Tamworth Medical Service

Walhallow Aboriginal Corporation

Winnunga Nimmityjah AHCS

Brisbane ATSICHS Logan

Kambu Booval GP Respiratory Clinic

Moreton ATSICHS Caboolture GP

Moreton ATSICHS Morayfield

Yulu Burri Ba Capalaba

Balgo Clinic

Beagle Bay

Bidyadanga Clinic

Billiluna clinic

Hobart Hospital

Launceston General Hospital

Mersey Community Hospital

North West Regional hospital

Tasmanian Department of Health

Atherton Hospital

Cairns Hospital

Caloundra Hospital

Central West Hospital and HS

CHHHS mobile COVID-19 vaccination clinicNhulunbuy Community Health Centre

Broome Regional Aboriginal Medical Service

Broome Renal Health Centre

DAHS Clinic

Fitzroy Renal Health Centre

Headspace Kimberley Region

Jarlmadangah Clinic

Kununurra Renal Health Centre

Kupungarri Clinic

Mulan Clinic

Ord Valley Aboriginal Health Service

Pandanus Park Clinic

Ringer Soak Clinic

Yura Yungi MS

Alice Springs Hospital

Big River Region Katherine Covid Hub

Casuarina Community Care Centre

Casuarina Night & Day Pharmacy

Centre for National Resilience

Darwin Hospital

Hibiscus Day and Night Pharmacy

Humpty Doo Amcal Pharmacy

Manigurr-ma Clinic Howard SpringsNightcliff Amcal+ Pharmacy

Palmerston Community Care

Tennant Creek

United Chemist Tennant Creek

Darling Downs HHS

Gold Coast University hospital

Gympie Hospital

Innisfail Hospital

Ipswich Hospital

Logan Hospital (Rocklea, Capabala)

Mackay Hospital and HS

Maleny Hospital

Mareeba Hospital

Nambour General Hospital

North West Hospital and HS

Princess Alexandra Hospital

QLD Adult Specialist Immunisation

Queen Elizabeth II

Queensland Children's Hospital

Redlands Hospital

South Bank Vaccination Location

STARS Hospital Brisbane

Sunshine Coast Hospital

Torres & Cape Health & HS

Townsville Hospital

Wide Bay Hospital Bundaberg

Adelaide Showground Clinic

Nightcliff Amcal+ Pharmacy

Palmerston Community Care

Pharmasave Katherine

RDH Staff and Patient COVID-19 Vaccination Clinic

Barossa Hills Fleurieu LHN

Calvary Hospital South Australia

Disability South Australia

Eyre and Far North LHN

Flinders and Upper North LHN

Flinders Medical Centre

Kangaroo Island Vaccination Clinic

Limestone Coast PHN

Lyell McEwin Hospital

Modbury Hospital

Mount Gambier Health Service

Port Augusta Health Service

Port Pirie Health Service

Queen Elizabeth Hospital

Refugee Health Service SA

Riverland General Hospital Berri

Riverland Mallee Coorong LHN

Royal Adelaide Hospital

SA Police Service

SA Prison Health Service

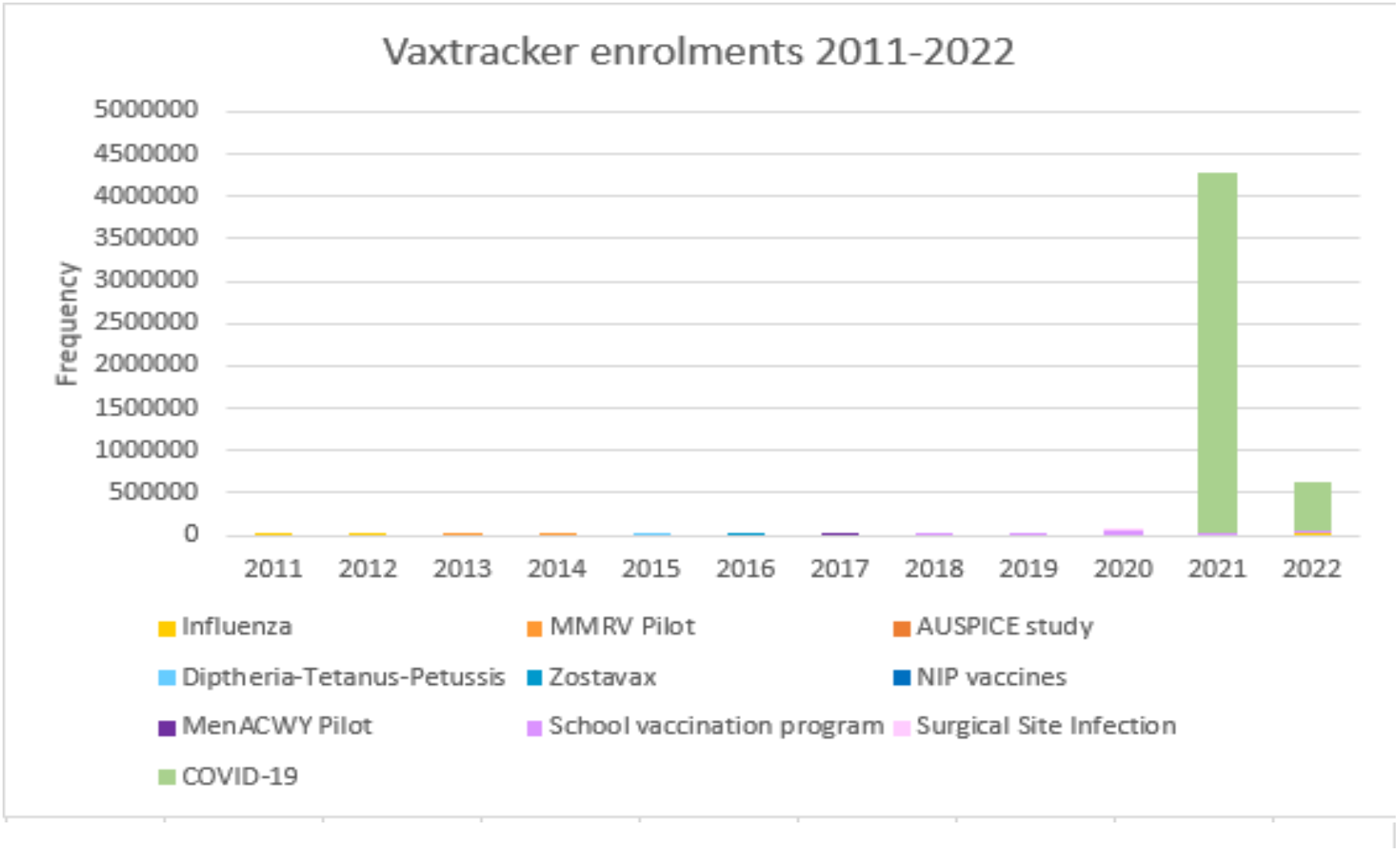
South Australian Ambulance Service

Whyalla Health Service

Women's and Children's Hospital

Yorke and Northern LHN

5 Million enrolments



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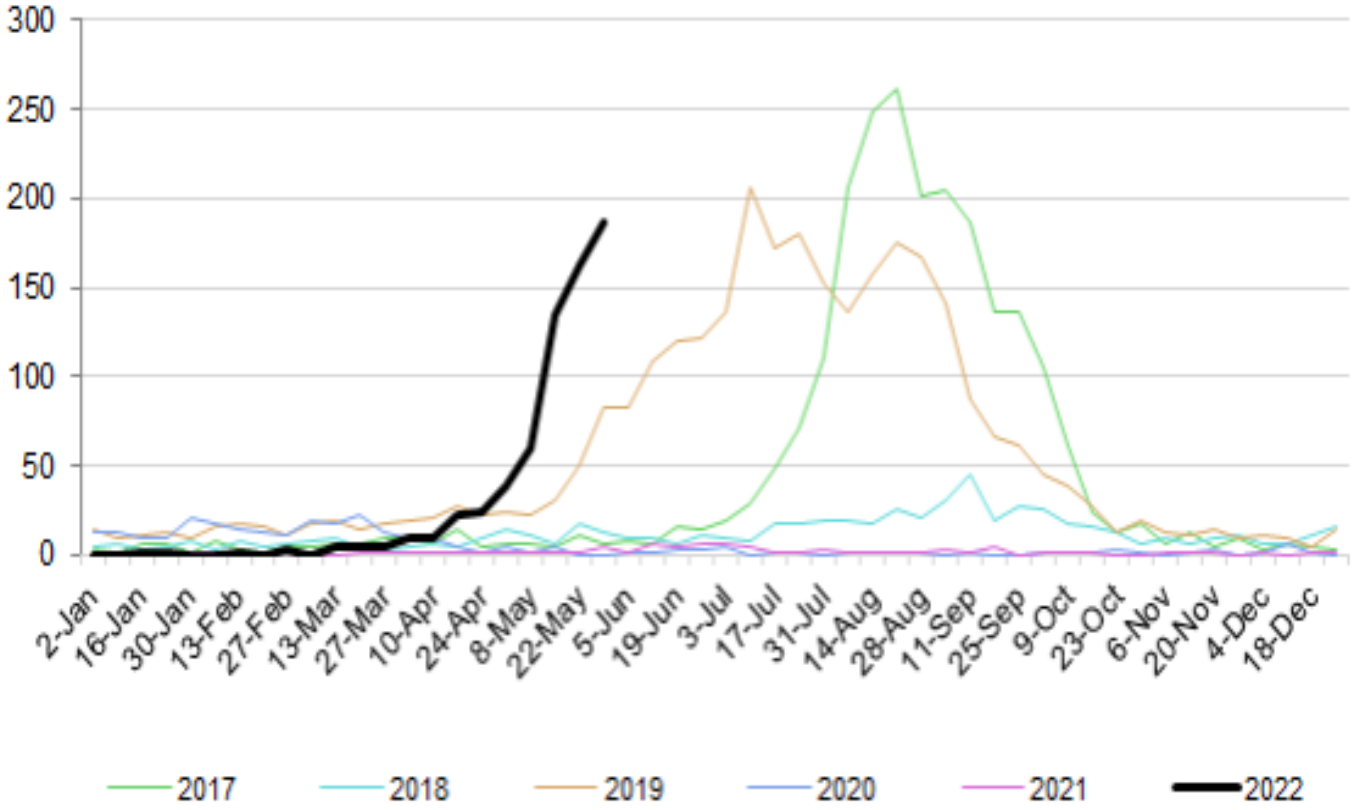
ED presentations

