COVID-19 WEEKLY SURVEILLANCE IN NSW

EPIDEMIOLOGICAL WEEK 45, ENDING 7 NOVEMBER 2020

Published 11 November 2020

SUMMARY FOR THE WEEK ENDING 7 NOVEMBER

- There were 10 locally-acquired cases in NSW this week. Most were linked to known cases or clusters.
- Three of the five (60%) symptomatic cases were tested and entered isolation within one day of onset of illness.
- All 24 locally-acquired cases reported in the three weeks up to 7 November were residents of South Western Sydney LHD.
- Testing numbers have increased compared to the previous week (up 18%).
- Testing rates have increased for the fourth week in a row for children aged up to 17 years.
- The NSW Sewage Surveillance Program reported four detections of SARS-CoV-2. The detection in the Rouse Hill catchment is not associated with known cases in that area.
- Emergency Department visits for bronchiolitis (a common disease of infants often caused by respiratory syncytial virus (RSV)) are above average for this time of year.
- People of all ages must seek testing at the first sign of symptoms, however mild, to stop transmission of COVID-19 in the community.

Indicators for effective prevention measures in NSW

	Week ending 7 Nov	Week ending 31 Oct
Number of cases **with symptoms** at diagnosis	60% (6/10)	75% (6/8)
Proportion of cases in isolation at least 48 hours before symptoms	17% (1/6)	17% (1/6)
Cases **not in isolation** at symptom onset		
Proportion tested (swabbed) within:		
• 1 day of symptom onset	60% (3/5)	40% (2/5)
• 2 days of symptom onset	60% (3/5)	40% (2/5)
• 3 days of symptom onset	80% (4/5)	60% (3/5)
Proportion tested more than 3 days after symptom onset	20% (1/5)	40% (2/5)
Proportion who entered isolation within:		
• 1 day of symptom onset	60% (3/5)	40% (2/5)
• 2 days of symptom onset	60% (3/5)	40% (2/5)
• 3 days of symptom onset	80% (4/5)	40% (2/5)
Proportion who entered isolation more than 3 days after symptom onset	20% (1/5)	60% (3/5)
Number of tests conducted	100,642	84,974
Proportion notified to NSW Health by the laboratory within:		
• 1 day of swab collection	90% (9/10)	88% (7/8)
• 2 days of swab collection	90% (9/10)	88% (7/8)
• 3 days of swab collection	90% (9/10)	100% (8/8)
Proportion notified to NSW Health by the laboratory more than 3 days after the swab collection	10% (1/10)	0% (0/8)
Proportion of locally-acquired cases interviewed by public health staff within 1 day of notification to NSW Health	100% (10/10)	100% (8/8)
Proportion of close contacts (identified by the case) contacted by public health within 48 hours of case notification	100%	100%

Interpretation: In the week ending 7 November, six out of the 10 locally-acquired cases reported symptoms at the time of diagnosis. One of the six cases was a household contact of a previously reported case and was in isolation at least 48 hours before developing symptoms. Out of the remaining five symptomatic cases, three (60%) were in isolation within one day of their onset of illness.

Nine locally-acquired cases were notified to NSW Health within one day of swab collection. One case was notified more than three days after swab collection, however NSW Health was notified of a preliminary result so public health action was undertaken prior to confirmation of the final diagnosis. All cases were interviewed within one day of notification.

SECTION 2: HOW IS THE OUTBREAK TRACKING IN NSW?

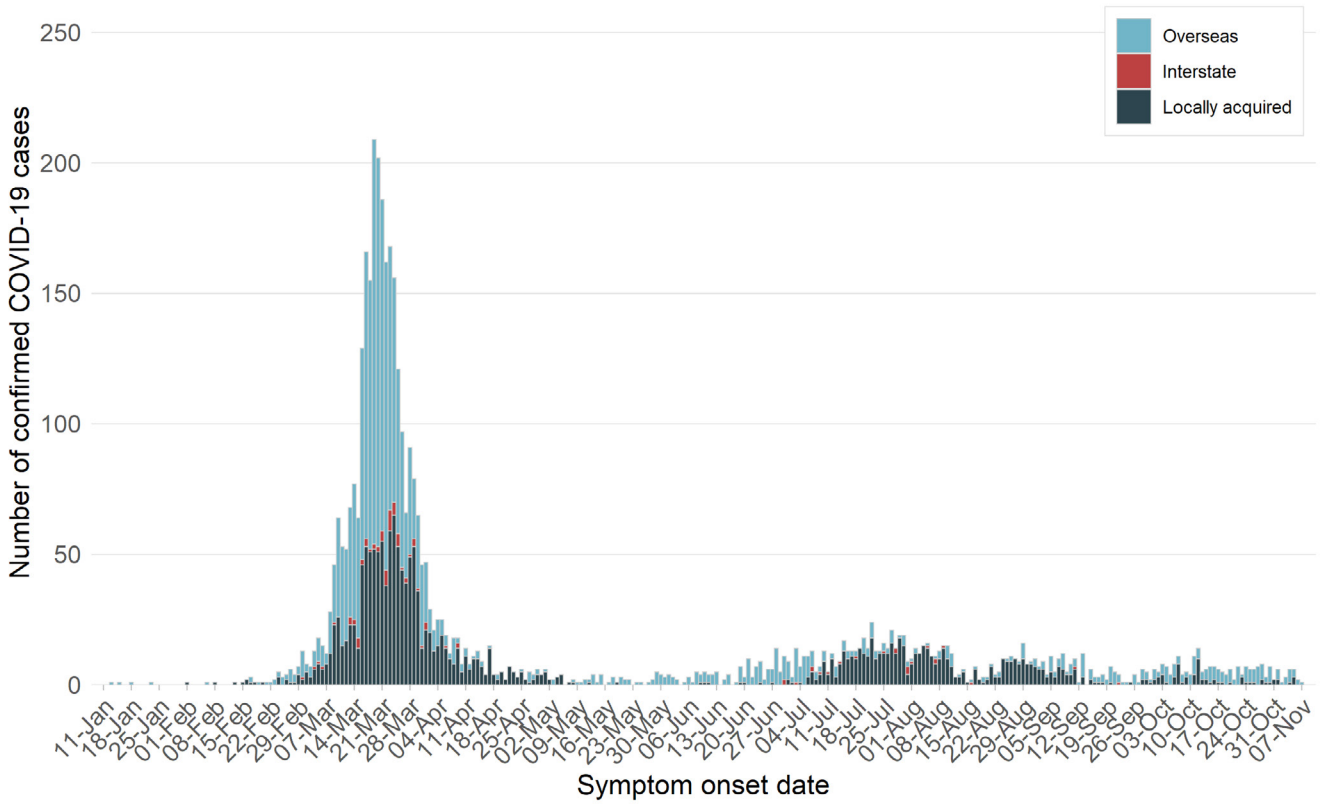
Table 1. COVID-19 cases and tests reported in NSW, up to 7 November 2020

