

Australian Respiratory Surveillance Report

Viral Respiratory Diseases Epidemiology and Surveillance Section

Report 1, 2024

Key messages

This report presents a national epidemiological update for coronavirus disease 2019 (COVID-19), influenza and respiratory syncytial virus (RSV) with a focus on the current reporting period (25 March to 7 April 2024) and earlier severity reporting periods* (up to 24 March 2024).

Activity: This year to date, respiratory illness activity (self-reported new fever and cough symptoms) in the community has been higher than, or similar to, the levels of activity observed at the same time last year. Since the beginning of 2024, general practice consultation rates for respiratory illnesses (new fever and cough symptoms) monitored through sentinel surveillance sites have remained stable, but higher than observed in previous years. Nationally, since the beginning of 2024: notified COVID-19 cases have followed a decreasing trend; influenza cases have remained relatively stable though notifications remain at higher levels than usually observed during this time of year; and RSV cases have been steadily increasing.

Severity*: Since early 2024, the number of patients hospitalised with COVID-19 monitored through sentinel hospital-based surveillance has followed a decreasing trend and the proportion of those patients admitted directly to an intensive care has remained low and stable. Surveillance for influenza and RSV at sentinel hospitals commenced on 1 April, therefore no data are available for the severity reporting period. Nationally, since early 2024, the numbers of patients admitted to sentinel intensive care surveillance sites with a severe acute respiratory infection (SARI) have followed a decreasing trend. Patients with COVID-19 accounted for more than half of the SARI admissions at sentinel intensive care surveillance sites.

At-risk populations: Patients aged 65 years or over accounted for the greatest proportion of admissions with COVID-19 at sentinel hospitals. For patients with a SARI admitted to sentinel intensive care sites, the largest proportion of in-hospital mortality has been in those aged 60 years or over. Nationally, age-specific mortality rates for COVID-19, influenza and RSV cases have been highest among those aged 70 years or over.

Impact: The proportion of people taking time off work due to respiratory illness (self-reported new fever and cough symptoms) has decreased in recent weeks. Nationally, the mean number of COVID-19 cases in intensive care and mean number of intensive care staff unavailable due to COVID-19 illness or exposure have followed a decreasing trend since early 2024.

Genomic surveillance and virology: Nationally, the Omicron BA.2.86 sub-lineage, JN.1, remains the dominant circulating variant with small numbers of recombinant sub-lineages continuing to be observed, including the recently emerged XDK (JN.1.1.1 and XBB.1.16) recombinant lineage. Since early 2024, influenza A has accounted for the majority of influenza notifications nationally.

Vaccine coverage, effectiveness and match: It is too early to assess influenza vaccine coverage or effectiveness for the 2024 season. COVID-19 and RSV vaccination data will be included in future iterations of the Australian Respiratory Surveillance Report.

* To account for the lag in collection and provision of severity data from some surveillance systems, and for the time delay between illness onset and the development of severe disease, cases with a diagnosis date in the last two weeks are excluded from severity analyses which include analyses of hospitalisations, intensive care admissions and deaths. For this reason, the severity reporting periods are two weeks behind the current reporting period. figure

Introduction

This Australian Respiratory Surveillance Report was prepared by Tracy Tsang, Jenna Hassall, Anna Rafferty and Siobhan St George on behalf of the interim Australian Centre for Disease Control. We thank the staff and participants from the surveillance systems who contribute data for acute respiratory illness surveillance across Australia.

The Australian Respiratory Surveillance Reports present a national overview of acute respiratory infections in Australia, drawing information from several different surveillance systems. Our surveillance systems help us to understand the distribution of acute respiratory illness activity in the community, the severity of disease, which populations might be at risk severe disease, and the impact of acute respiratory illness on the community and health system in Australia. Surveillance indicators presented in this report are based on the [Australian National Surveillance Plan for COVID-19, Influenza and RSV](#).

A summary of data considerations for this Australian Respiratory Surveillance Report are provided below. Refer to the [Technical Supplement – Australian Respiratory Surveillance Report](#) for further detail on our surveillance sources and data considerations, including the impacts of the COVID-19 pandemic on acute respiratory infection surveillance in Australia.

Data considerations

- Due to the dynamic nature of the surveillance systems used in this report, surveillance data are considered preliminary and subject to change as updates are received, with the most recent weeks considered particularly incomplete. Data in this report may vary from data reported in other national reports and reports by states and territories. Data in this report are presented by *International Organization for Standardization (ISO) 8601* weeks, with the week ending on Sunday.
- In Australia, states and territories report notified cases to the **National Notifiable Diseases Surveillance System (NNDSS)** based on the [Australian national surveillance case definitions](#). For COVID-19, both laboratory-confirmed and probable cases are notified to the NNDSS and included in this report.
- Data from the NNDSS are analysed and reported based on diagnosis date, which is the true onset date of a case if known, otherwise it is the earliest of the specimen date, the notification date, or the notification received date. NNDSS data were extracted on Thursday 11 April 2024.
- To account for the lag in collection and provision of severity data from some surveillance systems, and for the time delay between illness onset and the development of severe disease outcomes, cases with an admission date or a diagnosis date in the last two weeks are excluded from severity analyses which include analyses of hospitalisations, intensive care admissions and deaths. As such, the severity reporting periods are two weeks behind the current reporting period. For this report, severity reporting includes data up to 24 March 2024.
- While every care has been taken in preparing this report, the Australian Government Department of Health and Aged Care does not accept liability for any injury or loss or damage arising from the use of, or reliance upon, the content of the report or Technical Supplement. For further details about information contained in this report please refer to the [Technical Supplement – Australian Respiratory Surveillance Report](#) or contact respiratory.surveillance@health.gov.au.

1. Activity

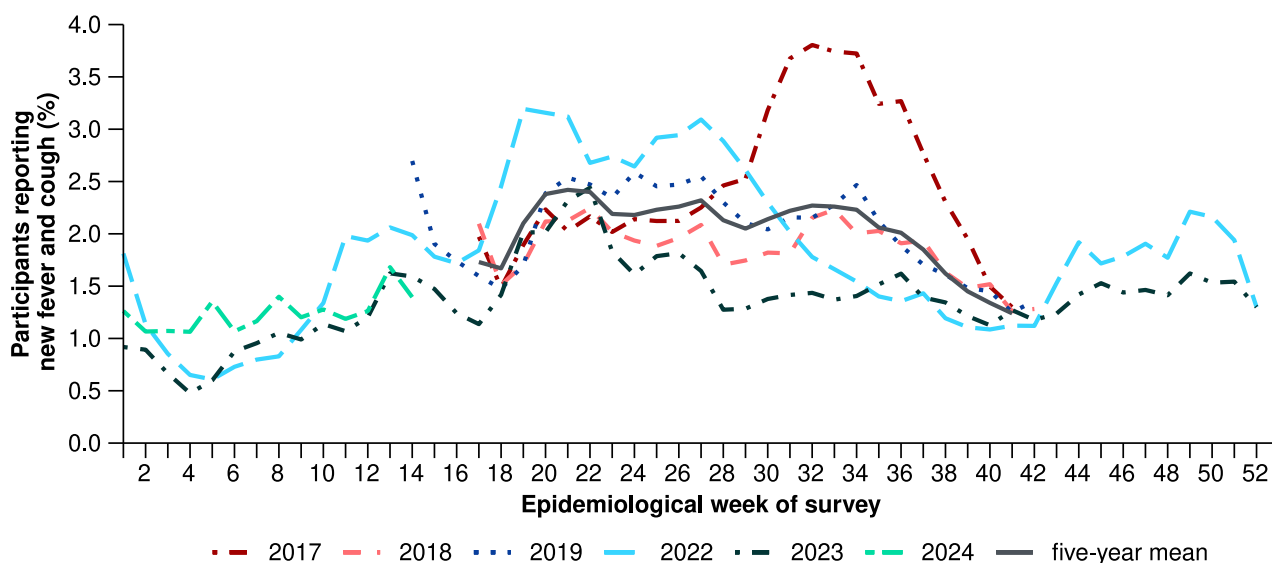
Activity measures the capacity of the circulating respiratory viruses to spread from person to person and may be measured indirectly through systems that monitor acute respiratory illnesses and more directly through systems that monitor cases.

1.1 Community-based surveillance

FluTracking

- This fortnight (25 March to 7 April 2024), the mean incidence of new fever and cough among FluTracking participants was 1.5%, an increase compared with the mean incidence of 1.2% in the previous fortnight (Figure 1). Note, FluTracking data are self-reported and age standardised.
- This fortnight, 10.3% (101/980) of FluTracking participants who reported new fever and cough symptoms reported testing for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) with a polymerase chain reaction (PCR) test and 67.9% (665/980) reported testing with a rapid antigen test (RAT) (noting that in some instances a RAT will be followed by a PCR test for the same participant, or vice versa).
 - This fortnight, the self-reported percent positivity among participants with new fever and cough symptoms decreased for SARS-CoV-2 PCR (19.8%) compared with the previous fortnight (20.2%), and decreased for RAT (37.0%) compared with the previous fortnight (39.4%).
- This fortnight, 12.9% (126/980) of FluTracking participants with new fever and cough symptoms reported testing for influenza with a PCR test.
 - This fortnight, the self-reported percent positivity among participants with new fever and cough symptoms decreased for influenza PCR test (15.9%), compared with the previous fortnight (20.6%).
- In the year to date, the fortnightly incidence of fever and cough has fluctuated. The incidence of fever and cough peaked in the fortnight ending 7 April 2024 at 1.5% and is lower than the proportion observed during the same period in 2023 (Figure 1).

Figure 1: Age standardised percentage of FluTracking participants reporting new fever and cough symptoms compared with the five-year mean by year and week of report*, Australia, 2017 to 7 April 2024

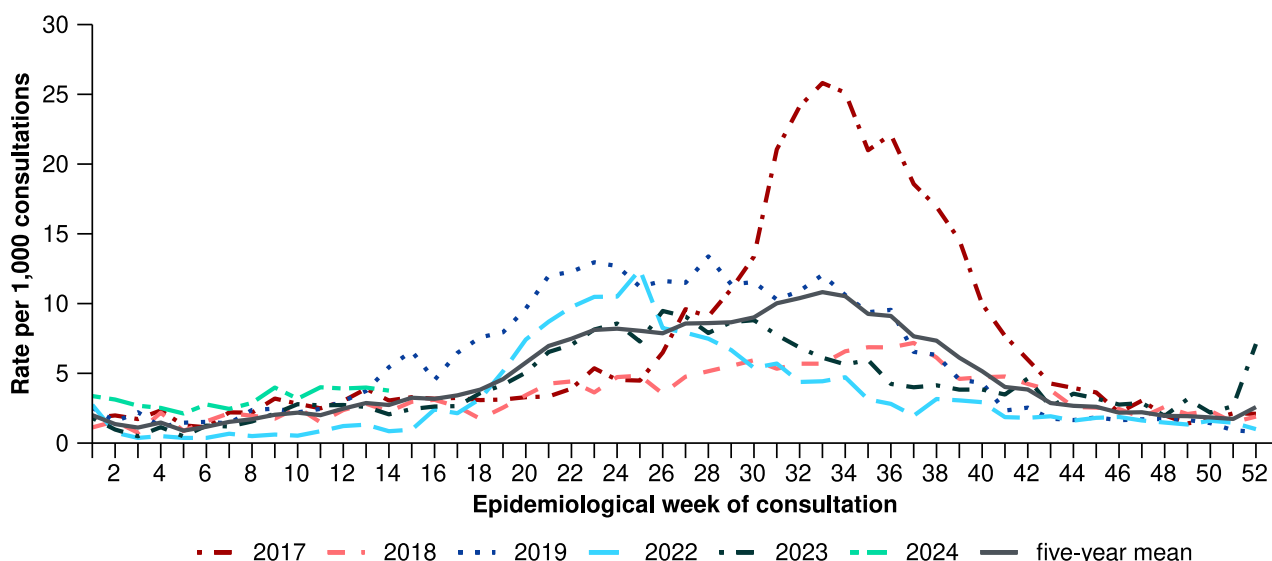


*FluTracking has expanded the reporting period from 2020 onwards due to COVID-19. As such, five-year historical comparisons are not available for data reported before May and after October for any year before 2020. The years 2020 and 2021 are excluded when comparing the current season to historical periods when influenza virus has circulated without public health restrictions. As such, the five-year mean includes the years 2017 to 2019 and 2022 to 2023. Please refer to the Technical Supplement for interpretation of the five-year mean and for notes on impact of COVID-19 on FluTracking data.