Figure 11. Weekly counts of unplanned emergency department (ED) presentations for *'influenza-like illness'*, that were admitted, for 2022 (black line), compared with the previous five years (coloured lines), persons of all ages, 88 NSW hospitals



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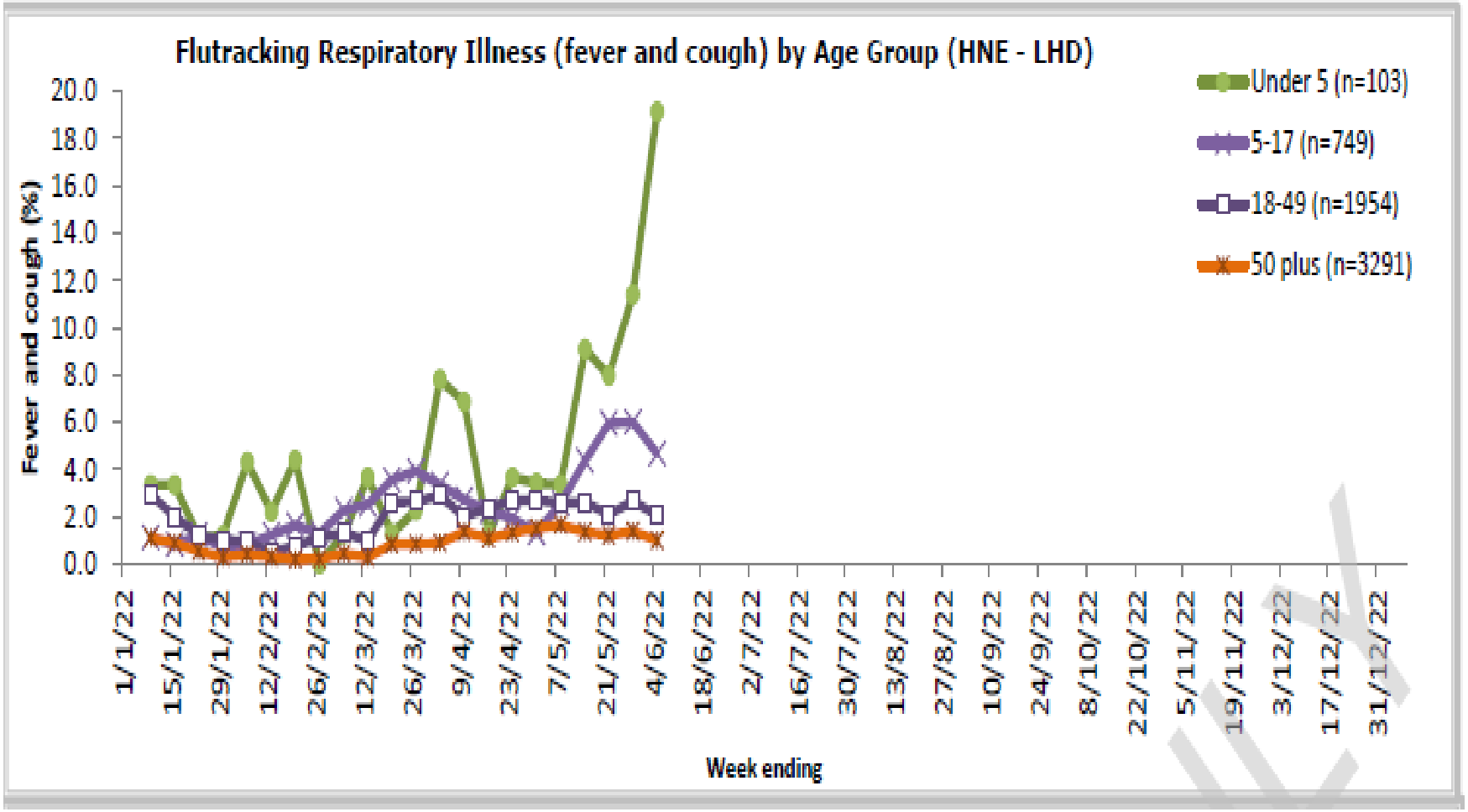
Flutracking – fever & cough



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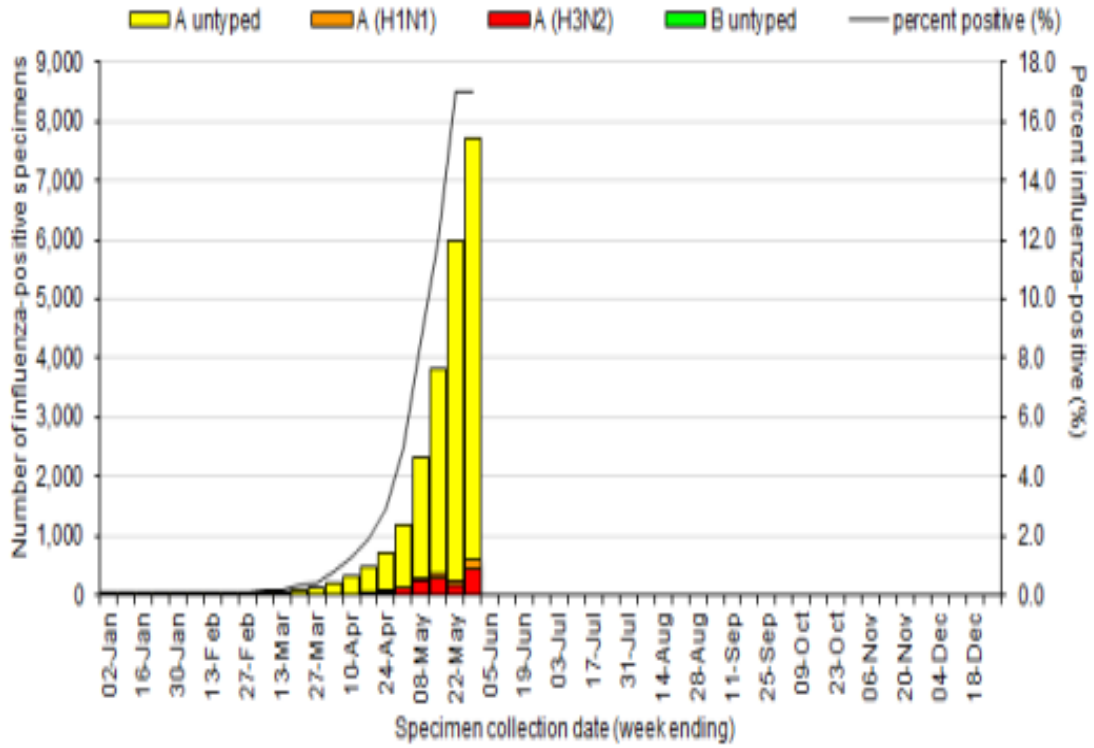
Influenza

Figure 16. Number and proportion of tests positive for influenza at sentinel NSW laboratories, 1 January to 29 May 2022



- Of the 45,478 tests conducted for influenza, the proportion positive has increased to 17.0% from 16.4% in the previous week.

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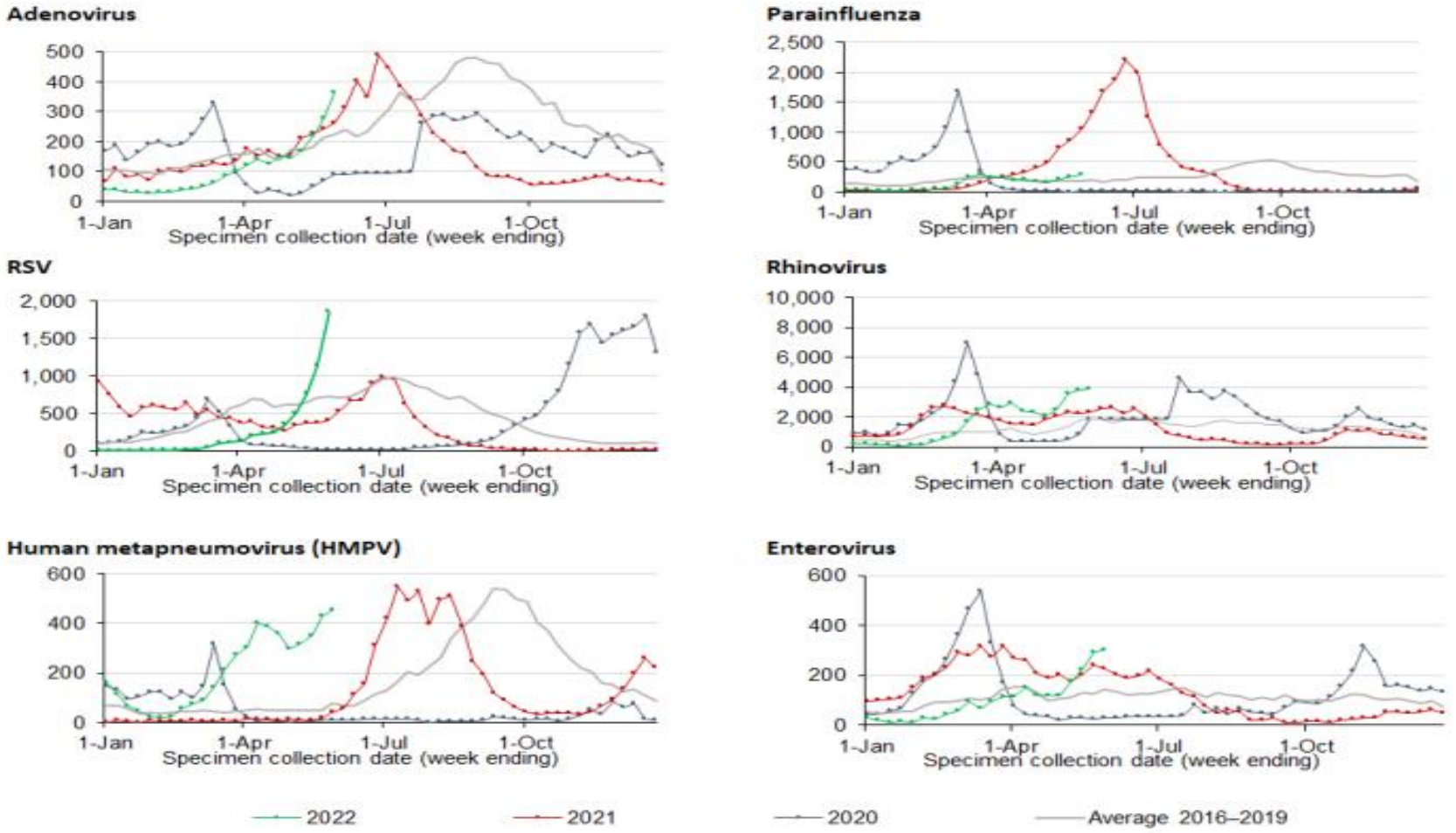
Respiratory viruses

Figure 17. Number of positive PCR test results for other respiratory viruses at sentinel NSW laboratories, 1 January to 29 May 2022



- Recent data is subject to change. For the week ending 29 May 2022, 12 out of 13 sentinel laboratories have provided testing data at the time of reporting.