	Week ending 7 Nov	Week ending 31 Oct	% change	Total to 7 Nov
Number of cases	38	43	↓ 12%	4,275
Overseas acquired	28	35	↓ 20%	2,314
Interstate acquired	0	0	-	90
Locally acquired	10	8	↑ 25%	1,871
No links to other cases or clusters	1	1	-	435
Number of deaths	0	0	-	55
Number of tests	100,642	84,974	↑ 18%	3,181,960

Note: The case numbers reported for previous weeks is based on the most up to date information from public health investigations.

To understand how the outbreak is tracking we look at how many new cases are reported each day and the number of people being tested. Each bar in the graph below represents the number of new cases based on the **date of symptom onset**.

Figure 1. COVID-19 cases by likely infection source and illness onset, NSW, 2020



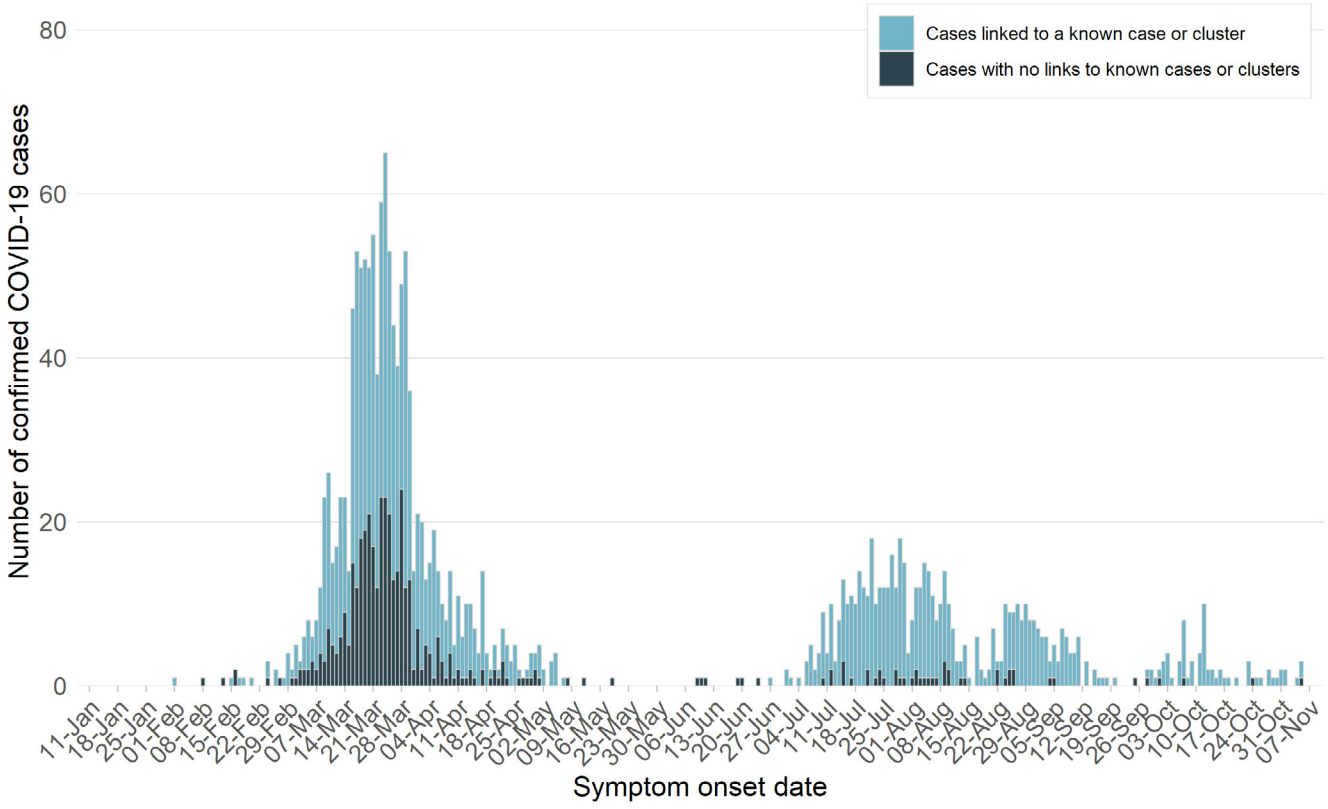
The date of the first positive test is used for cases who did not report symptoms.

Interpretation: The majority (78%) of COVID-19 infections diagnosed in NSW in the last two weeks have been overseas acquired.

How much local transmission is occurring in NSW?