Australian Sentinel Practice Research Network (ASPREN)

- This fortnight (25 March to 7 April 2024), a mean rate of 3.9 per 1,000 consultations per fortnight due to new fever and cough symptoms were reported by ASPREN sentinel general practitioners and nurse practitioners, a slight decrease compared with 4.0 per 1,000 consultations in the previous fortnight (Figure 2).
- This fortnight, 56 people presented to ASPREN sentinel general practitioners and nurse practitioners with new fever and cough symptoms and were tested for respiratory viruses. Of those, 85.7% (48/56) have tested positive for a respiratory virus.
 - Among those positive for a respiratory virus, the most common respiratory virus reported was rhinovirus (37.5%; 18/48). Other respiratory viruses detected included SARS-CoV-2 (18.8%; 9/48), respiratory syncytial virus (16.7%; 8/48), and influenza (12.5%; 6/48).
- In the year to date, the mean rate of new fever and cough symptoms per 1,000 consultations per week remains above the rate observed in the corresponding weeks in pre-pandemic years (Figure 2).
- In the year to date, 360 people presented to ASPREN sentinel general practitioners and nurse practitioners with new fever and cough symptoms and have been tested for respiratory viruses. Of those, 71.4% (257/360) tested positive for a respiratory virus.
 - Among those positive for a respiratory virus, the most common respiratory virus reported was rhinovirus (37.7%; 97/257). Other respiratory viruses detected included SARS-CoV-2 (16.0%; 41/257), influenza (12.1%; 31/257), respiratory syncytial virus (9.7%; 25/257), human metapneumovirus (8.6%; 22/257) and adenovirus (4.7%; 12/257).

Figure 2: Rate of new fever and cough symptoms per 1,000 consultations per week with ASPREN sentinel general practitioners and nurse practitioners compared with the five-year mean by year and week of consultation*†, Australia, 2017 to 7 April 2024



* The years 2020 and 2021 are excluded when comparing the current season to historical periods when influenza virus has circulated without public health restrictions. As such, the five-year mean includes the years 2017 to 2019 and 2022 to 2023. Please refer to the Technical Supplement for interpretation of the five-year mean.

† Please refer to the Technical Supplement for notes on impact of COVID-19 on ASPREN data.

Wastewater surveillance

Wastewater surveillance for levels of community circulation of SARS-CoV-2 will be included in future iterations of the Australian Respiratory Surveillance Report.

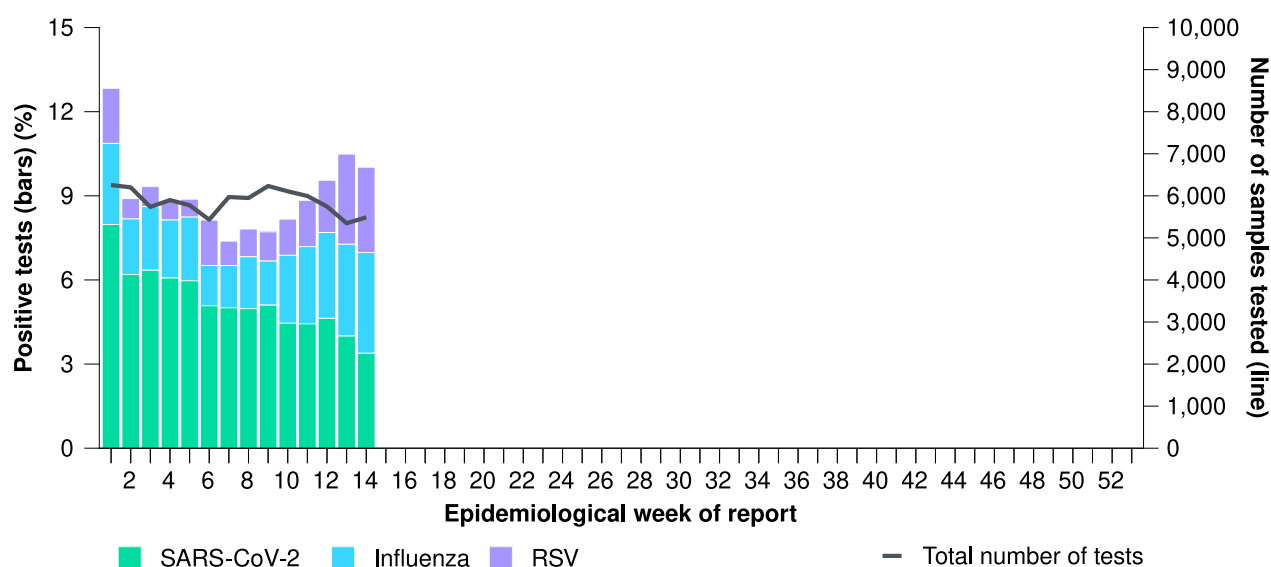
1.2 Laboratory-based surveillance

Sentinel laboratories, including National Influenza Centres

- This fortnight (25 March to 7 April 2024), 3.7% (400/10,838) of samples tested for SARS-CoV-2 across sentinel laboratories were positive for SARS-CoV-2, a decrease compared with 4.5% (532/11,742) in the previous fortnight (Figure 3).
- This fortnight, 3.6% (468/12,859) of the samples tested for influenza across sentinel laboratories have been positive for influenza, an increase compared with 3.2% (443/13,702) in the previous fortnight (Figure 3).
- This fortnight, 3.1% (339/10,838) of the samples tested for RSV across sentinel laboratories have been positive for RSV, an increase compared with 1.8% (207/11,742) in the previous fortnight (Figure 3).
- This fortnight, the most commonly detected respiratory viruses by sentinel laboratory site and week are as follows:
 - New South Wales: rhinovirus and RSV (week 13) and influenza A (week 14)
 - South Australia: rhinovirus (both weeks)
 - Tasmania: rhinovirus (week 13) and SARS-CoV-2 (week 14)

- Victoria: SARS-CoV-2 and picornavirus (week 13) and nil viruses detected (week 14)
- Western Australia: parainfluenza (week 13) and SARS-CoV-2 (week 14).
- In the year to date, 5.3% (4,343/82,145) of samples tested for SARS-CoV-2 have been positive for SARS-CoV-2, 2.6% (2,472/95,968) of samples tested for influenza have been positive for influenza and 1.4% (1,174/82,145) of samples tested for RSV have been positive for RSV (Figure 3).

Figure 3: Total number of specimens tested by sentinel laboratories and proportion of positive sentinel laboratory tests by pathogen and week of report*, 1 January to 7 April 2024



* Number of specimens tested excludes data from Western Australia as testing denominator are different for the three pathogens in Western Australia.

† A small minority of total samples from Victoria are tested only by respiratory panel (influenza, parainfluenza, adenovirus, human metapneumovirus, seasonal coronaviruses, RSV, and some picornaviruses) but not for SARS-CoV-2. These minority samples include only forensic materials; all other samples are tested by respiratory panel and SARS-CoV-2 assay.

1.3 Case-based surveillance

NNDSS

- Nationally, RSV has been notified at the highest levels in the reporting fortnight, but COVID-19 maintains the highest notifications in the year to date (Table 1).
- Nationally, there were 8,614 COVID-19 notifications with a diagnosis date this fortnight (25 March to 7 April 2024), compared with 9,864 notifications in the previous fortnight representing a 12.7% decrease (Figure 5).
- In the year to date, there have been 100,370 COVID-19 notifications reported to the NNDSS. This represents a considerable decrease compared with the number of notifications in the same period in 2023 and 2022; however, this trend should be interpreted with caution due to a reduction in case ascertainment and reporting in all jurisdictions, including changes in testing and collection of self-reported RAT results (Figure 4, Figure 5).

Table 1: Notifications to the NNDSS and notification rate per 100,000 population by disease, five-year age groups, and jurisdiction*, Australia, 1 January to 7 April 2024

	COVID-19			Influenza			RSV		
	Reporting fortnight (n)	Year to date (n)	Year to date (rate)	Reporting fortnight (n)	Year to date (n)	Year to date (rate)	Reporting fortnight (n)	Year to date (n)	Year to date (rate)
Age group (years)									
0–4	574	7,404	488.4	629	3,433	226.5	5,687	21,620	1426.1
5–9	142	1,849	114.8	691	3,498	217.2	753	2,358	146.4
10–14	184	2,079	125.4	351	2,234	134.8	251	870	52.5
15–19	231	2,767	172.0	271	1,946	121.0	139	652	40.5
20–24	324	3,804	219.6	247	1,937	111.8	111	579	33.4
25–29	402	5,066	263.6	289	1,988	103.5	155	642	33.4
30–34	432	5,742	289.6	336	2,042	103.0	201	841	42.4
35–39	485	6,160	317.9	361	2,179	112.4	187	842	43.4
40–44	426	5,961	334.9	353	2,020	113.5	133	632	35.5
45–49	481	5,577	345.5	279	1,707	105.7	159	634	39.3
50–54	533	6,045	359.8	292	1,747	104.0	186	839	49.9
55–59	510	5,853	384.2	265	1,578	103.6	178	795	52.2
60–64	528	5,929	390.9	295	1,533	101.1	232	943	62.2
65–69	479	5,735	432.2	272	1,353	102.0	202	911	68.7
70+	2,879	30,353	939.7	815	4,126	127.7	921	3,767	116.6
Jurisdiction									
ACT	98	1,176	251.9	47	446	95.5	95	349	74.8
NSW	2,750	34,943	419.0	2,196	13,369	160.3	5,243	20,612	247.2
NT	57	765	303.0	153	381	150.9	124	671	265.8
Qld	1,547	20,377	373.2	1,945	9,238	169.2	2,534	9,519	174.4
SA	1,808	18,850	1018.0	272	1,890	102.1	167	845	45.6
Tas.	744	8,638	1508.1	68	274	47.8	34	169	29.5
Vic.	1,210	11,748	172.4	774	5,832	85.6	1,132	3,993	58.6
WA	400	3,873	134.5	291	1,895	65.8	167	772	26.8
Total†	8,614	100,370	376.8	5,746	33,325	125.1	9,496	36,930	138.6

* Rate per 100,000 population for the given time period. Population data are based on the Australian Bureau of Statistics (ABS) Estimated Resident Population (ERP) as at June 2023.

† Total includes cases with missing age.

- In the year to date, COVID-19 notification rates have been highest in people aged 70 years or over followed by children aged 0–4 years (Table 1).
 - This trend for older age groups is likely a reflection of higher case ascertainment due to targeted testing strategies in place for populations at-risk of severe disease and who live in a high-risk setting, such as a residential aged care facility.

Figure 4: COVID-19 cases notified to the NNDSS (showing all pandemic years 2020–2024) by year and week of diagnosis, Australia, 1 January 2020 to 7 April 2024

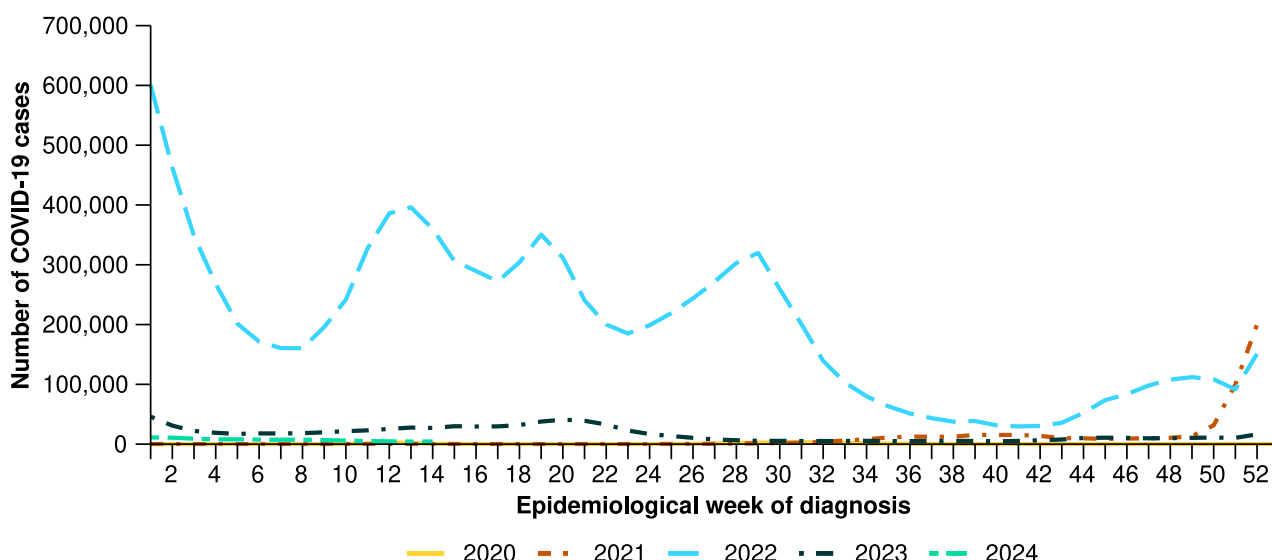
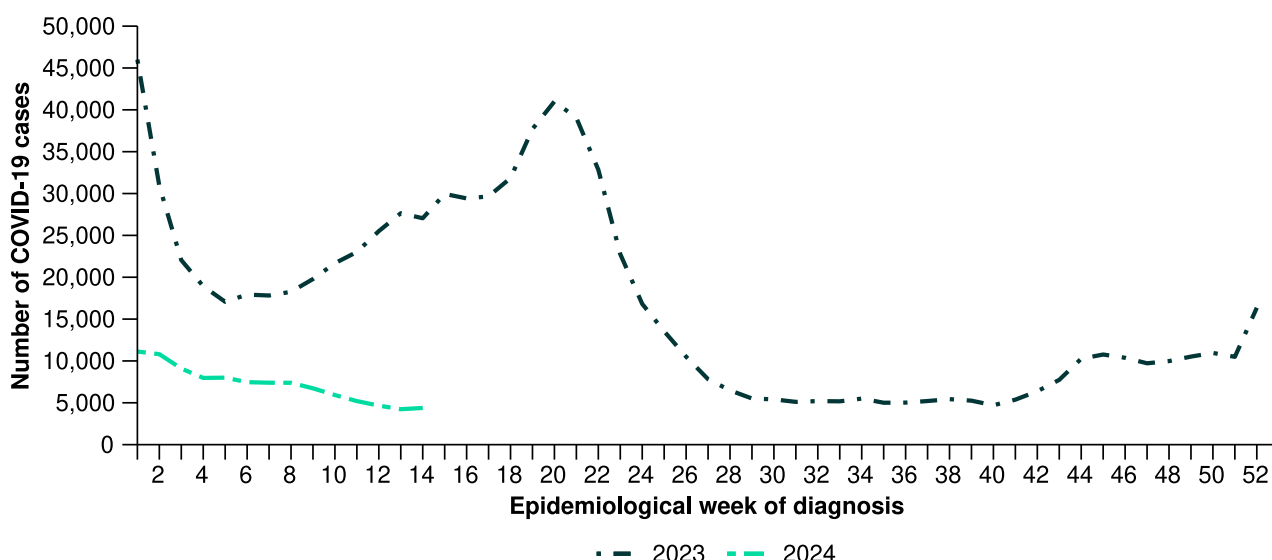