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Table 4. Total number of respiratory diseases detected by sentinel laboratories, NSW, 1 January to 29 May 2022

	Week ending				Year to date
	8 May	15 May	22 May	29 May*	
Adenovirus	169	221	277	363	2,284
Parainfluenza	162	209	262	292	2,931
Respiratory syncytial virus (RSV)	508	766	1,140	1,862	5,786
Rhinovirus	2,470	3,577	3,839	3,887	35,551
Human metapneumovirus (HMPV)	316	351	430	451	4,430
Enterovirus	175	224	294	304	2,197
Number of PCR tests conducted	27,302	31,799	35,134	45,478	449,923

*Recent data is subject to change. For the week ending 29 May 2022, 12 out of 13 sentinel laboratories have provided testing data at the time of reporting.

NSW Respiratory Surveillance Report - week ending 28 May 2022

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CDC Disease burden

Figure 1: Estimated Range of Annual Burden of Flu in the U.S. from 2010 – 2020

View Larger

The burden of flu disease in the United States can vary widely and is determined by a number of factors including the characteristics of circulating viruses, the timing of the season, how well the vaccine is working to protect against illness, and how many people got vaccinated. While the effects of flu varies, it places a substantial burden on the health of people in the United States each year.

CDC estimates that flu has resulted in 9 million – 41 million illnesses, 140,000 – 710,000 hospitalizations and 12,000 – 52,000 deaths annually between 2010 and 2020.

US 2019-2020 influenza

Among the 188 reported pediatric flu deaths:

- 43% (81) occurred in children younger than 5 years old
  - 12 occurred in children younger than 6 months and thus too young to get a flu vaccine
- 57% (107) deaths occurred in children 5-17 years old
- Of the 175 pediatric deaths among children with known information on medical conditions, 76 (43.4%) had a pre-existing medical condition.
- Nearly two-thirds of the deaths were attributed to influenza B infections.

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Immunisation protects others

Flu vaccine pilot success

In flu vaccine pilot areas (2014/15) where primary school age children were given the nasal spray vaccine we saw:

Public Health England

94%

Primary school aged children: GP influenza like illness consultation rates 94% lower

74%

Primary school aged children: A&E respiratory attendances 74% lower

93%

Primary school aged children: Hospital admissions due to confirmed influenza 93% lower

59%

Adults: GP influenza like illness consultation rates 59% lower

Uptake and impact of vaccinating school age children against influenza during a season with circulation of drifted influenza A and B strains, England, 2014/15

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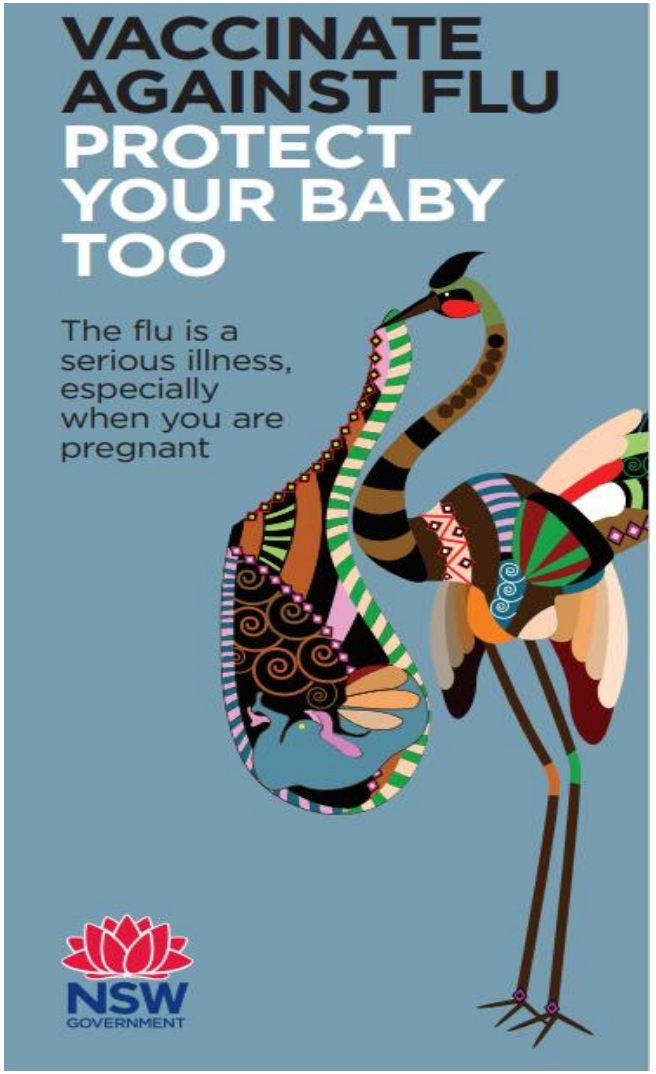
Influenza vaccine in pregnancy

Influenza complications in pregnancy

- Death
- miscarriage
- premature labour
- emergency caesarean delivery
- smaller birth size and weight

- Also protects baby for first months of life



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BMJ

RESEARCH

Perinatal outcomes after maternal 2009/H1N1 infection: national cohort study

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Cite this as: *BMJ* 2011;342:d3214 doi:10.1136/bmj.d3214

ABSTRACT

Objectives To follow up a UK national cohort of women admitted to hospital with confirmed 2009/H1N1 influenza in pregnancy in order to obtain a complete picture of pregnancy outcomes and estimate the risks of adverse fetal and infant outcomes.

Design National cohort study.

Setting 221 hospitals with obstetrician led maternity units in the UK.

Participants 256 women admitted to hospital with confirmed 2009/H1N1 in pregnancy during the second wave of pandemic infection between September 2009 and January 2010; 1220 pregnant women for comparison.

Main outcome measures Rates of stillbirth, perinatal mortality, and neonatal mortality; odds ratios for infected versus comparison women.

Results Perinatal mortality was higher in infants born to infected women (10 deaths among 256 infants; rate 39 (95% confidence interval 19 to 71) per 1000 total births) than in infants of uninfected women (9 deaths among 1233 infants; rate 7 (3 to 13) per 1000 total births) (P<0.001). This was principally explained by an increase in the rate of stillbirth (27 per 1000 total births *v* 6 per 1000 total births; P=0.001). Infants of infected women were also more likely to be born prematurely than were infants of comparison women (adjusted odds ratio 4.0, 95% confidence interval 2.7 to 5.9). Infected women who delivered preterm were more likely to be infected in their third trimester (P=0.046), to have been admitted to an intensive care unit (P<0.001), and to have a secondary pneumonia (P=0.001) than were those who delivered at term

through the UK Obstetric Surveillance System (UKOSS),[2] highlighted specific groups of women who were at higher risk of morbidity after infection with 2009/H1N1 in pregnancy. Factors associated with admission to hospital with 2009/H1N1 in pregnancy include maternal obesity, asthma, multiparity, multiple pregnancy, black or other minority group ethnicity, and smoking among women younger than 25 years.[2-4] Admission to an intensive care unit, taken as a proxy for severe morbidity, was associated with a delay in starting treatment with antiviral drugs (more than two days after the onset of symptoms) and maternal obesity.[2-6]

Analyses of the effects of 2009/H1N1 in pregnancy have so far focused primarily on maternal morbidity and mortality, partly because of the immediacy of the pandemic and the rapidity with which descriptions of case series were published. Documented follow-up of women after their original admission to hospital is uncommon, so the effect of infection on the outcome of pregnancy has not been fully investigated. Some evidence from previous pandemics suggests that pregnancies after influenza infection are more likely to end in a stillbirth or an early neonatal death,[7 8] and women with a secondary pneumonia infection are more likely to deliver preterm.[9] Studies of the effects of seasonal influenza have not been conclusive, but some evidence exists of an increase in the risk of congenital anomalies.[10]

The aim of this study was to follow up women admitted to hospital with confirmed 2009/H1N1 during the second wave of pandemic infection between

Comparative Study > Am J Obstet Gynecol. 2015 Feb;212(2):202.e1-11.
doi: 10.1016/j.ajog.2014.08.004. Epub 2014 Aug 8.

Severity of influenza and noninfluenza acute respiratory illness among pregnant women, 2010–2012

Leslie Z Sokolow [1], Allison L Naleway [2], De-Kun Li [3], Pat Shifflett [4], Sue Reynolds [5], Michelle L Henninger [2], Jeannette R Ferber [6], Roxana Odouli [6], Stephanie A Irving [2], Mark G Thompson [5], Pregnancy and Influenza Project Workgroup

Collaborators, Affiliations + expand

PMID: 25111585 DOI: 10.1016/j.ajog.2014.08.004

Free article

Abstract

Objective: The objective of the study was to identify characteristics of influenza illness contrasted with noninfluenza acute respiratory illness (ARI) in pregnant women.