Public health efforts are focused on contact tracing to limit further spread in the community, and identifying the source of infection for every case. To understand the extent of community transmission, locally-acquired cases who have had contact with a case or who are part of a known cluster are considered separately to those with an unidentified source of infection. Cases with no links to other cases or clusters suggest that there are people infected with COVID-19 in the community who have not been diagnosed.

Figure 2. Locally acquired COVID-19 cases by likely infection source and illness onset, NSW, 2020



The date of the first positive test is used for cases who did not report symptoms.

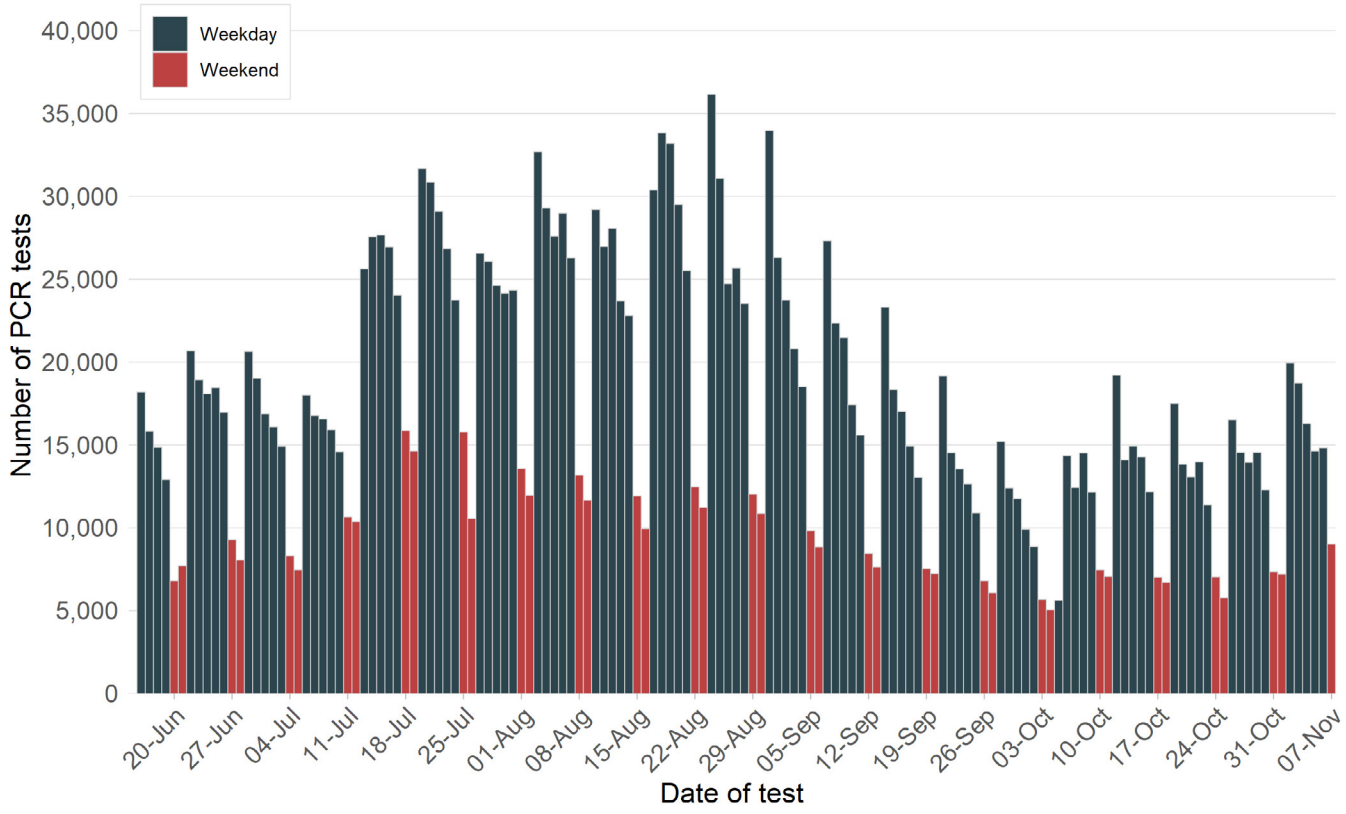
Interpretation: Of the locally-acquired cases with an onset in the last four weeks, 95% were linked to known cases or clusters.

SECTION 3: COVID-19 TESTING IN NSW

How much testing is happening?

The bars on the graph below show the number of tests by the date a person presented for the test.[1] While public health facilities are open seven days a week, less testing occurs through GPs and private collection centres on weekends and public holidays. This explains the lower number of tests on weekends.