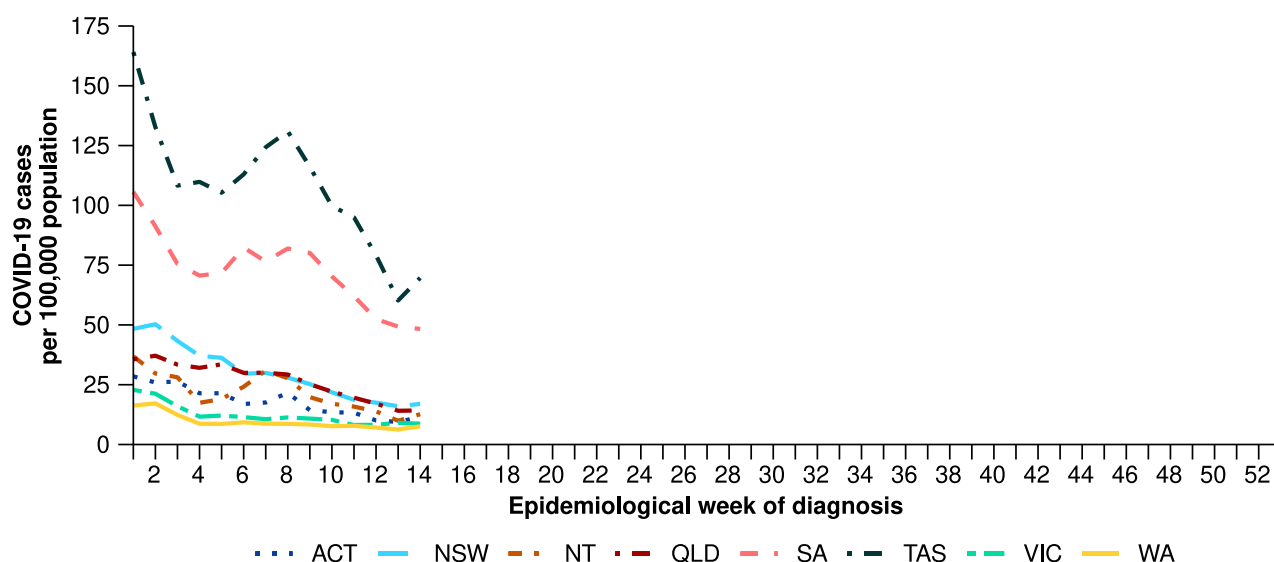
Figure 5: COVID-19 cases notified to the NNDSS (showing recent pandemic years 2023 and 2024) by year and week of diagnosis, Australia, 2023 to 7 April 2024



- This fortnight, COVID-19 notification rates decreased or remained stable in all jurisdictions compared with the previous fortnight (Figure 6).
- Since the beginning of 2024, notification rates in all jurisdictions have followed a decreasing trend (Figure 6). In the year to date, of the jurisdictions that no longer continue to collect self-reported RAT results, COVID-19 notification rates have been highest in New South Wales and Queensland (Table 1).

- Trends in COVID-19 notification rates by jurisdiction should be interpreted with caution as South Australia and Tasmania are the only jurisdictions that continued to collect self-reported RAT results in the reporting period.

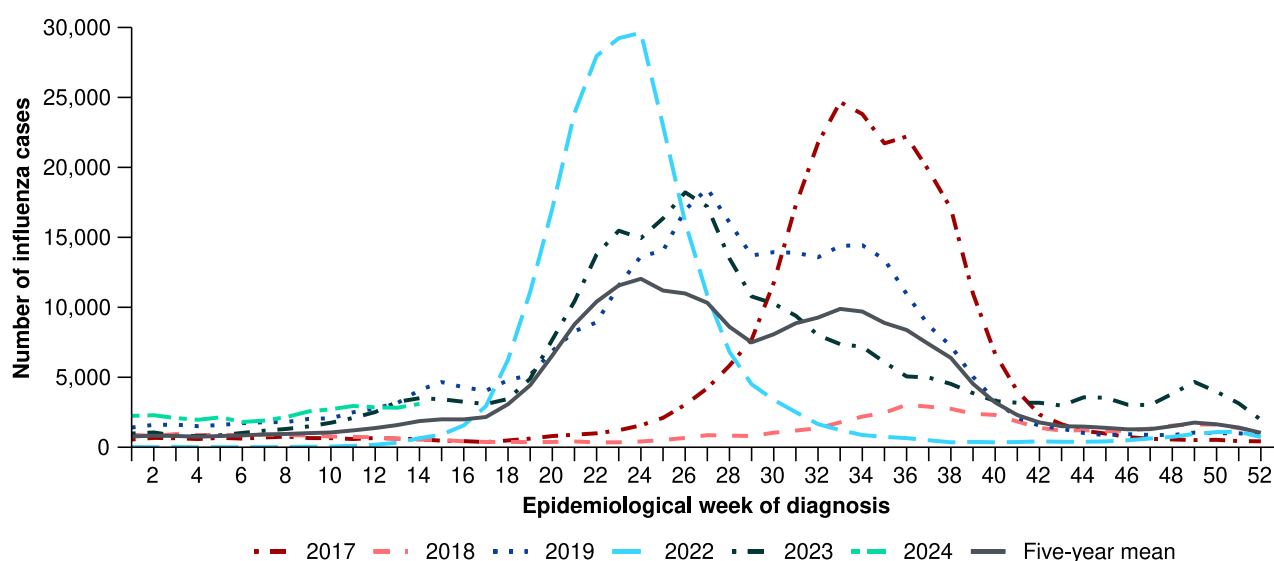
Figure 6: Notification rates per 100,000 population for COVID-19 cases notified to the NNDSS* by state or territory and week of diagnosis, Australia, 1 January to 7 April 2024



* Rate per 100,000 population for the given time period. Population data are based on the ABS ERP as at June 2023.

- Nationally, there were 5,746 influenza notifications with a diagnosis date this fortnight, compared with 5,775 notifications in the previous fortnight, remaining relatively stable (Figure 7).
- In the year to date, there have been 33,325 influenza notifications reported to the NNDSS, which is higher than the number of notifications in the same period in 2023 and in the pre-pandemic years (Figure 7).
 - The higher number of influenza notifications observed in 2024 thus far may be due to an increase in influenza circulation in the community but may also be influenced by changes in health-seeking behaviour associated with increases in COVID-19 circulation over the summer period in many jurisdictions, such as increased testing for viral respiratory infections.
- In the year to date, influenza notification rates have been highest in children aged 0–4 years, followed closely by children aged 5–9 years (Table 1).

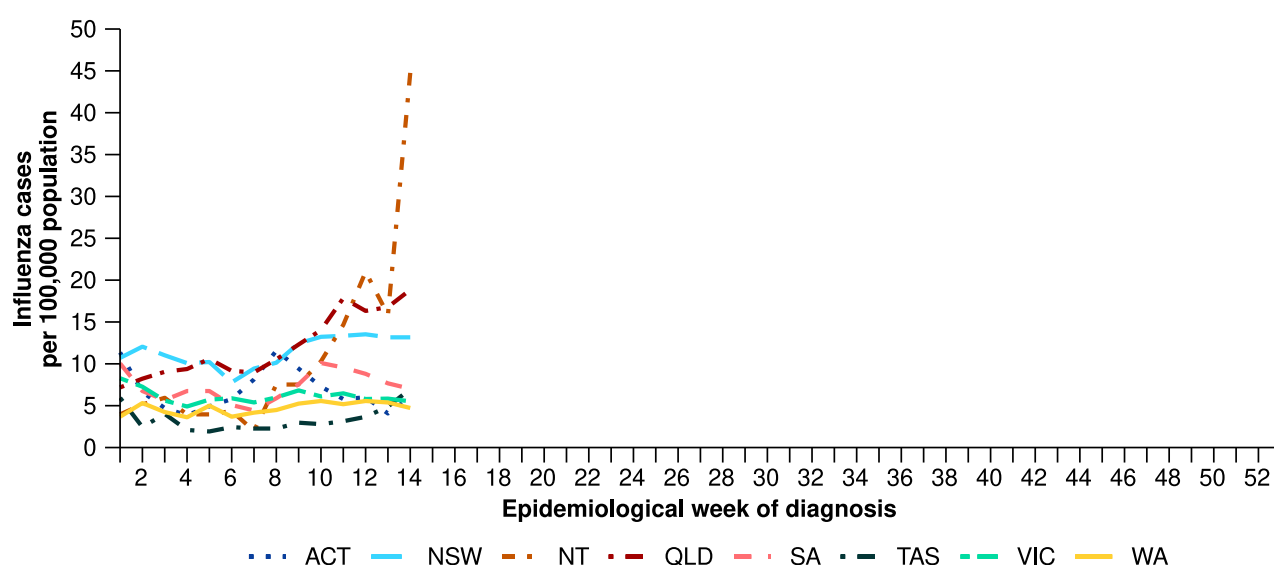
Figure 7: Influenza cases notified to the NNDSS and five-year mean* by year and week of diagnosis, Australia, 1 January 2017 to 7 April 2024



*The years 2020 and 2021 are excluded when comparing the current season to historical periods when influenza virus has circulated without public health restrictions. As such, the five-year mean includes the years 2017 to 2019 and 2022 to 2023. Please refer to the Technical Supplement for interpretation of the five-year mean.

- This fortnight, influenza notification rates increased considerably in the Northern Territory, compared with the previous fortnight (Figure 8).
- Since the beginning of 2024, influenza notification rates have followed an increasing trend in the Northern Territory and Queensland but have remained relatively stable in most other jurisdictions (Figure 8). In the year to date, influenza notification rates have been highest in Queensland followed by New South Wales (Table 1).