Study design: ARI among pregnant women was identified through daily surveillance during 2 influenza seasons (2010-2012). Within 8 days of illness onset, nasopharyngeal swabs were collected, and an interview was conducted for symptoms and other characteristics. A follow-up telephone interview was conducted 1-2 weeks later, and medical records were extracted. Severity of illness was evaluated by self-assessment of 12 illness symptoms, subjective ratings of overall impairment, highest reported temperature, illness duration, and medical utilization.

Results: Of 292 pregnant women with ARI, 100 tested positive for influenza viruses. Women with influenza illnesses reported higher symptom severity than those with noninfluenza ARI (median score, 18 vs 16 of 36; P < .05) and were more likely to report severe subjective feverishness (18% vs 5%; P < .001), myalgia (28% vs 14%; P < .005), cough (46% vs 30%; P < .01), and chills (25% vs 13%; P < .01). More influenza illnesses were associated with fever greater than 38.9°C (20% vs 5%; P < .001) and higher subjective impairment (mean score, 5.9 vs 4.8; P < .001). Differences in overall symptom severity, fever, cough, chills, early health care-seeking behavior, and impairment remained significant in multivariate models after adjusting for study site, season, age, vaccination status, and number of days since illness onset.

Conclusion: Influenza had a greater negative impact on pregnant women than noninfluenza ARIs, as indicated by symptom severity and greater likelihood of elevated temperature. These results highlight the importance of preventing and treating influenza illnesses in pregnant women.

Keywords: acute respiratory illness; illness severity; influenza; influenza vaccine; pregnancy.

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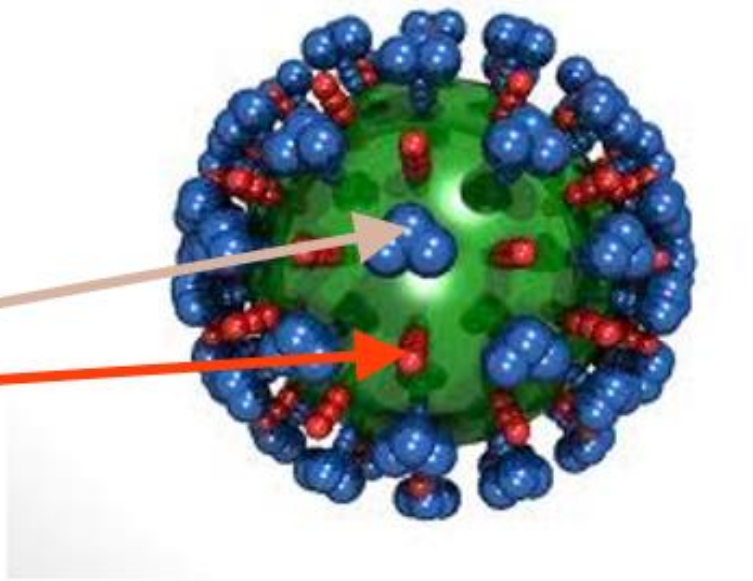
Flu A virus

Genetic material (RNA) in the centre

Two surface antigens:

- Haemagglutinin (H) (blue)
- Neuraminidase (N) (red)

There are 18 different types of H and
11 different types of N



The role of haemagglutinin is to bind to the cells of the infected person
The role of neuraminidase is to release the virus from the cell surface

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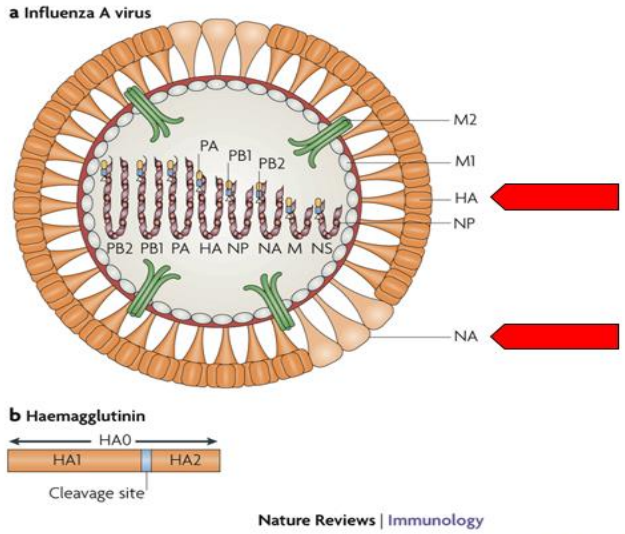
Influenza

On average, each year influenza causes

- 3,500 deaths
- 18,000 hospitalisations
- 300,000 GP consultations

- an A/Victoria/2570/2019 (H1N1)pdm09-like virus
- an A/Darwin/9/2021 (H3N2)-like virus
- a B/Austria/1359417/2021-like (B/Victoria lineage) virus
- a B/Phuket/3073/2013-like (B/Yamagata lineage) virus



The haemagglutinin and neuraminidase are the main targets of the protective antibody response

nature REVIEWS IMMUNOLOGY

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THE LANCET
Infectious Diseases

Efficacy and safety of a universal influenza A vaccine (MVA-NP+M1) in adults when given after seasonal quadrivalent influenza vaccine immunisation (FLU009): a phase 2b, randomised, double-blind trial

Thomas G Evans, MD • Louise Bussey, MSc • Elizabeth Eagling-Vose, MBA • Kathryn Rutkowski, MS • Chris Ellis, RN • Chris Argent, MD • et al. Show all authors

Published: March 16, 2022 • DOI: https://doi.org/10.1016/S1473-3099(21)00702-7 • Check for updates

The incidence of laboratory-confirmed influenza did not differ between the MVA-NP+M1 group and the placebo group

The trial was stopped after one season for futility on the recommendation of the data monitoring committee

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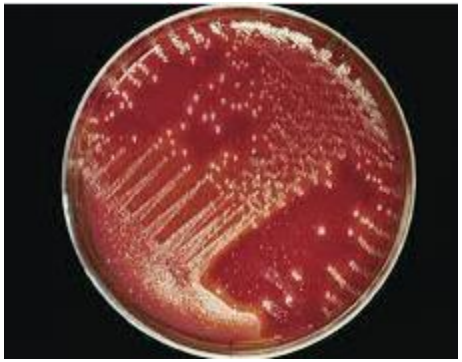
Types of influenza vaccine



- Egg-based flu vaccine.
- Cell-based flu vaccine.
- Recombinant flu vaccine.

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ATAGI advice

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	✓	✓	✓	✓	✓	✓	✓	✓

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2022 influenza vaccine presentation and free vaccine eligibility

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6 MONTHS TO LESS THAN 5 YEARS

Vaxigrip Tetra® and Fluarix® Tetra

Registered for use in people aged 6 months and over:

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

Ten pack dimensions:
9.7 cm (L) x 11.8 cm (H)
x 4.48 cm (W)

Ten pack dimensions:
17.8 cm (L) x 10.4 cm (W) x 4.2 cm (H)
Single pack dimensions:
13.3 cm (L) x 4.3 cm (W) x 2.4 cm (H)

5 YEARS TO 64 YEARS

Vaxigrip Tetra®, Fluarix® Tetra and Afluria® Quad

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

Ten pack dimensions:
9.7 cm (L) x 11.8 cm (H)
x 4.48 cm (W)

Ten pack dimensions:
15.2cm (L) x 12.4cm (H)
x 4.1cm (W)

Ten pack dimensions:
17.8 cm (L) x 10.4 cm (W) x 4.2 cm (H)
Single pack dimensions:
13.3 cm (L) x 4.3 cm (W) x 2.4 cm (H)

65 YEARS AND OVER

Fluad® Quad

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

Ten pack dimensions:
15.4 cm (L) x 13 cm (H)
x 2.3 cm (W)

NSW GOVERNMENT

Funded influenza vaccine

The following people are more at risk of complications from influenza and are eligible for a

isk

Children under nine years receiving their influenza vaccination for the first time require two doses of vaccine, spaced by a minimum of one month.

NSW GOVERNMENT

Vaccine Safety

Vaxtracker
Monitoring Vaccine Safety

2022 influenza vaccine safety data - at a glance

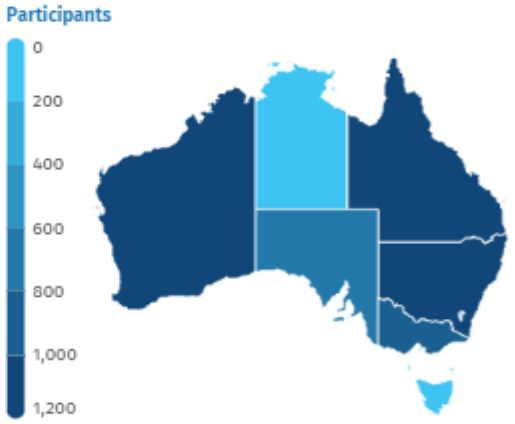
As at 25 April 2022

5,725
safety surveys completed

21.9%
reported at least one adverse event*

0.3%
reported visiting a GP or ED

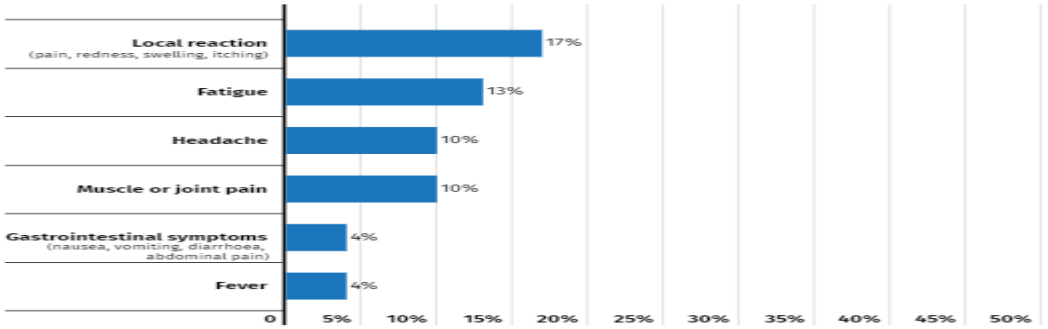
*Adverse events are self-reported, have not been clinically verified, and do not necessarily have a causal relationship with the vaccine.