Figure 3. Number of PCR tests per day, NSW, 2020

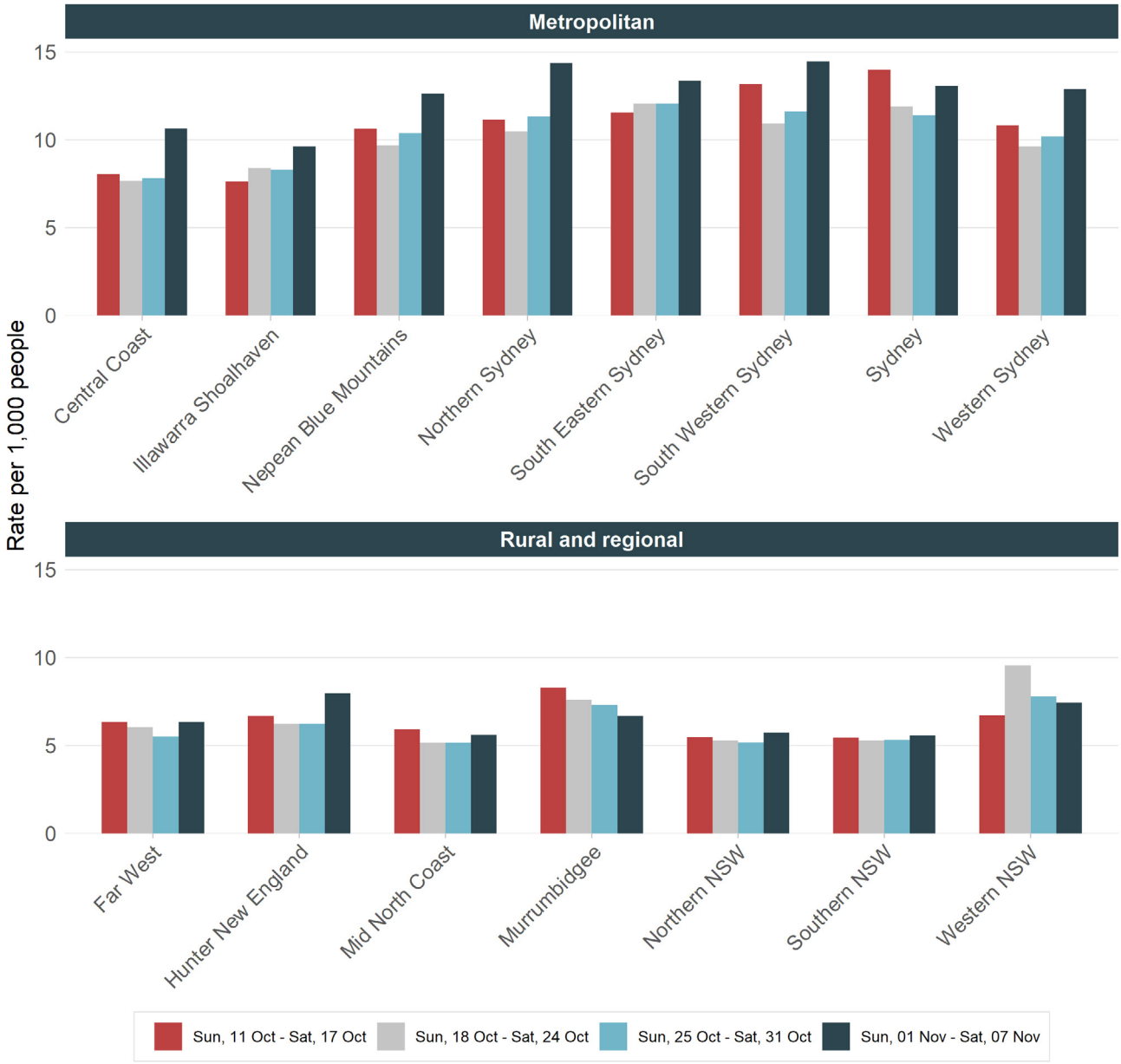


Includes SARS-CoV-2 PCR tests only and excludes repeat positive tests for an individual.

Interpretation: Testing is recommended for anyone with even mild respiratory symptoms or unexplained fever. Testing numbers in the week ending 7 November were higher compared with the previous week. An average of 1.8 tests were conducted per 1,000 people in NSW each day in the week ending 7 November, compared to a daily average of 1.5 per 1,000 people in the previous week.

[1] The number of tests per day displayed below is different to the 24 hour increase in tests reported each day as there are delays in some laboratories providing negative results to NSW Health.