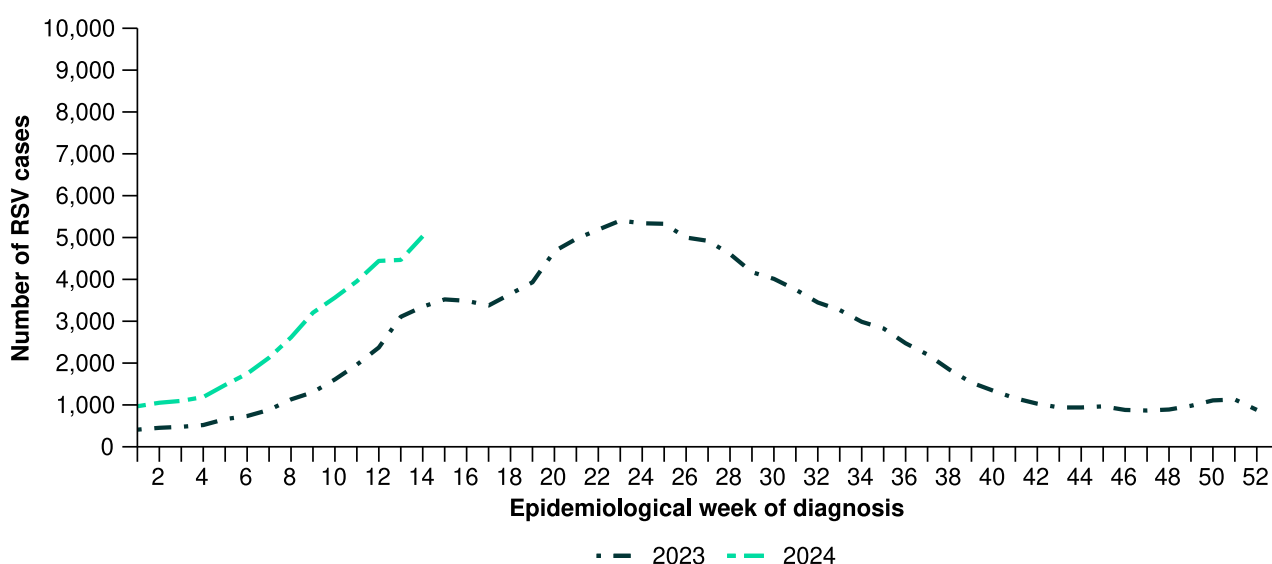
Figure 8: Notification rates per 100,000 population for influenza cases notified to the NNDSS* by state or territory and week of diagnosis, Australia, 1 January to 7 April 2024



* Rate per 100,000 population for the given time period. Population data are based on the ABS ERP as at June 2023.

- Nationally, there were 9,496 RSV notifications with a diagnosis date this fortnight, representing an increase compared with 8,396 notifications in the previous fortnight (Figure 9).
- In the year to date, there have been 36,930 RSV notifications reported to the NNDSS, which is twice the number of RSV notifications in the same period in 2023 (Figure 9).
 - The higher number of RSV notifications observed in 2024 thus far may be due to an increase in RSV circulation in the community but may also be influenced by changes in health-seeking behaviour associated with increases in COVID-19 circulation over the summer period in many jurisdictions, such as increased testing for viral respiratory infections.
- In the year to date, RSV notification rates have been highest in children aged 0–4 years followed by children aged 5–9 years (Table 1).

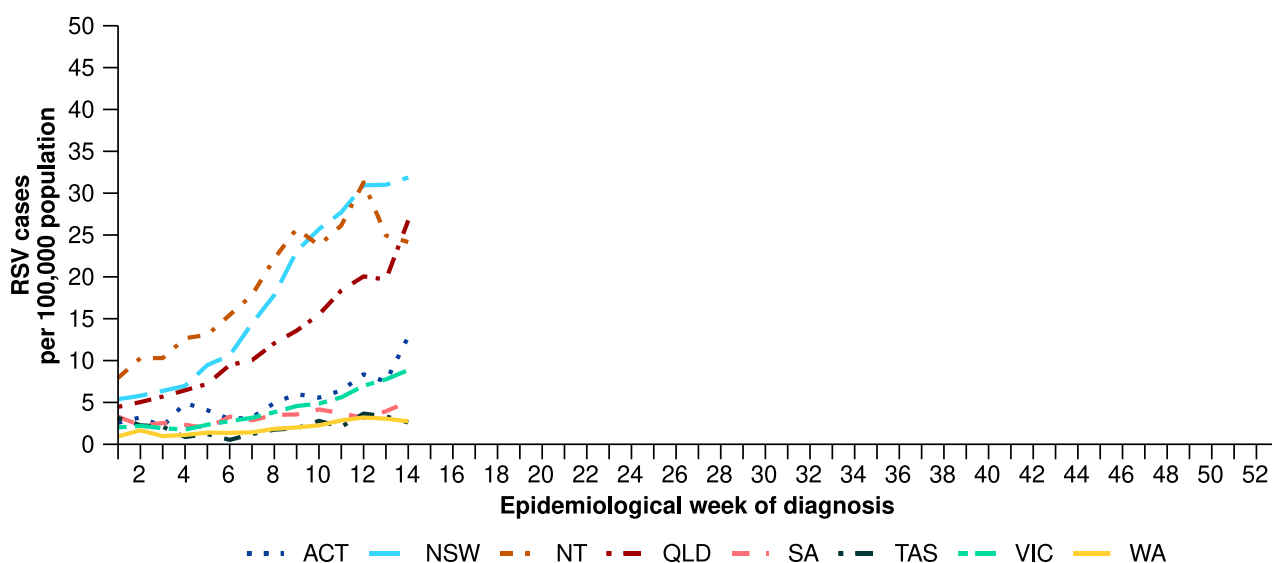
Figure 9: RSV cases notified to the NNDSS by year and week of diagnosis*, Australia, 2023 to 7 April 2024



* RSV became notifiable in all states and territories on 1 September 2022. Comprehensive national data for RSV are only available from 2023 onwards.

- This fortnight, RSV notification rates increased in the Australian Capital Territory, New South Wales, Queensland and Victoria, compared with the previous fortnight (Figure 10).
- Since the beginning of 2024, RSV notification rates have followed an increasing trend in New South Wales, the Northern Territory and Queensland, while notification rates have remained comparatively low and stable in other jurisdictions until recent weeks (Figure 10). In the year to date, RSV notification rates have been highest in the Northern Territory followed by New South Wales (Table 1).

Figure 10: Notification rates per 100,000 population for RSV cases notified to the NNDSS* by state or territory and week of diagnosis, Australia, 1 January to 7 April 2024



* Rate per 100,000 population for the given time period. Population data are based on the ABS ERP as at June 2023.

For further information regarding respiratory virus activity at the jurisdictional level, please refer to the state and territory health respiratory surveillance reports.

2. Severity*

The severity of acute respiratory infections is measured as those who are hospitalised, admitted to intensive care, or have died. Measuring and understanding severity quantifies the most significant health impacts of circulating respiratory viruses.

2.1 Hospital-based surveillance

In interpreting data from hospital-based sentinel systems, it is important to note these data reflect the sickest patients with severe acute respiratory infections who are hospitalised or admitted to intensive care; data are therefore not generalisable to all cases or patients in hospital.

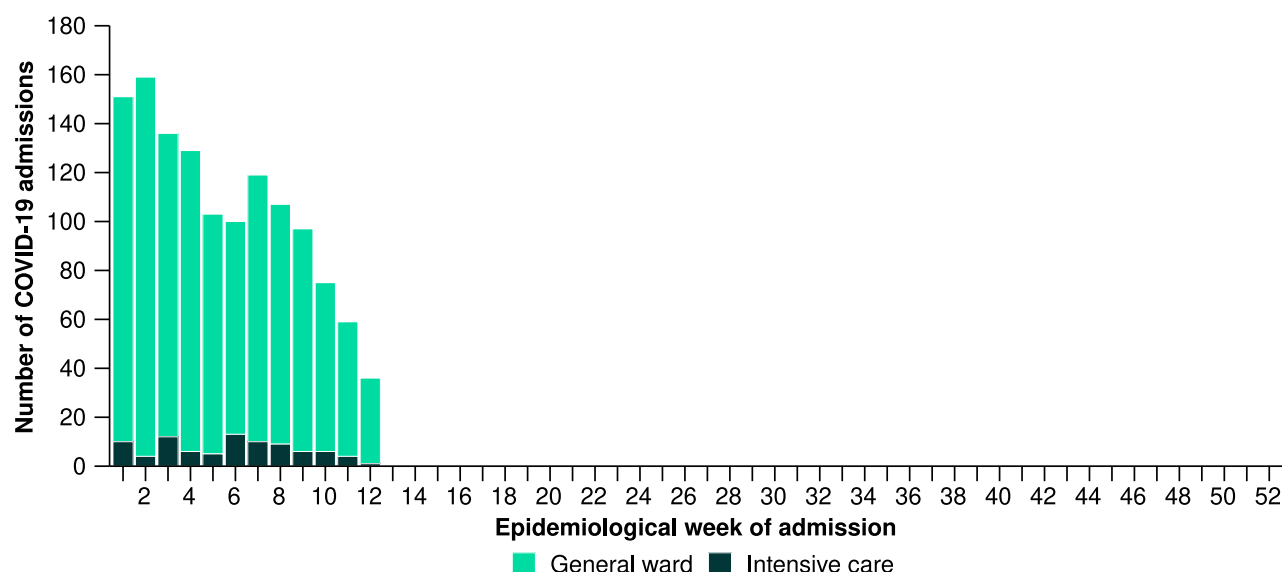
Influenza Complications Alert Network (FluCAN)

In 2024, surveillance for influenza and RSV at FluCAN sentinel hospitals commenced on 1 April, therefore no data are available for the severity reporting period*. Data on patients admitted with influenza and/or RSV to FluCAN sentinel hospitals will be included in future iterations of the Australian Respiratory Surveillance Report.

- In this fortnight for FluCAN severity reporting (11 March to 24 March 2024), there were 95 patients admitted with COVID-19 to FluCAN sentinel hospitals, of whom 5.3% (5/95) were admitted directly to intensive care (Figure 11).
- In the year to date for FluCAN severity reporting (1 January to 24 March 2024), there have been 1,275 patients admitted with COVID-19 to FluCAN sentinel hospitals, of whom 6.8% (86/1,275) were admitted directly to intensive care (Figure 11).
 - For patients admitted with COVID-19 to FluCAN sentinel hospitals the median length of stay in hospital was 3 days (interquartile range [IQR]: 1–6 days).
 - Note, all length of stay calculations exclude patients who acquired their infection in hospital. Please see the Technical Supplement for further detail.

*To account for the lag in collection and provision of severity data from some surveillance systems, and for the time delay between illness onset and the development of severe disease, cases with a diagnosis date in the last two weeks are excluded from severity analyses which include analyses of hospitalisations, intensive care admissions and deaths. For this reason, the severity reporting periods are two weeks behind the current reporting period.

Figure 11: Number of patients admitted with COVID-19 to FluCAN sentinel hospitals by admission location and week of admission*†, Australia, 1 January to 24 March 2024



* Excludes five patients admitted with COVID-19 to FluCAN sentinel hospitals with a missing admission location.

† Admission location reflects the initial admission ward; some patients may be initially admitted to general ward then later admitted to an intensive care and this is not reflected here.

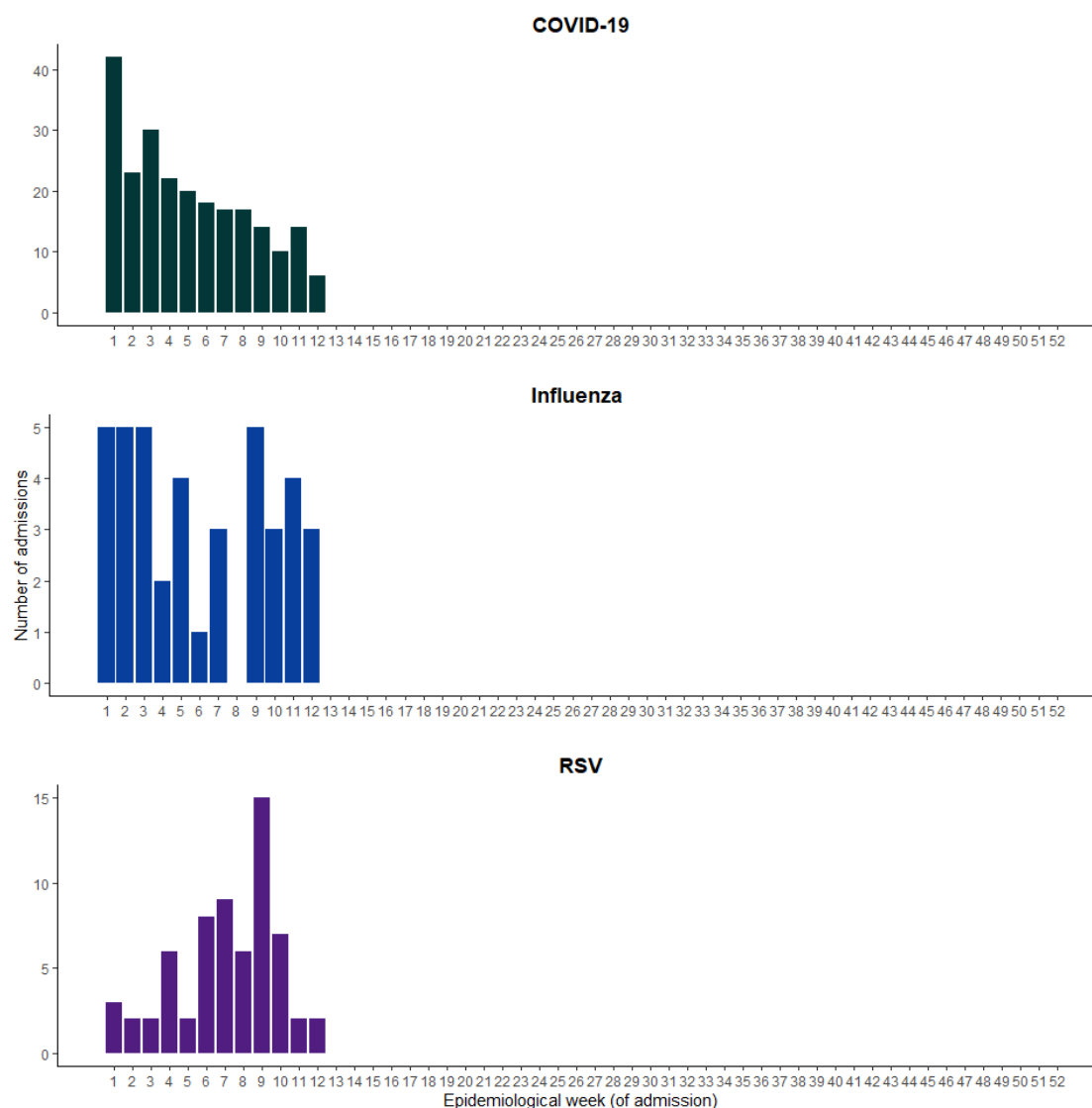
Short Period Incidence Study of Severe Acute Respiratory Infection (SPRINT-SARI) Australia

This section will be updated every four weeks; therefore, reporting periods presented here may not align with other sections of the report. Note, intensive care includes intensive care units and high dependency units that are managed by an intensive care team.