AusVaxSafety
An NCIRS led collaboration

AusVaxSafety
An NCIRS led collaboration

Commonly reported adverse events



These symptoms are known to occur after vaccination. They are generally mild and short-lived. **As with any adverse event reports, not all symptoms reported may be caused by the vaccine; they may be coincidental and due to other causes.**

Medical attendance

Less than 1 in 100 people reported seeing a doctor or going to the emergency department in the days after influenza vaccination

NSW GOVERNMENT

Don’t be a Princess & Get Your Flu Vaccine

Common side effects of influenza vaccines include:
- pain, redness, swelling or hardness at injection site
- fever, tiredness, body aches.

Stay safe
Get an influenza vaccine – it is like road safety
- Wear a seatbelt
- Don’t get into car with drunk driver

NSW GOVERNMENT

Australian Government
Department of Health

Home Health topics Initiatives and programs Resources

Home › Initiatives and programs › COVID-19 vaccines › Is it true? Get the facts on COVID-19 vaccines

Is it true? Can COVID-19 vaccines connect me to the internet?

COVID-19 vaccines do not – and cannot – connect you to the internet.

NSW GOVERNMENT

Is it true? Get the facts on COVID-19 vaccines | Australian Government Department of Health

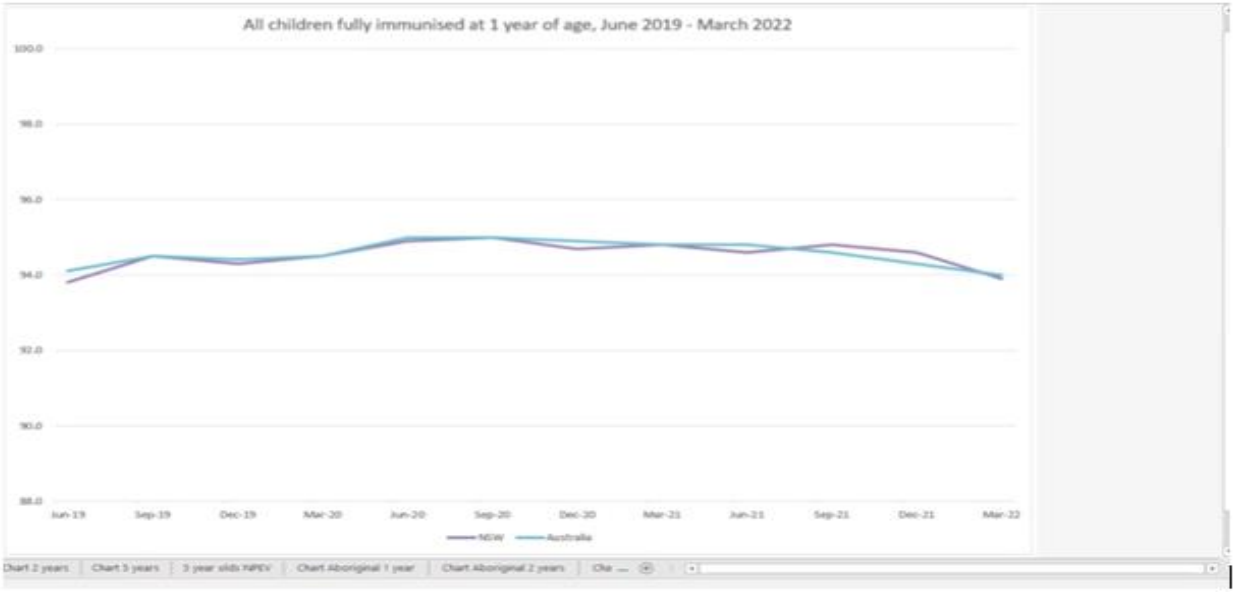
Immunisation for Children

NSW GOVERNMENT

Childhood vaccination rates down

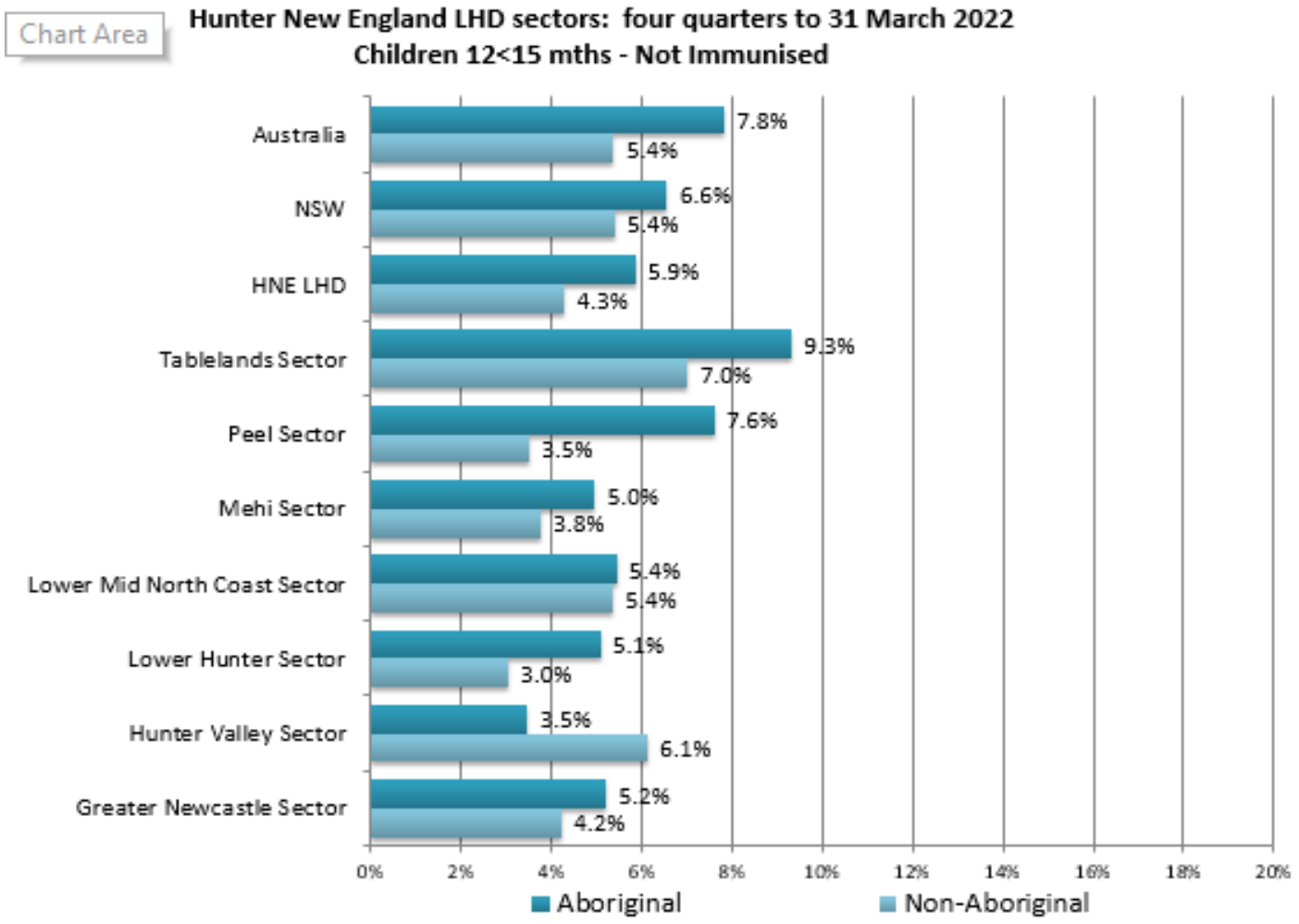
March 2022 quarterly AIR childhood coverage data

	Aboriginal		Non-Aboriginal		All children	
	Dec 2021	Mar 2022	Dec 2021	Mar 2022	Dec 2021	Mar 2022
1 year	94.1	93.2	94.6	94.0	94.6	93.9
2 years	93.8	91.4	92.6	92.5	92.7	92.5
5 years	96.9	97.4	94.4	93.7	94.5	93.9