Figure 4. Rates of COVID-19 testing by LHD of residence and week

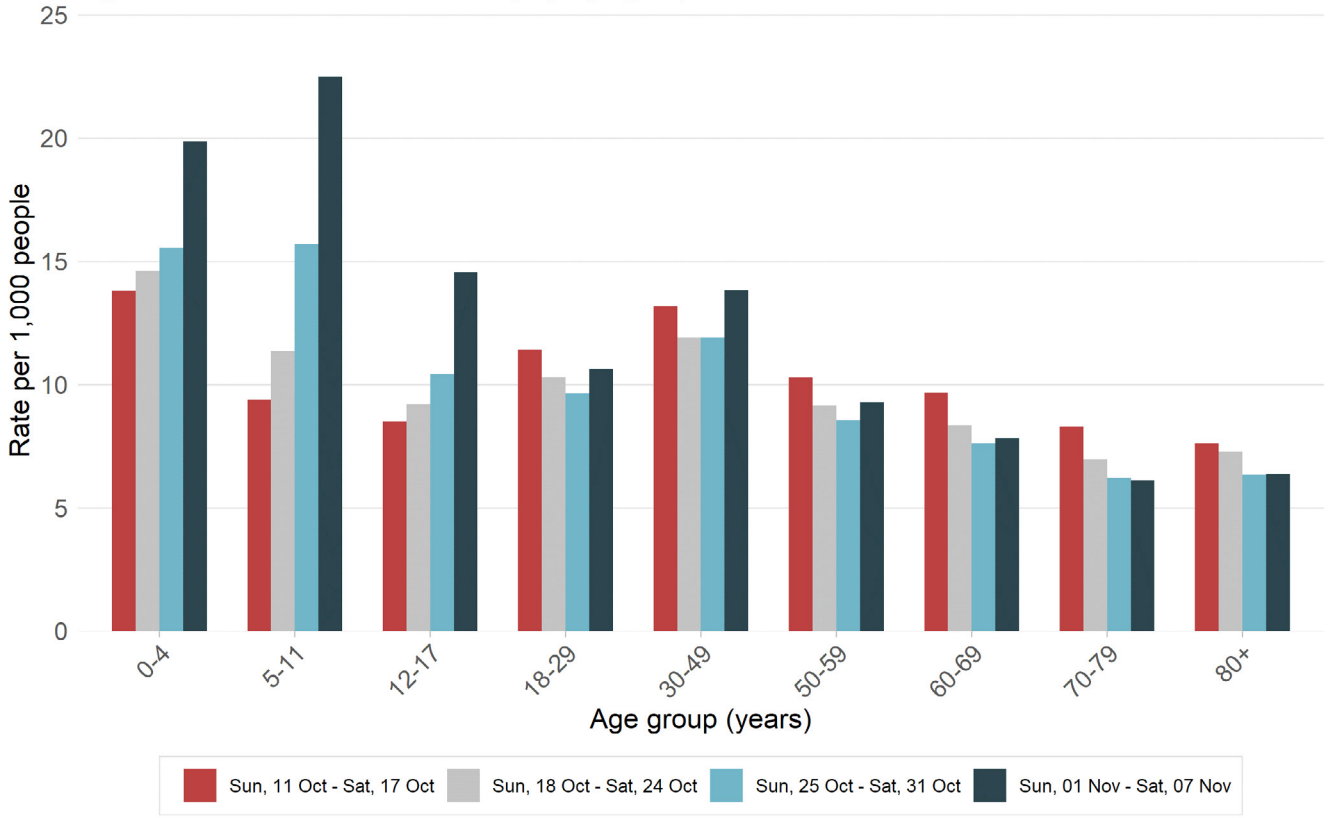


Includes SARS-CoV-2 PCR tests only and excludes notifications with missing postcode of residence.

Interpretation: Statewide testing rates in the week ending 7 November were higher compared to the previous week (12 per 1,000 vs 11 per 1,000). Testing increased across all metropolitan and most rural LHDs apart from Murrumbidgee and Western NSW LHDs.

Testing by age group

Figure 5. Rates of COVID-19 testing by age group and week



Includes SARS-CoV-2 PCR tests only and excludes notifications with age missing.

Interpretation: For the week ending 7 November, testing rates increased across all age groups below 70 years compared to the previous week. Testing rates increased for the fourth consecutive week for children aged up to 17 years.

SECTION 4: COVID-19 TRANSMISSION IN NSW IN THE LAST FOUR WEEKS

Information from locally-acquired cases who were diagnosed in the last four weeks is used to understand where COVID-19 is spreading in the community. This takes into account the **incubation period** and the time it takes for people to seek testing and for the laboratory to perform the test.

Table 2. Locally-acquired COVID-19 cases in NSW, by week and source of infection, 11 October to 7 November 2020

Locally-acquired cases	Week ending				Total
	7 Nov	31 Oct	24 Oct	17 Oct	
Cases who are linked to a known case or cluster	9	7	6	29	**51**
Cases with no links to other cases or clusters	1	1	0	3	**5**
Total	**10**	**8**	**6**	**32**	**56**

Interpretation: The majority (91%) of cases in the four weeks ending 7 November were linked to known cases or clusters. There was one case reported in the last week with no links to cases or clusters.

Table 3. Locally-acquired COVID-19 cases by LHD of residence, 11 October to 7 November 2020

Local Health District	Week ending				Total	Days since last case
	7 Nov	31 Oct	24 Oct	17 Oct		
Central Coast	0	0	0	0	**0**	**68**
Illawarra Shoalhaven	0	0	0	0	**0**	**64**
Nepean Blue Mountains	0	0	0	0	**0**	**53**
Northern Sydney	0	0	0	1	**1**	**25**
South Eastern Sydney	0	0	0	1	**1**	**24**
South Western Sydney	10	8	6	16	**40**	**1**
Sydney	0	0	0	5	**5**	**24**
Western Sydney	0	0	0	8	**8**	**24**
Far West	0	0	0	0	**0**	**219**
Hunter New England	0	0	0	0	**0**	**93**
Mid North Coast	0	0	0	0	**0**	**200**
Murrumbidgee	0	0	0	0	**0**	**61**
Northern NSW	0	0	0	0	**0**	**105**
Southern NSW	0	0	0	0	**0**	**89**
Western NSW	0	0	0	0	**0**	**67**
Total	**10**	**8**	**6**	**31**	**55**	

Interpretation: All locally-acquired cases reported in the three weeks up to 7 November were residents of South Western Sydney LHD (100%, 24/24).

COVID-19 cases with no links to known cases or clusters

Cases with no identified links to known cases or clusters suggest that there are people infected with COVID-19 in the community who have not been diagnosed. Testing of people with whom they have been in contact in the 14 days prior to symptom onset, and more broadly in the local community, is important to identify the source of the infection, detect other cases and prevent further transmission in the community.

Table 4. Locally-acquired COVID-19 cases with no identified links to known cases or clusters by LHD of residence, 11 October to 7 November 2020

Local Health District	Week ending				Total
	7 Nov	31 Oct	24 Oct	17 Oct	
Central Coast	0	0	0	0	**0**
Illawarra Shoalhaven	0	0	0	0	**0**
Nepean Blue Mountains	0	0	0	0	**0**
Northern Sydney	0	0	0	0	**0**
South Eastern Sydney	0	0	0	1	**1**
South Western Sydney	1	1	0	1	**3**
Sydney	0	0	0	0	**0**
Western Sydney	0	0	0	1	**1**
Far West	0	0	0	0	**0**
Hunter New England	0	0	0	0	**0**
Mid North Coast	0	0	0	0	**0**
Murrumbidgee	0	0	0	0	**0**
Northern NSW	0	0	0	0	**0**
Southern NSW	0	0	0	0	**0**
Western NSW	0	0	0	0	**0**
Total	**1**	**1**	**0**	**3**	**5**

Interpretation: Extensive public health investigations were unable to identify the source of infection for one locally-acquired case in the week ending 7 November.

SECTION 5: CURRENT COVID-19 CLUSTERS IN NSW

Public health staff interview all new cases at the time of diagnosis to identify the likely source of their infection. Cases are also asked to report all the locations visited and people with whom they have been in contact within their infectious period (two days prior to symptom onset until the time of isolation). Close contacts are quarantined to limit the spread of infection to others and encouraged to seek testing.