- In this 28-day period for SPRINT-SARI severity reporting (26 February to 24 March 2024), were 109 patients admitted with a SARI to a SPRINT-SARI sentinel intensive care. Patients with COVID-19 accounted for the highest proportion of patients admitted with a SARI to a SPRINT-SARI sentinel intensive care during this time (Figure 12).
- In the year to date for SPRINT-SARI severity reporting (1 January to 24 March 2024), there have been 426 patients admitted with a SARI to a SPRINT-SARI sentinel intensive care (Figure 12). This includes:
 - 54.7% (233/426) patients with SARS-CoV-2
 - 9.4% (40/426) patients with influenza
 - 15.0% (64/426) patients with RSV
 - 22.8% (97/426) patients with other respiratory pathogens including parainfluenza and rhinovirus.
- Approximately 1.9% (8/426) patients had co-infections of multiple pathogens, therefore pathogen-specific totals above may not sum.
- In the year to date for SPRINT-SARI severity reporting, for all patients admitted with a SARI to a SPRINT-SARI sentinel intensive care, the median duration of mechanical ventilation was 3.1 days (IQR: 1.1–6.8 days), the median length of stay in intensive care was 2.6 days (IQR: 1.5–4.9 days), and the median length of stay in hospital was 6.9 days (IQR: 4.2–13.4 days).

- In the year to date for SPRINT-SARI severity reporting, most patients admitted with a SARI (67.4%; 287/426) have been discharged home, 7.5% (32/426) died in intensive care and 2.8% (12/426) died within the general hospital ward after intensive care admission, with an overall in-hospital mortality rate of 10.3% (44/426) for SARI patients admitted to a SPRINT-SARI sentinel intensive care.
 - Note, deaths in patients admitted with a SARI to a SPRINT-SARI sentinel intensive care may not necessarily represent a death due to SARI.

Figure 12: Number of severe acute respiratory illness patients admitted to a SPRINT-SARI sentinel intensive care by disease*† and week of admission, Australia, 1 January to 24 March 2024



* Axis varies between disease groups.

† Includes one patient with viral co-infection of SARS-CoV-2/influenza/RSV in the year to date for severity reporting.

Table 2: Outcomes for patients with severe acute respiratory illnesses admitted to a SPRINT-SARI sentinel intensive care by disease*†‡, Australia, 1 January to 24 March 2024

	COVID-19		Influenza		RSV	
	Severity reporting period (n=44)	Year to date for severity reporting (n=233)	Severity reporting period (n=15)	Year to date for severity reporting (n=40)	Severity reporting period (n=26)	Year to date for severity reporting (n=64)
Received invasive mechanical ventilation						
Number (%)	10 (22.7%)	72 (30.9%)	4 (26.7%)	11 (27.5%)	6 (23.1%)	17 (26.6%)
Duration of invasive mechanical ventilation (days)						
Median [IQR]	5.1 [0.82–8.2]	1.8 [0.61–7.3]	6.5 [5.7–7.3]	5.2 [3.3–14]	4.4 [3.4–5.7]	4.2 [3.0–5.3]
Length of intensive care stay (days)						
Median [IQR]	2.0 [1.0–5.7]	2.5 [1.4–4.9]	1.8 [1.4–3.7]	2.7 [1.6–6.0]	2.8 [1.9–4.0]	2.8 [1.7–4.1]
Length of hospital stay (days)						
Median [IQR]	9.0 [4.2–14]	7.8 [4.6–15]	6.8 [3.5–12]	7.5 [5.0–12]	6.1 [4.9–7.7]	6.2 [4.3–9.4]
Patient outcome						
Ongoing care in intensive care	6 (13.6%)	17 (7.3%)	0 (0%)	1 (2.5%)	1 (3.8%)	2 (3.1%)
Ongoing care in hospital ward*	6 (13.6%)	12 (5.2%)	3 (20.0%)	4 (10.0%)	3 (11.5%)	3 (4.7%)
Transfer to other hospital or facility	1 (2.3%)	18 (7.7%)	0 (0%)	1 (2.5%)	0 (0%)	3 (4.7%)
Transfer to rehabilitation	1 (2.3%)	10 (4.3%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Discharge home	25 (56.8%)	145 (62.2%)	10 (66.7%)	30 (75.0%)	19 (73.1%)	50 (78.1%)
Death – intensive care†	4 (9.1%)	21 (9.0%)	2 (13.3%)	3 (7.5%)	2 (7.7%)	5 (7.8%)
Death – hospital ward†	1 (2.3%)	9 (3.9%)	0 (0%)	1 (2.5%)	1 (3.8%)	1 (1.6%)
Missing‡	0 (0%)	1 (0.4%)	–	–	–	–

Note: Includes one patient with viral co-infection of SARS-CoV-2/influenza/RSV in the 28-day severity reporting period and in the year to date for severity reporting. For patients whom are still receiving treatment in intensive care data may not be complete; therefore, data are not included in the duration of ventilation or length of intensive care stay.

* Patients who have been admitted in intensive care/hospital wards with no discharge information for less than 90 days have been assumed to have ongoing care in the hospital.

† Death may not necessarily represent a death due to the disease.

‡ Patients who have been admitted to intensive care/hospital wards for more than 90 days with no discharge information have been treated as missing.

2.2 Case-based surveillance

NNDSS

The number of deaths associated with COVID-19, influenza or RSV reported to the NNDSS is based on data reported to the NNDSS by states and territories. The completeness of information on deaths in the NNDSS varies, as data are sourced in different ways by state and territories based on their local surveillance system capabilities, definitions, priorities, and needs. Therefore, the number of deaths associated with COVID-19, influenza or RSV reported to the NNDSS are likely an underestimate and do not represent the true mortality associated with these diseases. In the NNDSS, death notifications may not necessarily represent a death due to the disease and public health follow-up is not a requirement to determine the outcome of disease. For more detail, please refer to reports and data considerations published by individual jurisdictions, or the [Technical Supplement – Australian Respiratory Surveillance Report](#).

- In the year to date for severity reporting (1 January to 24 March 2024), there have been 507 COVID-19-associated deaths notified to the NNDSS (Table 3).
- In the year to date for severity reporting, there have been 31 influenza-associated deaths notified to the NNDSS (Table 3).
 - Of the influenza-associated deaths, 90.3% (28/31) have been attributed to influenza A(Unsubtyped), 3.2% (1/31) to influenza A(H1N1), 3.2% (1/31) to influenza A(H3N2), and 3.2% (1/31) to influenza untyped.
- In the year to date for severity reporting, there have been 14 RSV-associated deaths notified to the NNDSS (Table 3).

Table 3: Notifications of deaths to the NNDSS and mortality rates per 100,000 population by disease and ten-year age groups*†, Australia, 1 January to 24 March 2024

	COVID-19		Influenza		RSV	
	Year to date (n)	Year to date (rate)	Year to date (n)	Year to date (rate)	Year to date (n)	Year to date (rate)
Age group (years)						
0–9	–	–	–	–	–	–
10–19	–	–	–	–	–	–
20–29	–	–	–	–	–	–
30–39	6	0.2	–	–	–	–
40–49	6	0.2	–	–	–	–
50–59	13	0.4	–	–	–	–
60–69	41	1.4	–	–	–	–
70+	439	13.6	24	0.7	9	0.3
Total‡	507	1.9	31	0.1	14	0.1

Note: To reduce the risk of re-identification, primary cell suppression has been applied to cells with a value of < 5.

* Rate per 100,000 population for the given time period. Population data are based on the ABS ERP as at June 2023.

† Notified deaths are reported based on diagnosis date not date of death, as date of death data are not collected for influenza or RSV in the NNDSS. Death may not necessarily represent a death due to the disease.

‡ Total may include cases with missing age.

3. At-risk populations*

At-risk populations are people who may be more susceptible to infection with circulating respiratory viruses and/or who may be more likely to experience severe disease associated with their infection.

3.1 Hospital-based surveillance

In interpreting data from hospital-based sentinel systems, it is important to note these data reflect the sickest patients with severe acute respiratory infections who are hospitalised or admitted to intensive care; data are therefore not generalisable to all cases or patients in hospital.

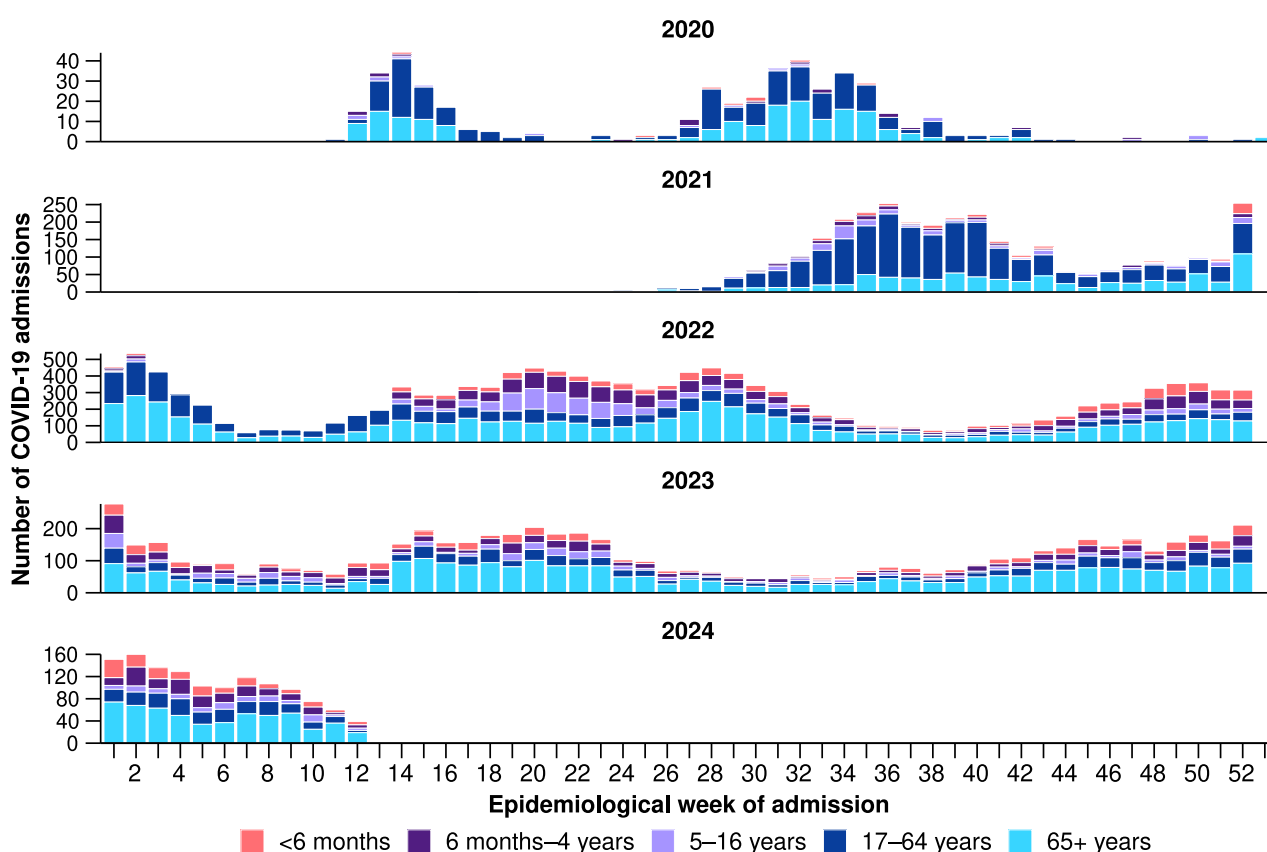
FluCAN

In 2024, surveillance for influenza and RSV at FluCAN sentinel hospitals commenced on 1 April, therefore no data are available for the severity reporting period*. Data on patients admitted with influenza and/or RSV to FluCAN sentinel hospitals will be included in future iterations of the Australian Respiratory Surveillance Report. In addition, there are a higher proportional number of paediatric hospitals that contribute to the FluCAN dataset. Hospital admissions in children 16 years of age or less are over-represented to provide enhanced surveillance on this at-risk population. For this reason, paediatric (16 years of age or less) and adult (> 16 years of age) patients in the FluCAN dataset are reported on separately.