NSW GOVERNMENT

12 month old children HNE sectors

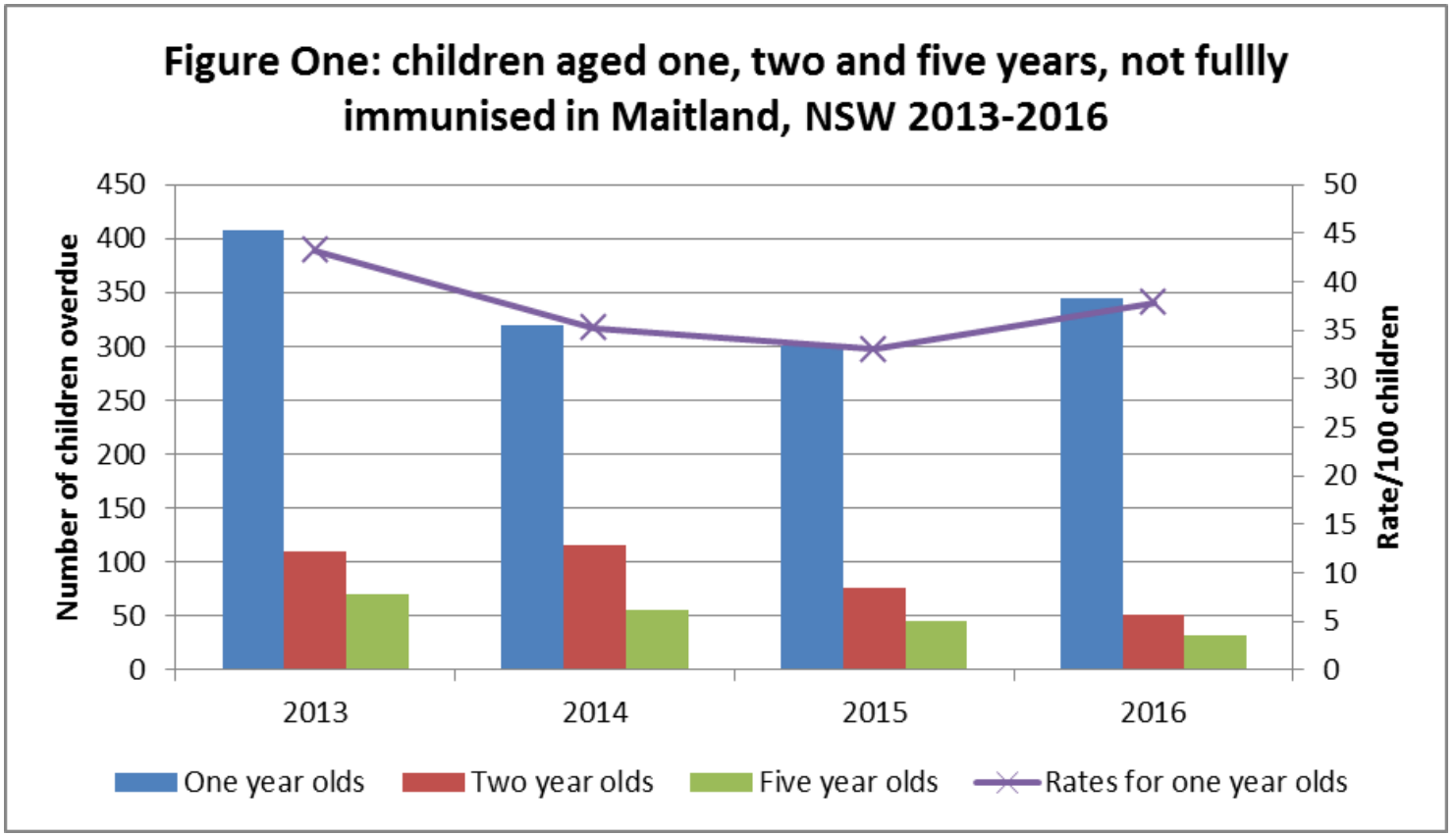


NSW GOVERNMENT

TIP Maitland

Quantitative analysis of data from Australian Immunisation Register 2013-2016 and ABS 2011 (SA2)

Results



Immunisation rates improving due to Tailoring Programs

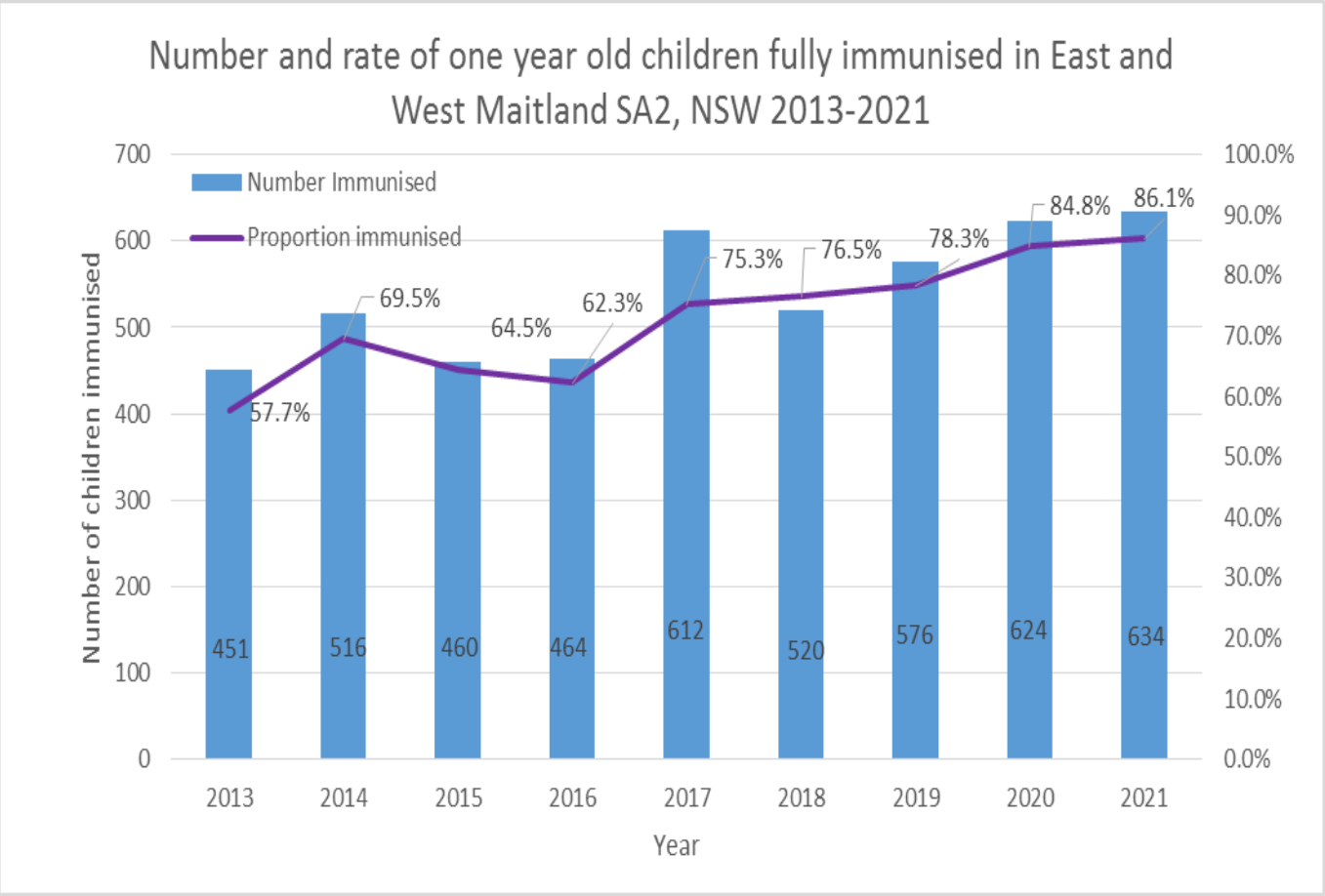


Figure 1. Number and proportion of children fully immunised, persons aged 12 to 23 months, Maitland East and Maitland West SA2s, 2013 to 2021.

NSW Immunisation Schedule

Funded October 2021

NSW GOVERNMENT

Childhood vaccines

Age	Disease	Vaccine	Information
Birth	Hepatitis B	H-B-VAX II **OR** ENGERIX B (IM)	Within 7 days of birth (ideally within 24 hours)
6 weeks	Diphtheria, tetanus, pertussis, *Haemophilus influenzae* type b, hepatitis B, polio	INFANRIX HEXA (IM)	ROTARIX: Dose 1 limited to 6-14 weeks of age BEXSERO: Prophylactic paracetamol recommended. Catch up available for Aboriginal children <2 until 30/06/2023
	Pneumococcal	PREVENAR 13 (IM)	
	Rotavirus	ROTARIX (Oral)	
	Meningococcal B (Aboriginal# children only)	BEXSERO (IM)	
4 months	Diphtheria, tetanus, pertussis, *Haemophilus influenzae* type b, hepatitis B, polio	INFANRIX HEXA (IM)	ROTARIX: Dose 2 limited to 10-24 weeks BEXSERO: Prophylactic paracetamol recommended. Catch up available for Aboriginal children <2 until 30/06/2023
	Pneumococcal	PREVENAR 13 (IM)	
	Rotavirus	ROTARIX (Oral)	
	Meningococcal B (Aboriginal children only)	BEXSERO (IM)	
6 months	Diphtheria, tetanus, pertussis, *Haemophilus influenzae* type b, hepatitis B, polio	INFANRIX HEXA (IM)	Children ≥6 months with at risk conditions for IPD‡ are recommended to receive an additional dose of PREVENAR 13 – see AIH* Aboriginal children ≥6 months with certain at risk conditions may require an additional dose of Bexsero – see AIH*
12 months	Meningococcal ACWY	NIMENRIX (IM)	Bexsero: Prophylactic paracetamol recommended. Catch up available for Aboriginal children <2 until 30/06/2023
	Pneumococcal	PREVENAR 13 (IM)	
	Measles, mumps, rubella	MMR II **OR** PRIORIX (IM or SC)	
	Meningococcal B (Aboriginal children only)	BEXSERO (IM)	
18 months	Diphtheria, tetanus, pertussis	INFANRIX **OR** TRIPACEL (IM)	
	Measles, mumps, rubella, varicella	PRIORIX TETRA **OR** PROQUAD (IM or SC)	
	Haemophilus influenzae type b	ACT-HIB (IM OR SC)	
4 years	Diphtheria, tetanus, pertussis, polio	INFANRIX-IPV **OR** QUADRACEL (IM)	Children with at risk conditions for IPD‡ are recommended to receive an additional dose of PNEUMOVAX 23 – see AIH*

At risk groups, adolescents and adults

Age/group	Disease	Vaccine	Information
All people with asplenia, hyposplenia, complement deficiency and treatment with eculizumab	Meningococcal ACWY	NIMENRIX (IM)	See AIH* for required doses and timing Additional groups are recommended to receive these vaccines but these are not funded
	Meningococcal B	BEXSERO (IM)	
>5 years with asplenia or hyposplenia	*Haemophilus influenzae* type b	ACT-HIB (IM or SC)	If incompletely vaccinated or not vaccinated in childhood
Year 7	Diphtheria, tetanus, pertussis	BOOSTRIX **OR** ADACEL (IM)	
	Human papillomavirus	GARDASIL 9 (IM)	
Year 10	Meningococcal ACWY	NIMENRIX (IM)	
Pregnant	Influenza	INFLUENZA	Influenza: Any trimester
	Pertussis	BOOSTRIX **OR** ADACEL (IM)	Pertussis: each pregnancy between 20-32 weeks
Aboriginal people ≥50 years	Pneumococcal	PREVENAR 13 (IM) then PNEUMOVAX 23 (IM)	Prevenar 13: ≥50 years Pneumovax 23: 2-12 months later Pneumovax 23: at least 5 years later
70 years	Pneumococcal	PREVENAR 13 (IM)	Pneumococcal funded for people ≥70
	Zoster	ZOSTAVAX (SC)	Zoster: Catch up available for 71-79 year olds until 31/10/2023
People with at risk conditions for IPD‡	See the online AIH* for conditions recommended to receive PREVENAR 13 and PNEUMOVAX 23		

Influenza

Age/at risk condition	Recommendation	Information
All children 6 months <5 years Aboriginal people ≥ 6 months People with at risk conditions ≥6 months ≥65 years Pregnant women	ANNUAL INFLUENZA VACCINATION	For vaccine brands and eligibility see: www.health.nsw.gov.au/immunisation/Pages/flu.aspx

Invalid Aboriginal is inclusive of Aboriginal and Torres Strait Islander people.
‡ IPD: Invasive pneumococcal disease. *AIH: Online Australian Immunisation Handbook.