Cases in community settings

In the week ending 7 November, there were nine cases reported that were linked to a known case or cluster – five were linked to the Hoxton Park cluster. A further four cases were reported in a family group linked to another case in the household with an unknown source of infection.

Hoxton Park cluster

On 28 October a person living in the South Western Sydney Local Health District tested positive for COVID-19. A further three cases were later reported among household contacts and extended family. A public health investigation revealed that the family had spent time at multiple locations including retail stores, restaurants, a school and a trampoline park in South Western Sydney. In response, NSW Health issued a public health alert on 28 October advising people who attended these venues at the time the case was present to get tested and isolate immediately. An additional case was later reported in a person who attended the trampoline park at the same time as the family.

In the week ending 7 November there were five cases reported who were linked to this cluster including:

- two cases in patrons of the trampoline park in South Western Sydney
- one case in a child that attended a kindergarten in South Western Sydney where a case had attended
- one case in a household contact of a previously reported case
- one case in a staff member at a restaurant where a previously reported case had dined.

Four of the five cases reported this week were symptomatic. One person was in isolation at least 48 hours prior to symptom onset, two were in isolation within a day of symptom onset, and one person was in isolation more than three days after symptom onset.

Table 5. Cases linked to Hoxton Park cluster by setting of exposure

Setting of exposure	Exposure site	Exposure site: Local area	No. primary cases	Cases in household setting	Total cases
Primary exposure location					
Recreational facility	Trampoline park	South Western Sydney	2	2	4
Secondary exposure locations					
Educational facility	Kindergarten	South Western Sydney	1	0	1
Restaurant/bar/club	Restaurant	South Western Sydney	1	0	1
Total			**4**	**2**	**6**

Interpretation: In total, excluding the source case who is not linked to any known case or cluster, there are nine cases associated with this cluster. Six of the nine cases are linked to public exposure locations and three cases are linked to the source case and part of an extended family network.

Previously reported active clusters with no new cases identified this week

Lakemba cluster

The last case associated with this cluster was notified on 27 October in a household contact of a previously reported case. Excluding the source, a healthcare worker that is linked to a known case, there are nine cases linked to this cluster.

Oran Park community cluster

The last cases associated with this cluster were notified on 26 October in two household contacts of previously reported cases. Excluding the source, a healthcare worker who may have acquired their infection at Liverpool Hospital, there are 17 cases associated with this cluster.

Oran Park childcare cluster

The last case associated with this cluster was notified on 20 October in a household contact of a child that attended childcare. Excluding the source, who is linked to the Oran Park community cluster, there are seven people linked to this cluster including three cases who attended the centre, three household contacts and one social contact of these cases.

Private health clinic cluster – Bella Vista & Liverpool

This cluster was associated with a private health clinic across two locations. The last case associated with this cluster was notified on 19 October in a household contact of a healthcare worker who was exposed at the Liverpool clinic. Excluding the source, a healthcare worker that worked at both clinics, there are 10 cases linked to this cluster: three healthcare workers, one patient, one visitor accompanying a patient who attended the Liverpool clinic, one social contact, and four household contacts of cases from the clinic.

Table 6. Previously reported clusters with no new cases identified in the week ending 7 November 2020

Date cluster first identified	Cluster	Cases linked in the week ending 7 Nov	Date of last case
10 Oct	Lakemba cluster	0	27 Oct
6 Oct	Oran Park community cluster	0	26 Oct
12 Oct	Oran Park childcare centre cluster	0	20 Oct
7 Oct	Private health clinic cluster	0	19 Oct

SECTION 6: COVID-19 IN SPECIFIC POPULATIONS

COVID-19 in healthcare workers

The following describes infections of COVID-19 in healthcare workers (HCWs) and which of those infections were potentially acquired in healthcare settings in NSW. HCWs in this section includes roles such as doctor, nurse, orderly, paramedic, laboratory technician, pharmacist, administrative staff, cleaners, and other support staff. Public health units routinely undertake investigations of cases of COVID-19 infections in healthcare to identify ongoing risks in healthcare settings.

There have been no new COVID-19 cases in HCWs reported for the last three weeks.

In total, there have been 37 cases of COVID-19 in HCWs since 1 August. Of these, 23 HCWs were potentially infected in healthcare settings. A further seven cases were household contacts of a known case, four were exposed in community settings, and for three cases the source of infection is unknown.

Table 7. Potential healthcare-acquired infections for HCWs by healthcare setting in the past four weeks

Healthcare setting	Week ending				Total
	7 Nov	31 Oct	24 Oct	17 Oct	
NSW public health setting	0	0	0	0	**0**
Private health setting	0	0	0	2	**2**
Total	**0**	**0**	**0**	**2**	**2**

Interpretation: There have been two potentially healthcare-acquired cases in the last four weeks that were reported in private health settings in NSW.

Clusters associated with healthcare-acquired infections in HCWs

Of the 23 potentially healthcare-acquired infections in HCWs reported since 1 August, 20 were associated with five clusters in healthcare settings: two from Hornsby Hospital, seven from Liverpool Hospital, seven from Concord Hospital, three from two related private health clinics in Bella Vista and Liverpool, and one case from a GP clinic in Lakemba.

Aboriginal people

Aboriginal and Torres Strait Islander communities are recognised as a priority group due to key drivers of increased risk of transmission and severity of COVID-19 which include mobility, remoteness, barriers to access including institutional racism and mistrust of mainstream health services, crowded and inadequate housing, and burden of disease.

No cases in Aboriginal people were reported in the week ending 7 November. In total, 45 Aboriginal people have been diagnosed with COVID-19, representing 1% of all cases in NSW. The last case of COVID-19 in an Aboriginal person was reported on 6 September.