- In the year to date for FluCAN severity reporting (1 January to 24 March 2024), there have been 469 paediatric patients admitted with COVID-19 to FluCAN sentinel hospitals. The median age at admission was 1 year (IQR: 0–3 years) and 7.7% (36/469) of admissions were among Aboriginal and Torres Strait Islander people.
 - The highest proportion of paediatric patients admitted with COVID-19 to FluCAN sentinel hospitals with a direct admission to intensive care have been in those aged 5–16 years.
- In the year to date for FluCAN severity reporting, there have been 806 adult patients with COVID-19 admitted to FluCAN sentinel hospitals. The median age at admission was 74 years (IQR: 61–83 years) and 4.0% (32/806) of admissions were among Aboriginal and Torres Strait Islander people.
 - The highest proportion of adult patients admitted with COVID-19 to FluCAN sentinel hospitals with a direct admission to intensive care have been in those aged 65 years or over.
- In the year to date for FluCAN severity reporting, the greatest proportion of patients admitted with confirmed COVID-19 to FluCAN sentinel hospitals has been in those aged 65 years or over. This is consistent with trends observed in all previous years, except in 2020 and 2021 when those aged 17–64 years accounted for the largest proportion of admissions to FluCAN sentinel hospitals (Figure 13).

*To account for the lag in collection and provision of severity data from some surveillance systems, and for the time delay between illness onset and the development of severe disease, cases with a diagnosis date in the last two weeks are excluded from severity analyses which include analyses of hospitalisations, intensive care admissions and deaths. For this reason, the severity reporting periods are two weeks behind the current reporting period.

Figure 13: Number of patients admitted with confirmed COVID-19 to FluCAN sentinel hospitals by age group*, year and week of admission, Australia, 2020 to 24 March 2024



* Axis varies between years.

Paediatric Active Enhanced Disease Surveillance (PAEDS)

This section will be updated every four weeks; therefore, reporting periods presented here may not align with other sections of the report.

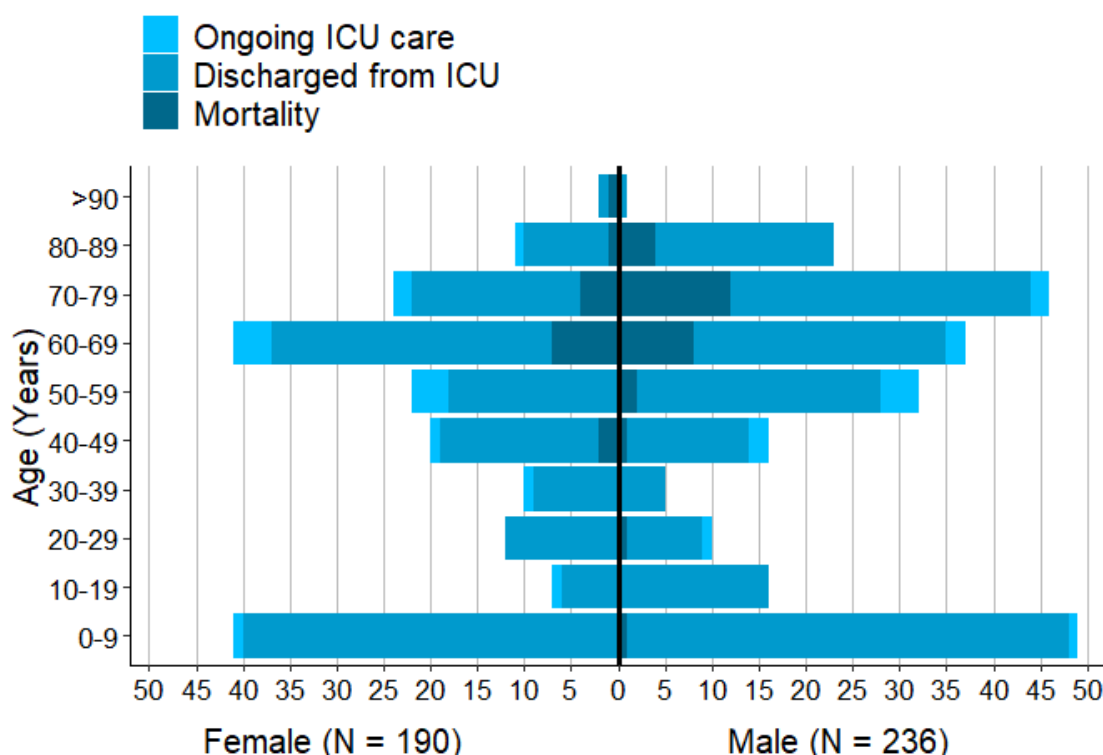
- Since the start of the COVID-19 pandemic to date for PAEDS severity reporting (1 January 2020 to 24 March 2024), there have been 196 cases of possible, probable, or confirmed paediatric inflammatory multisystem syndrome – temporally associated with SARS-CoV-2 (PIMS-TS) admitted to PAEDS sentinel hospitals. To date for severity reporting, there have been no PIMS-TS associated deaths.
- Since the start of the COVID-19 pandemic to date for PAEDS severity reporting, the highest proportion of PIMS-TS cases occurred in 2022 (67.3%; 132/196), followed by 2021 (15.3%; 30/196). The most recent PIMS-TS case admitted to a PAEDS sentinel hospital was reported in March 2024.
- The majority of PIMS-TS cases have occurred in those aged 5 to < 12 years (52.6%; 103/196), followed by those aged 6 months to < 5 years (28.6%; 56/196). Approximately 5.6% (11/196) of PIMS-TS cases occurred among Aboriginal or Torres Strait Islander people.

SPRINT-SARI Australia

This section will be updated every four weeks; therefore, reporting periods presented here may not align with other sections of the report. Note, intensive care includes intensive care units and high dependency units that are managed by an intensive care team.

- In this 28-day period for SPRINT-SARI severity reporting (26 February to 24 March 2024), there have been 109 patients admitted with a SARI to a SPRINT-SARI sentinel intensive care. The median age at admission was 53 years (IQR: 21–66 years) and 8.3% (9/109) of patients admitted with a SARI were among Aboriginal and Torres Strait Islander people.
- In the year to date for SPRINT-SARI severity reporting (1 January to 24 March 2024), there have been 426 patients admitted with a SARI to a SPRINT-SARI sentinel intensive care. The median age at admission was 55 years (IQR: 15.3–70 years) and 55.4% (236/426) of SARI admissions have been male. Of the patients admitted with a SARI to a SPRINT-SARI sentinel intensive care, 8.7% (37/426) have been among Aboriginal and Torres Strait Islander people.
- In the year to date for SPRINT-SARI severity reporting, there have been 44 patients admitted with a SARI to a SPRINT-SARI sentinel intensive care who died in hospital. The majority of deaths were in patients aged 60 years or over: 34.1% (15/44) were aged 60–69 years, 36.4% (16/44) were aged 70–79 years, 11.4% (5/44) were aged 80–89 years, and 2.3% (1/44) were aged 90 years or over (Figure 14).

Figure 14: Number of patients admitted with severe acute respiratory infections to a SPRINT-SARI sentinel intensive care by age group, sex and outcome*†‡, Australia, 1 January to 24 March 2024



* The age and sex distribution of severe acute respiratory infection (SARI) intensive care admissions in the SPRINT-SARI Australia sentinel surveillance system may not reflect the age or sex distribution of all patients admitted with a SARI nationally.

† Ongoing care reflects the need for ongoing care in intensive care. Where a patient has been discharged from intensive care, the patient may still be receiving ongoing care in a hospital ward.

‡ Death may not necessarily represent a death due to the disease.

3.2 Case-based surveillance

NNDSS

The numbers of deaths in the year to date associated with COVID-19, influenza and RSV notified to the NNDSS are provided in Table 3. The numbers of deaths associated with COVID-19, influenza or RSV reported to the NNDSS are likely an underestimate and do not represent the true mortality associated with these diseases. In the NNDSS, death notifications may not necessarily represent a death due to the disease.

- In the year to date for severity reporting (1 January to 24 March 2024), the rate of COVID-19-associated deaths in cases notified to the NNDSS has been highest in those aged 70 years or over (Table 3). The median age of COVID-19-associated deaths notified is 84 years.
- Since the start of the COVID-19 pandemic to 31 December 2023, there were 437,180 COVID-19 cases and 517 COVID-19-associated deaths among Aboriginal and Torres Strait Islander people notified to the NNDSS.
- From late 2023 onward, there has been a considerable decrease in the ascertainment of Indigenous status in the NNDSS for COVID-19 cases. The number of COVID-19 cases classified as Aboriginal and Torres Strait Islander people are now likely to be a considerable underrepresentation and are not suitable for meaningful interpretation or reporting. In this context, detailed reporting of incidence and severe illness among Aboriginal and Torres Strait Islander people using NNDSS notifications are no longer conducted.
 - Readers are encouraged to consult the [COVID-19 Epidemiology Reports](#) previously published in *Communicable Diseases Intelligence* for information on the epidemiology of COVID-19 in Aboriginal and Torres Strait Islander people in Australia from the start of the COVID-19 pandemic to 10 March 2024.
- In the year to date for severity reporting, the rate of influenza-associated deaths in cases notified to the NNDSS has been highest in those aged 70 years or over (Table 3). The median age of influenza-associated deaths notified is 81 years.
- In the year to date for severity reporting, the rate of RSV-associated deaths in cases notified to the NNDSS has been highest in those aged 70 years or over (Table 3). The median age of RSV-associated deaths notified is 76 years.
- The ascertainment of Indigenous status in the NNDSS for influenza and RSV remains insufficient for accurate epidemiological assessments or meaningful interpretation. This is due to a number of factors, including: most laboratory notifications do not include Indigenous status, case follow-ups are not routinely conducted and are not a requirement of notification, and data linkage systems that have been used to help capture Indigenous status for COVID-19 cases have not been comprehensively extended to influenza or RSV cases.

4. Impact

Impact measures how circulating respiratory viruses adversely affect the community and the healthcare system.

4.1 Community-based surveillance

FluTracking

- This fortnight (25 March to 7 April 2024), the percentage of FluTracking participants reporting taking three or more days off work or normal duties due to fever and cough symptoms was 43.2% (423/980), compared with 46.1% (376/815) in the previous fortnight.

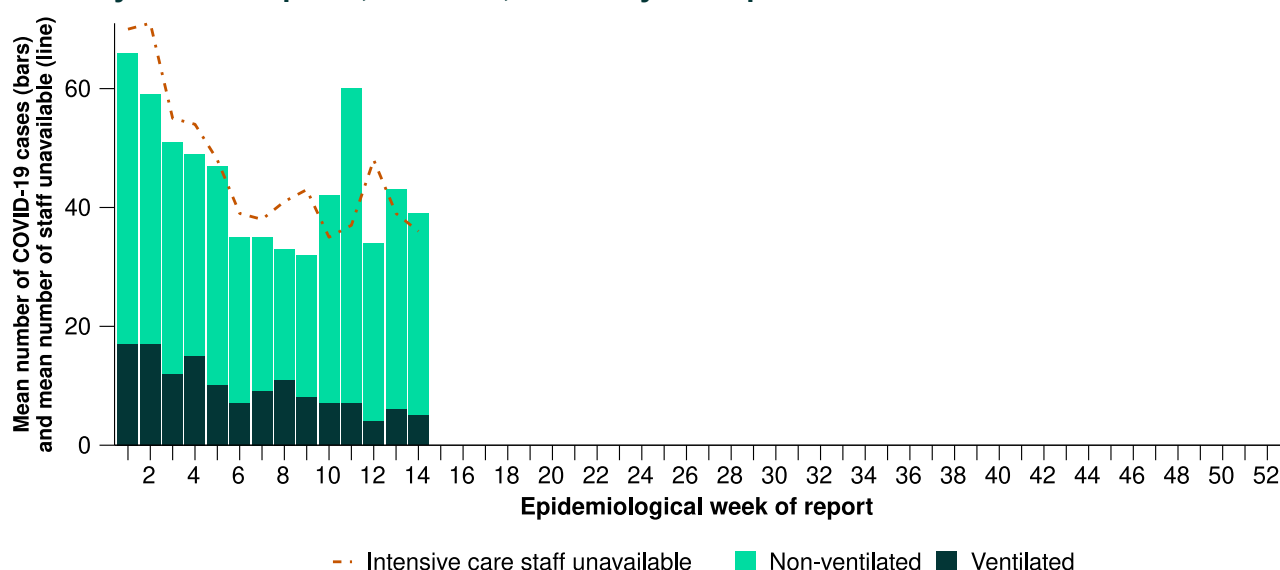
4.2 Hospital-based surveillance

Critical Health Resource Information System (CHRIS)

Note, intensive care includes intensive care units and high dependency units that are managed by the intensive care team.