NSW GOVERNMENT

Catch-up Vaccination

- Catch-up Calculator | The Australian Immunisation Handbook (health.gov.au)
- Additional vaccines provided free in NSW Additional Commonwealth and NSW-funded free vaccines - Immunisation programs

Catch-up vaccines for refugees and humanitarian entrants aged 20 years and over (ongoing)

The Australian Government has extended the provision of free catch-up vaccines for refugees and humanitarian entrants aged 20 years or over through the National Immunisation Program. Detailed information is available in the Vaccination Provider Factsheet (refugee catch up) Free catch-up vaccines for refugees and humanitarian entrants aged 20 years and over fact sheet | Australian Government Department of Health.

Catch-up schedules for people with no previous vaccinations

Generic catch-up templates for individuals with nil evidence of previous vaccinations and nil contraindications. Check AIR to ensure no previous vaccines have been administered.

(the following are exclusive pdfs that we have created, they aren't available as links)

- Less than 12 months of age
- 12 months to less than 4 years of age
- 4 years to less than 10 years of age
- 10 years to less than 20 years of age
- Over 20 years of age

Cold Chain Breach

Maintaining Authority to Immunise

Overseas Vaccination

Rabies or Australian Bat Lyssavirus

Travel Vaccination

Vaccination Records

Vaccine Ordering and Management

Request for Vaccine Account Number for New Practice

Hunter New England Public Heath – Immunisation

Generic catch-up schedule for child less than 12 months of age with nil vaccines, residing in NSW

NOTES

- This is a catch up schedule for a child with nil evidence of recorded vaccines and nil contraindications, **check AIR to ensure no previous vaccines have been administered**
- Additional vaccines may be required if the individual has underlying medical conditions or other risk factors as per The Australian Immunisation Handbook, https://immunisationhandbook.health.gov.au/vaccination-for-special-risk-groups
- Administer all due vaccines at the same visit – do not defer. If this is not possible, ensure minimum intervals between doses of vaccines are observed
- All vaccines are currently funded for people up to 20 years of age
- **Hepatitis B, MMR & varicella -** In some cases, laboratory testing can determine whether the person has immunity from previous vaccination or infection, and may be useful to guide the need for catch-up vaccination
- All vaccines administered **must** be recorded on the Australian Immunisation Register (AIR)
- **# funded for Aboriginal & Torres Strait Islander 6wks–2yrs.**
- @ - in addition to Aboriginal & Torres Strait Islander children (6wks – 2 yrs), Bexsero is NIP funded ONLY for people with asplenia or hyposplenia, compliment deficiency or those receiving treatment with Eclizumab

This catch-up schedule has been developed by HNEPHU and is designed to minimise number of needles & visits required. The AIR catch-up calculator https://immunisationhandbook.health.gov.au/catch-up-calculator/calculator provides a catch-up schedule by antigen

Date	Infanrix Hexa DTPa-HBV-IPV-Hib	Prevenar 13	Rotarix Rotavirus	Bexsero Men B #	Influenza
First visit NOW	✓	✓	Rotarix dose 1 upper age limit 14 weeks and 6 days of age	**2 doses to be given 8 weeks apart** A booster dose (dose 3) is due in the second year of life (at least 8 weeks from dose 2) **@See above for other funded risk groups**	age appropriate course in flu season funded for all children 6mths to 5yrs.
2nd visit - 1 mth after first visit	✓	✓	Rotarix dose 2 upper age limit 24 weeks and 6 days of age		
3rd visit – 3 months after second visit	✓				
Continue with vaccinations at scheduled points 12, 18 months (ensure 6 month gap between dose 3 Infanrix Hexa and dose 4 Infanrix) & 4 years of age					

NSW GOVERNMENT Health Hunter New England Local Health District

Hunter New England Local Health District
Health Protection | Population Health
Locked Bag 10 Wallsend 2287
Ph: 1300 066 055; Fax: (02) 49246490
Website: http://www.hnehealth.nsw.gov.au/hneph/Immunisation/Pages/Immunisation.aspx
Email: hnelhd-phimmunisation@health.nsw.gov.au

Strategies to consider to improve immunisation rates

- personal recommendation normalising the vaccination schedule
- Consider letting some families “drop in”
- Kind reminders either phone call or letters
- Making next vaccine appointment at current visit
- Refer to Natalie and Paula
- Check AIR for every child so you can correct the records or give the correct vaccine!

You may see our letter around your practice

The Australian Immunisation Register (AIR) shows that your child is overdue for some vaccines.

The vaccines missing are those due at .

At Hunter New England Health our nurses are working with families to help children catch up on missed vaccines. Children can become at risk of catching these diseases if they don't received their vaccines on time. Missing vaccines can also impact government payments and access to childcare and school.

Vaccines are safe and available for free from your General Practitioner or local Community Health Immunisation Clinics.

Let the nurse of doctor know the vaccines you need by taking this letter and your blue book if available.

If you think that your child has received these vaccines please either contact your GP or contact us either by phone on 4924 6610 or email hnelhd-phimmunisation@health.nsw.gov.au so we can update your AIR records.

We are available to assist you each Wednesday, Thursday and Friday.

You can call outsides these times, leave a message and we will return your call.

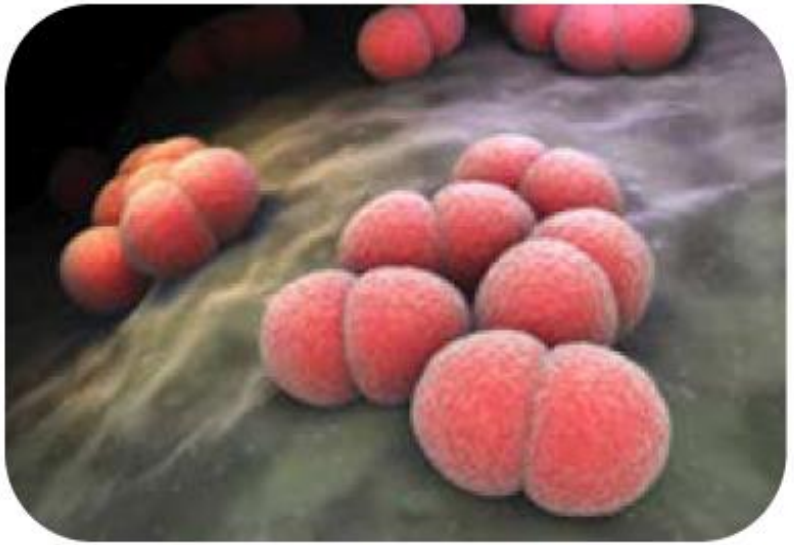
Warm regards,

Linda Bates, Karinne Andrich and Jody Stephenson
Clinical Nurse Consultant- Immunisation

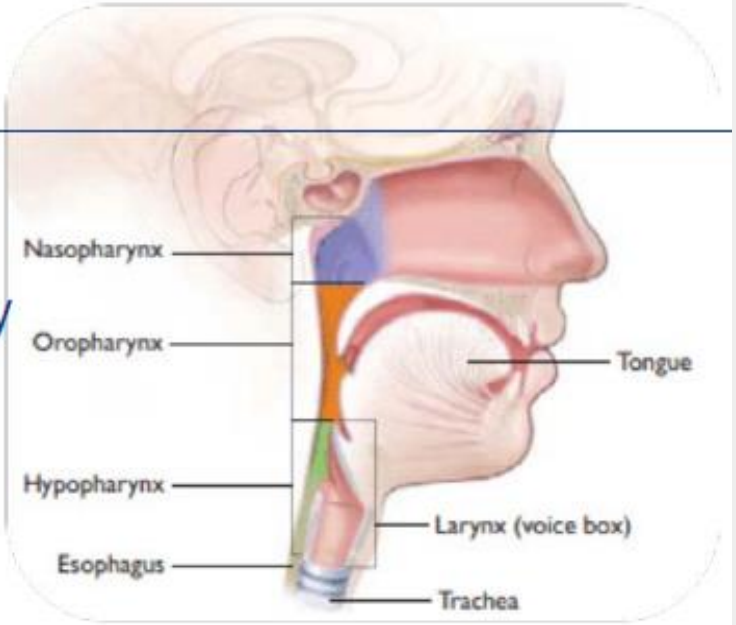
NSW GOVERNMENT Health
Hunter New England
Local Health District

Invasive meningococcal disease (IMD)

- *Neisseria meningitidis* (the meningococcus)
- 13 serogroups
  - Majority of global IMD caused by: A, B, C, W, X, Y
- 1.2 million cases each year, 135,000 deaths