Pregnant women

No cases in pregnant women were reported in the week ending 7 November. In total, 32 pregnant women have been diagnosed with COVID-19 in NSW. As those who test negative are not interviewed, testing rates among pregnant women are not available.

SECTION 7: DEATHS

How many people have died as a result of COVID-19?

In total, 1.3% of cases (55 people) have died as a result of COVID-19 infection, most of whom were 70 years of age or older, including 28 residents of aged care facilities with known COVID-19 outbreaks. Approximately 22% (12/55) of the deaths were in overseas-acquired cases.

Table 8. Deaths as a result of COVID-19, by age group, NSW, 2020

Age group	Number of deaths	Number of cases	Case fatality rate
0-4 years	0	82	0%
5-11 years	0	78	0%
12-17 years	0	124	0%
18-29 years	0	968	0%
30-49 years	0	1319	0%
50-59 years	1	605	0.2%
60-69 years	4	576	0.7%
70-79 years	14	363	3.9%
80+ years	36	160	22.5%
Total	**55**	**4275**	**1.3%**

Interpretation: Cases older than 80 years of age had both the highest number of deaths and the highest case fatality rate. No cases below the 50-59 age group have died as a result of COVID-19 in NSW.

SECTION 8: NSW SEWAGE SURVEILLANCE PROGRAM

The NSW Sewage Surveillance Program tests untreated sewage for fragments of the COVID-19 (SARS-CoV-2) virus at sewage treatment plant locations across NSW. Testing sewage can help track infections in the community and provide early warning of an increase in infections. These tests provide data to support NSW Health's response to COVID-19.

An infected person can shed virus in their faeces even if they do not have any symptoms, and shedding can continue for several weeks after they are no longer infectious. The NSW sewage surveillance for SARS-CoV-2 is in the preliminary stages of analysis and work is progressing to assess the significance of the results. For example, it is not currently known how many cases can be detected per population. A small number of cases in a large sewage catchment may not be detected by sewage surveillance due to factors such as dilution, inhibition, reduction in shedding over the infection period or movement of cases.

In the week ending 7 November, 67 sewage samples were tested for fragments of SARS-CoV-2. Of these, four detections were reported – these samples were taken from the Malabar, Rouse Hill, Liverpool and Moss Vale treatment plants. The table below shows results for previous weeks from various sites across NSW. Gosford and Wyong have recommenced sampling this week. Woy Woy and Bateau Bay have commenced as new sites.

Table 9. Locations with positive SARS-CoV-2 detections in sewage samples since August for the week ending 7 November 2020

			5 Sep	12 Sep	19 Sep	26 Sep	3 Oct	10 Oct	17 Oct	24 Oct	31 Oct	7 Nov
Pop.	**Sewage treatment plant**	**LHD**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**
60,514	Blue Mountains (Winmalee)	NBMLHD										
4,681	North Richmond	NBMLHD										
13,052	Richmond	NBMLHD										
110,114	Penrith	NBMLHD										p
12,000	Lithgow	NBMLHD										
19,000	South Windsor	NBMLHD										
8,000	McGraths Hill	NBMLHD										
69,245	Warriewood	NSLHD										
1,241	Brooklyn	NSLHD										
31,924	Hornsby Heights	NSLHD										
57,933	West Hornsby	NSLHD										
318,810	Bondi	S&SESLHD										
233,176	Cronulla	SESLHD										
1,857,740	Malabar 1	S&SES&SWSLHD										
	Malabar 2	S&SES&SWSLHD										
181,005	Liverpool	SWSLHD										
98,743	West Camden	SWSLHD										
6,882	Wallacia	SWSLHD										
14,600	Picton	SWSLHD										
161,200	Glenfield	SWSLHD										p
1,341,986	North Head	NS&WSLHD										
26,997	Castle Hill Cattai	WSLHD										
	Castle Hill Glenhaven	WSLHD										

			5 Sep	12 Sep	19 Sep	26 Sep	3 Oct	10 Oct	17 Oct	24 Oct	31 Oct	7 Nov
Pop.	**Sewage treatment plant**	**LHD**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**
163,374	Quakers Hill	WSLHD										p
119,309	Rouse Hill	WSLHD										
37,061	Riverstone	WSLHD										
163,147	St Marys	NBM&WSLHD										p
73,686	Shellharbour	ISHLHD										
196,488	Wollongong	ISHLHD										
Regional sites												
16,068	Bombo	ISHLHD										
14,700	Bowral	SWSLHD										
14,000	Mittagong	SWSLHD										
9,000	Moss Vale	SWSLHD										
32,000	Ulladulla	ISHLHD										
11,000	Culburra Beach	ISHLHD										
147,500	Gosford-Kincumber	CCLHD										
-	Wyong-Toukley	CCLHD										
	Bateau Bay	CCLHD										
	Woy Woy	CCLHD										
5,000	Perisher	M&SLHD										
8,400	Thredbo	M&SLHD										
3,000	Jindabyne	M&SLHD										
8,000	Cooma	M&SLHD										
500	Charlottes Pass	M&SLHD										
51,750	Albury composite	M&SLHD				c	c	c	c		c	c
	Albury Kremer St	M&SLHD										
	Albury Waterview	M&SLHD										
22,419	Goulburn	M&SLHD										
21,000	Batemans Bay	M&SLHD										
8,000	Eden	M&SLHD										
15,500	Merimbula	M&SLHD										
5,000	Bermagui	M&SLHD										
7,800	Deniliquin	M&SLHD										
48,000	Queanbeyan	M&SLHD										
50,000	Wagga Wagga composite	M&SLHD				c	c	c	c	c	c	c
	Wagga Wagga - inlet 1	M&SLHD										
	Wagga Wagga - inlet 2	M&SLHD										
	Wagga Wagga - Kooringal STP	M&SLHD										
2,050	Bourke	W&FWLHD										
36,603	Bathurst	W&FWLHD								I		
19,000	Broken Hill	W&FWLHD										
500	Dareton	W&FWLHD										
11,600	Parkes	W&FWLHD										
37,000	Dubbo	W&FWLHD										
24,000	Armidale	HNELHD										
45,000	Tamworth	HNELHD										
10,000	Moree	HNELHD										