- As of 8 April 2024, 2.5% (42/1,698) of total staffed intensive care beds were occupied by COVID-19 patients.
- This fortnight (25 March to 7 April 2024), the mean number of COVID-19 cases in intensive care across Australia decreased compared with the previous fortnight (Figure 15). This fortnight, the mean number of intensive care staff unavailable to work due to COVID-19 exposure or illness across Australia decreased compared with the previous fortnight (Figure 15).

Figure 15: Mean number of COVID-19 cases in intensive care and the mean number of intensive care staff unavailable to work due to COVID-19 exposure or illness reported to CHRIS by week of report*†, Australia, 1 January to 7 April 2024

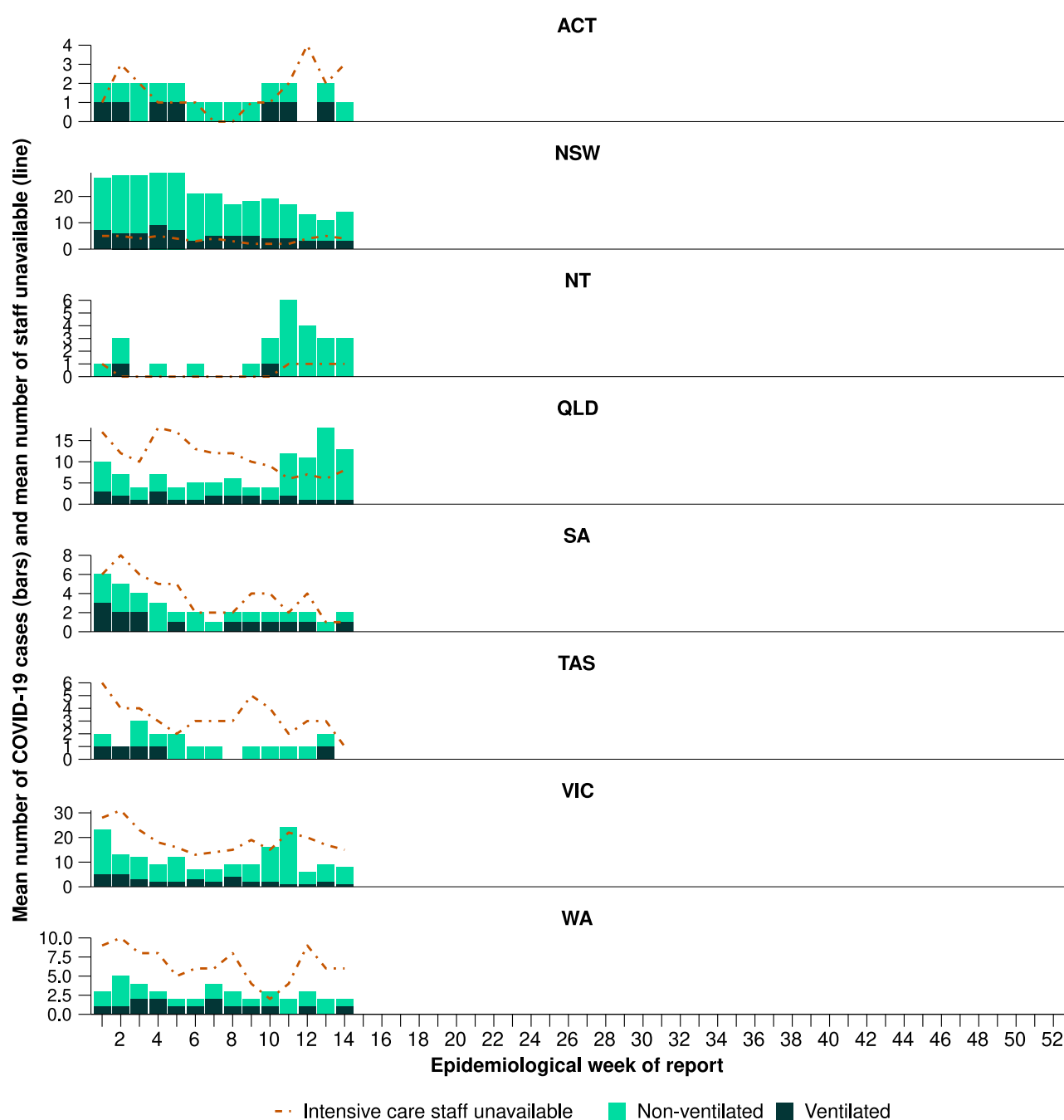


* Mean number of ventilated and non-ventilated COVID-19 cases in intensive care includes only active COVID-19 cases (those in isolation) and does not include cleared COVID-19 cases.

† Intensive care staff include both medical and nursing staff.

- This fortnight, the mean number of COVID-19 cases in intensive care in the Australian Capital Territory, Queensland, and Tasmania increased compared with the previous fortnight. The mean number of COVID-19 cases in intensive care decreased in the remaining jurisdictions compared with the previous fortnight (Figure 16).
- This fortnight, the mean number of intensive care staff unavailable to work due to COVID-19 exposure or illness has decreased or remained stable across most jurisdictions, except in New South Wales and Queensland where a small increase was observed compared with the previous fortnight (Figure 16).

Figure 16: Mean number of COVID-19 cases in intensive care and the mean number of intensive care staff unavailable to work due to COVID-19 exposure or illness reported to CHRIS by jurisdiction and week of report*†‡, Australia, 1 January to 7 April 2024



* Axis varies between jurisdictions.

† Mean number of ventilated and non-ventilated COVID-19 cases in intensive care includes only active COVID-19 cases (those in isolation) and does not include cleared COVID-19 cases.

‡ Intensive care staff include both medical and nursing staff.

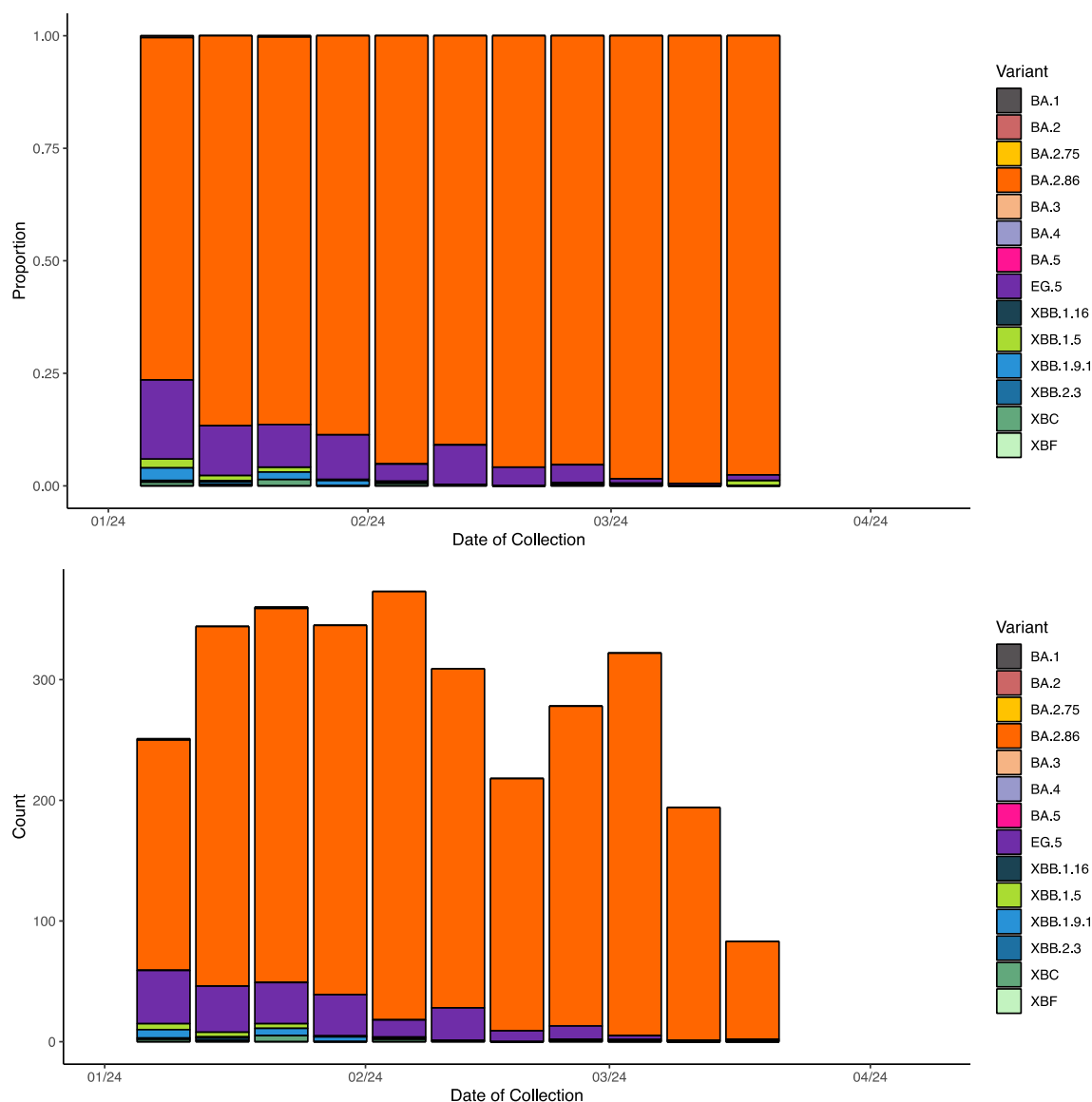
5. Genomic surveillance and virology

AusTrakka

Data on SARS-CoV-2 genomics should be interpreted with caution as SARS-CoV-2 sequencing strategies have changed significantly, and the representativeness of sequences uploaded to AusTrakka may be limited by the different sample referral pathways for each jurisdiction and a significant reduction in sequencing across the country. Sequences are reported based on date of sample collection, not date of sequencing. Due to the small number of sequences received and some delays in provision of data to AusTrakka, this section will be updated every four weeks; therefore, reporting periods presented here may not align with other sections of the report.

- As of 8 April 2024, jurisdictions that have samples with dates of collection during the past 28 days include New South Wales, Queensland, South Australia, Tasmania and Western Australia, with the most recent collection date 24 March 2024.
- As of 8 April 2024, 282 sequences have been uploaded to AusTrakka with dates of collection within the past 28-day period (11 March to 7 April 2024). All sequences were assigned to the BA.2.86 sub-lineage within B.1.1.529 (Omicron) or recombinants consisting of one or more Omicron sub-lineages. There were no BA.1, BA.3, BA.4, BA.5 or other BA.2 sub-sub-lineage sequences identified in the past 28 days (Figure 17).
- Of the 282 sequences collected in the past 28 days, 97.2% (274/282) were BA.2 sub-lineages, specifically sub-sub-lineages of BA.2.86, including 271 JN.1 (BA.2.86.1.1) sequences (Figure 17). The remaining 2.8% (8/282) were recombinant or recombinant sub-lineages. The predominant recombinant lineages sequenced included XDK, a recombinant between JN.1.1.1 and XBB.1.16, and XBB* (specifically EG.5).
- The increase in JN.1 sequences has driven the increase in the proportion of BA.2 sequences being seen in AusTrakka and the comparative decline in the proportion of recombinant sequences (Figure 17).
- The World Health Organization have identified certain sub-sub-lineages and recombinants as variants under monitoring (VUM) or variants of interest (VOI) because of their epidemiological, pathological, or immunological features of concern. A select number of designated VOI are highlighted below due to their relevance in the Australian context:
 - The proportion of JN.1 sequences has been consistent (96.1%; 271/282) in the past 28 days, compared with the previous 28-day period.
 - The number of BA.2.86 sequences (including JN.1 sub-lineages) has increased slightly (97.2%; 274/282) in the past 28 days, compared with the previous 28-day period. This is predominantly due to the large proportion of JN.1 sequences.
 - There has been one sequence of XBB.1.5 and two sequences of EG.5 in the past 28-day period. No XBB.1.16 (sub-lineages of XBB*) have been identified.
 - There have been four sequences from the recently emerged XDK recombinant lineage (JN.1.1.1 and XBB.1.16) identified in the past 28-day period.