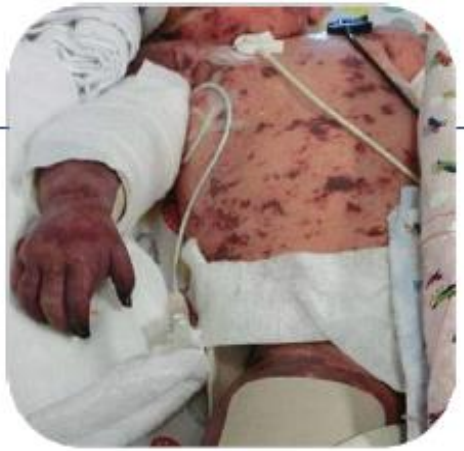


Transmission

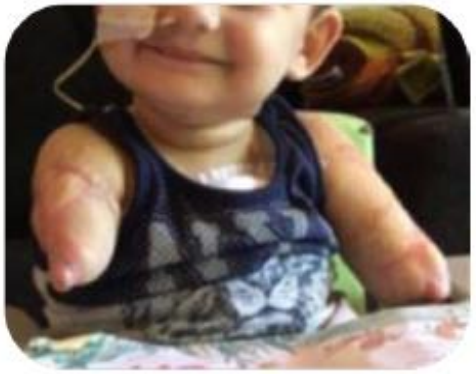


- Humans = only reservoir
  - Bacteria colonise upper respiratory tract
- Nasopharyngeal carriage
  - 5-25% of general population
  - Rates vary with age, peak at 24% at 19 years
  - Rates vary with location, up to 70% in residential colleges
- Person to person contact in household-like contacts via respiratory droplets from the back of the throat
- Incubation: 1-7 days, rarely up to 10 days

Symptoms and outcomes

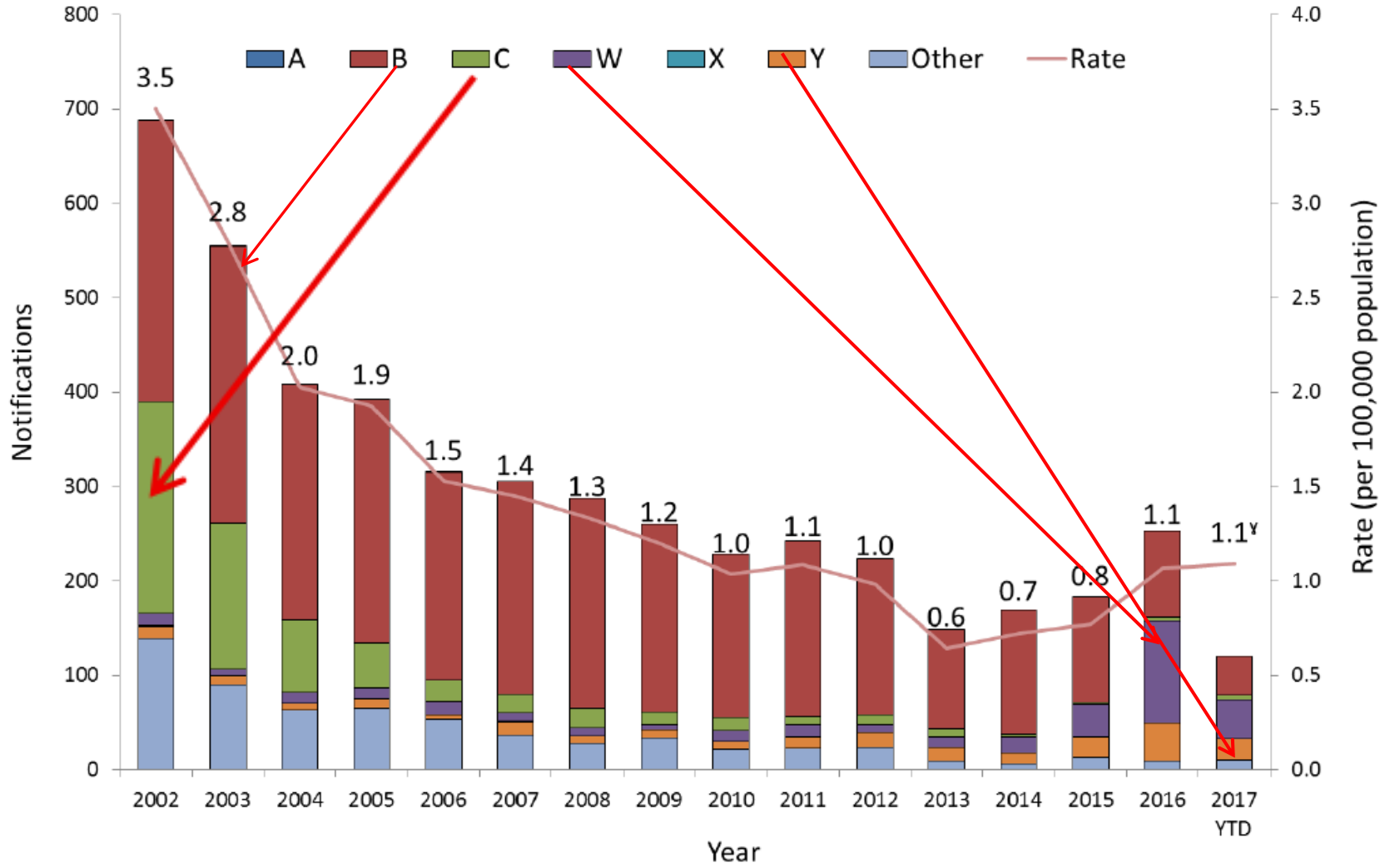


- Sudden onset
- Meningitis ± septicaemia
  - Meningitis
    - Fever, headache, neck stiffness, photophobia, confusion
  - Septicaemia
    - Fever, muscle aches, vomiting, ± petechial rash
- 5-10% of patients die, 24-48 hours after onset
- Sequelae: 10-20% survivors
  - Neurological defects, hearing loss, amputations



Incidence and serogroup of invasive meningococcal disease - Australia, 2002-2017: emergence of W and Y

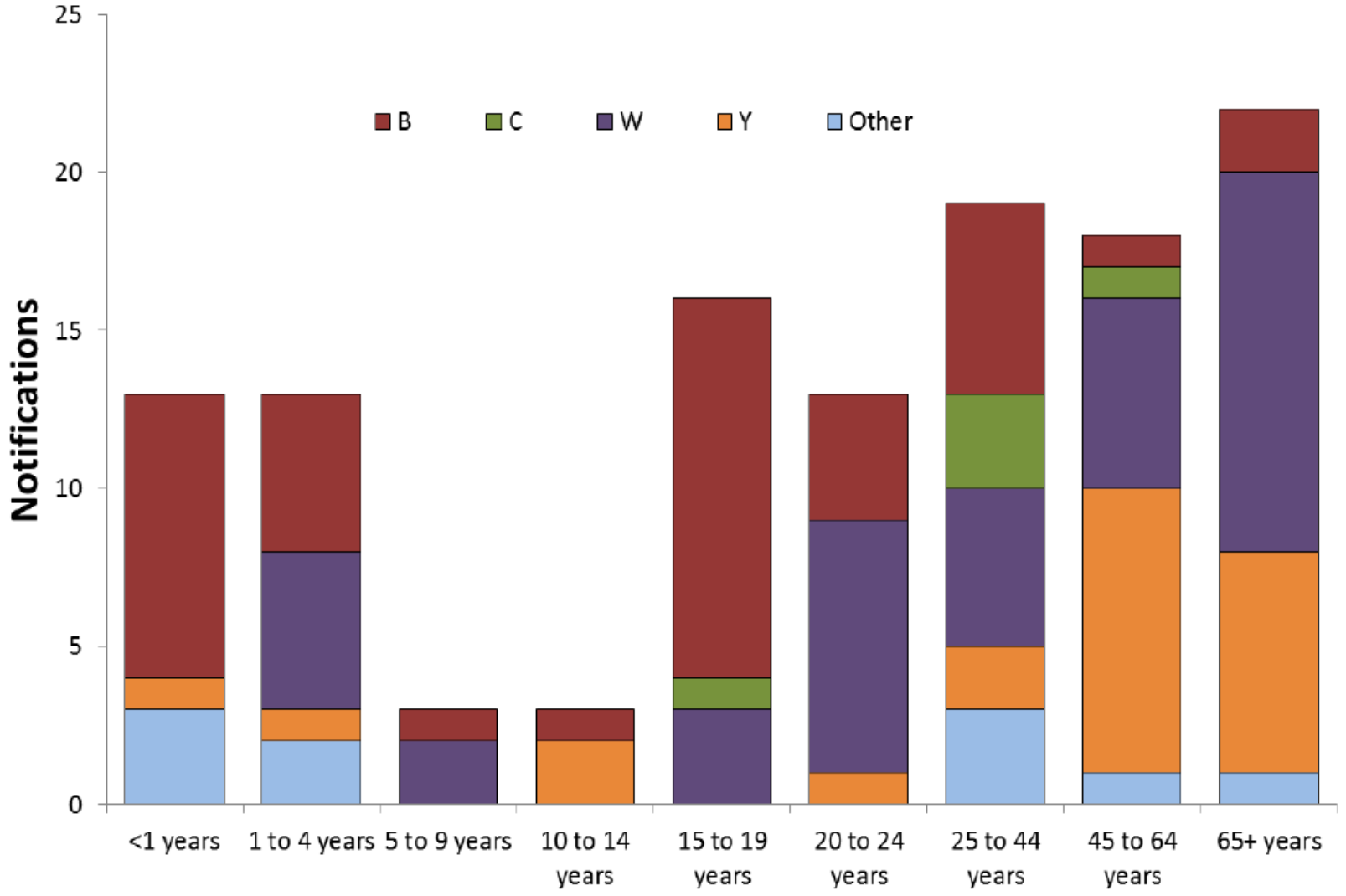
Figure 1. Notifications and rates of IMD, Australia, 2002 to 2017 YTD*, by serogroup



http://www.health.gov.au/internet/main/publishing.nsf/Content/5FEABC4B495BDEC1CA25807D001327FA/$File/2...June-2017-IMD-Surveillance-report.pdf

Incidence and serogroup of invasive meningococcal disease - Australia – 2017 to mid June : by age group

Figure 4. Notifications of IMD, Australia, 2017 YTD*, by age group and serogroup



http://www.health.gov.au/internet/main/publishing.nsf/Content/5FEABC4B495BDEC1CA25807D00182FF1/$File/19-June-2017-IMD-Surveillance-report.pdf

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