Figure 17: Omicron sub-lineage sequences in AusTrakka by sample collection date, showing (A) proportions and (B) count per week*, Australia, 1 January to 7 April 2024



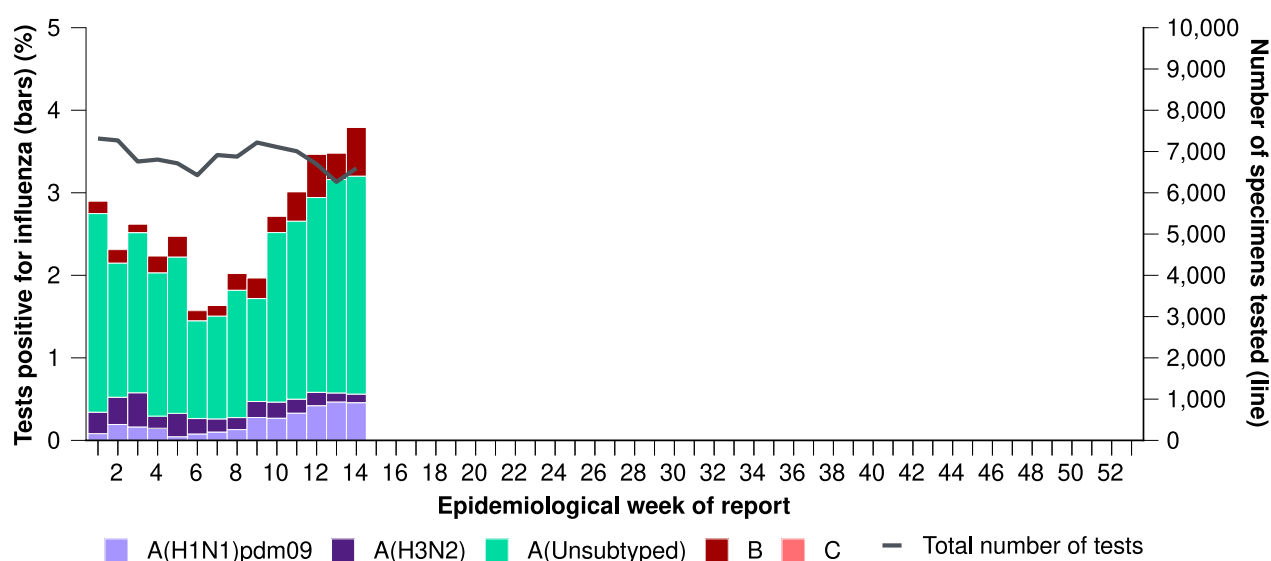
* Sequences in AusTrakka aggregated by epidemiological week. Sequences are reported based on date of sample collection, not date of sequencing.

† Proportions in Figure 17A may not be representative when sequence numbers are small; refer to Figure 17B. Data for earlier epidemiological weeks may change between reporting periods as sequences with older collection dates are uploaded. These numbers are not equivalent to number of cases, as there are many cases which may not be sequenced. Non-VOI and non-VUM Omicron sub-lineages have been collapsed into parent lineages BA.1, BA.2, BA.3, BA.4 and BA.5.

Sentinel laboratories, including National Influenza Centres

- In the year to date, there have been 2,472 influenza positive samples received by sentinel laboratories. Of those, influenza A accounted for 90.3% (2,231/2,472) of positive samples and influenza B accounted for 9.8% (243/2,472) of positive samples (Figure 18).
 - To note, the number of samples by type may not sum the total number of positive samples, due to multiple influenza detections in some individual samples.

Figure 18: Proportion of sentinel laboratory tests positive for influenza and total number of specimens tested by subtype and week of report*, Australia, 1 January to 7 April 2024



*Total number of tests include all specimens that have been tested for influenza, including multiplex panels used to test for SARS-CoV-2. Testing methodologies vary across jurisdictions and laboratories. Please refer to the Technical Supplement for interpretation of testing methodologies across jurisdictions and laboratories.

World Health Organization Collaborating Centre (WHOCC) for Reference and Research on Influenza

- In the year to date, the WHOCC has characterised 218 influenza viruses, of which 58.7% (128/218) have been influenza A(H3N2), 35.3% (77/218) have been influenza A(H1N1), and 6.0% (13/218) have been influenza B/Victoria (Table 4).
- Of the influenza A(H3N2) samples tested for neuraminidase inhibitor resistance, 1.5% (1/67) demonstrated reduced inhibition to Oseltamivir. None of the A(H1N1) influenza or influenza B/Victoria samples tested for neuraminidase inhibitor resistance demonstrated reduced inhibition to Oseltamivir or Zanamivir.

Table 4: Australian influenza viruses typed by the WHOCC for Reference and Research on Influenza by haemagglutination inhibition assay and jurisdiction*†, 1 January to 7 April 2024

Strain	ACT	NSW	NT	Qld	SA	Tas.	Vic.	WA	Total
A(H1N1) pdm09	24	2	6	1	10	8	26	0	77
A(H3N2)	40	7	16	2	8	10	45	0	128
B/Victoria lineage	5	0	0	3	0	0	5	0	13
B/Yamagata lineage	0	0	0	0	0	0	0	0	0
Total	69	9	22	6	18	18	76	0	218

*Viruses tested by the WHOCC for Reference and Research on Influenza are not necessarily a random sample of all those in the community and early-year data may be based on limited samples received. There may be up to a month delay on reporting of samples.

† Jurisdiction indicates the residential location for the individual tested, not the submitting laboratory.

NNDSS

- This fortnight (25 March to 7 April 2024), of the 5,746 influenza notifications reported to the NNDSS, 88.5% (5,084/5,746) were influenza A(Unsubtyped); 7.4% (428/5,746) were influenza B; 2.0% (117/5,746) were influenza A(H1N1); and 1.2% (67/5,746) were influenza A(H3N2). 0.8% (48/5,746) were influenza untyped. Approximately 0.03% (2/5,746) were influenza A&B co-detection (Figure 19).
- In the year to date, influenza A has accounted for the majority of influenza notifications in most jurisdictions (Figure 20).

Figure 19: Proportion of influenza notifications to the NNDSS by subtype and week of diagnosis, Australia, 1 January to 7 April 2024

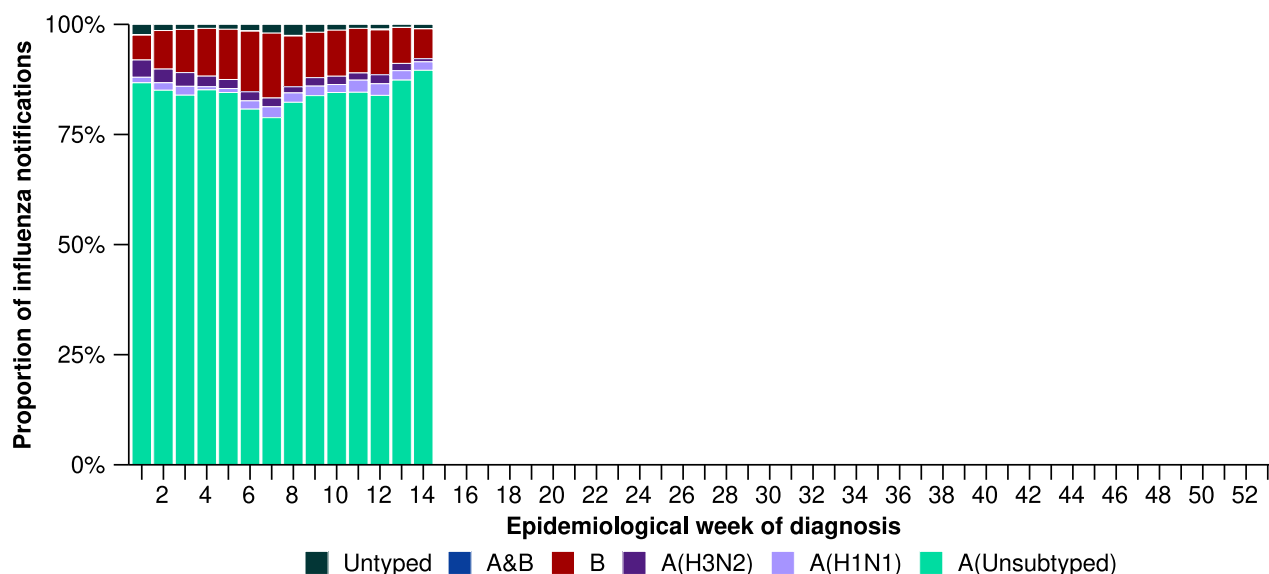
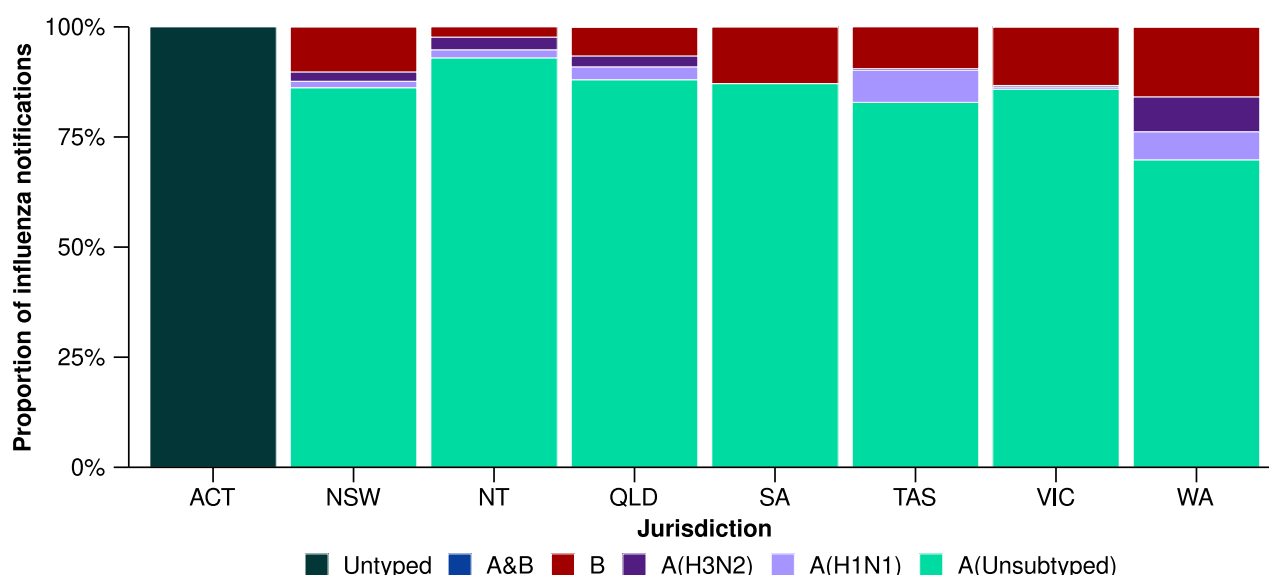


Figure 20: Proportion of influenza notifications to the NNDSS by subtype and jurisdiction*, Australia, 1 January to 7 April 2024



* From 22 May 2023, subtyping data are no longer available for the ACT.

6. Vaccine coverage, effectiveness and match

In the present report, data reported on vaccine coverage, effectiveness and match relate to influenza vaccinations. COVID-19 and RSV vaccination data will be included in future iterations of the Australian Respiratory Surveillance Report. Refer to the [Technical Supplement – Australian Respiratory Surveillance Report](#) for further detail on vaccine terminology.

6.1 Vaccine coverage

- It is too early to assess vaccine coverage for the 2024 influenza season.

6.2 Vaccine effectiveness

- It is too early to assess vaccine effectiveness for the 2024 influenza season.

6.3 Vaccine match

WHOCC for Reference and Research on Influenza

- In the year to date, of the 218 samples referred to the WHOCC, 100% (77/77) of influenza A(H1N1) isolates, 92.2% (118/128) of influenza A(H3N2) isolates and 100% (13/13) of influenza B/Victoria isolates have been antigenically similar to the corresponding vaccine components.

Australian Influenza Vaccines Composition 2024

- All 2024 southern hemisphere [seasonal influenza vaccinations](#) registered for use in Australia are quadrivalent influenza vaccines.
- The influenza virus strains included in egg-based quadrivalent influenza vaccines in Australia in 2024 are:
 - A/Victoria/4897/2022 (H1N1)pdm09-like virus;
 - A/Thailand/8/2022 (H3N2)-like virus;
 - B/Austria/1359417/2021 (B/Victoria lineage)-like virus; and
 - B/Phuket/3073/2013 (B/Yamagata lineage)-like virus.
- The influenza virus strains included in cell-based quadrivalent influenza vaccines in Australia in 2024 are:
 - A/Wisconsin/67/2022 (H1N1)pdm09-like virus;
 - A/Massachusetts/18/2022 (H3N2)-like virus;
 - B/Austria/1359417/2021 (B/Victoria lineage)-like virus; and
 - B/Phuket/3073/2013 (B/Yamagata lineage)-like virus.