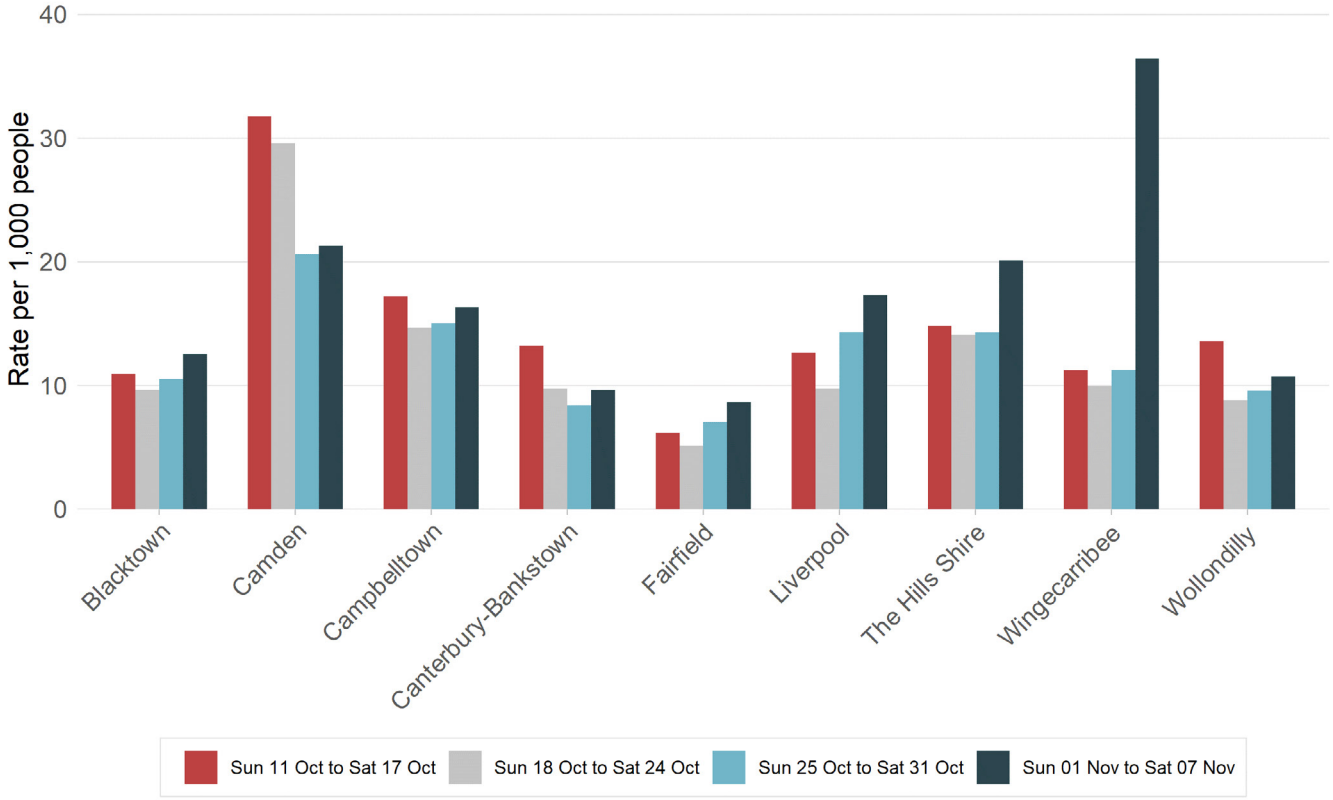
Pop.	Sewage treatment plant	LHD	5 Sep (36)	12 Sep (37)	19 Sep (38)	26 Sep (39)	3 Oct (40)	10 Oct (41)	17 Oct (42)	24 Oct (43)	31 Oct (44)	7 Nov (45)
12,000	Forster	HNELHD										
225,834	Hunter - Burwood Beach	HNELHD										
60,000	Hunter - Shortland	HNELHD										
115,000	Hunter - Belmont	HNELHD										
60,000	Hunter - Morpeth	HNELHD										
58,300	Hunter - Boulder Bay	HNELHD										
35,000	Hunter - Raymond Terrace	HNELHD										
2,500	Hunter - Karuah	HNELHD										
18,958 (both plants total)	Byron Bay - Ocean Shores	N&MNCLHD										
	Byron Bay	N&MNCLHD										
31,104	Ballina	N&MNCLHD										
72,000 (Tweed District)	Tweed - Kingscliff	N&MNCLHD										
	Tweed - Hastings Point	N&MNCLHD										
54,370	Port Macquarie	N&MNCLHD										
50,000	Coffs Harbour	N&MNCLHD										

not sampled
SARS-CoV-2 not detected
SARS-CoV-2 detected
site moved to composite sample or ceased
sampling commenced in week 29 (week ending 18 July 2020)
c composite of the separate influent samples
l result from another laboratory
p result pending, not available at time of reporting

Interpretation: In the last week there were four detections of SARS-CoV-2. The detection in the Rouse Hill catchment was not associated with known locally-acquired cases in that area.

Public health alerts are routinely issued in relation to reported cases in the community and detections of SARS-CoV-2 in sewage. The following figure demonstrates the impact of messages on testing rates in areas with recent cases or detections of virus fragments in sewage.

Figure 6. COVID-19 testing by LGA with recent SARS-CoV-2 sewage detections or cases



Includes SARS-CoV-2 PCR tests only and excludes notifications with missing postcode of residence.

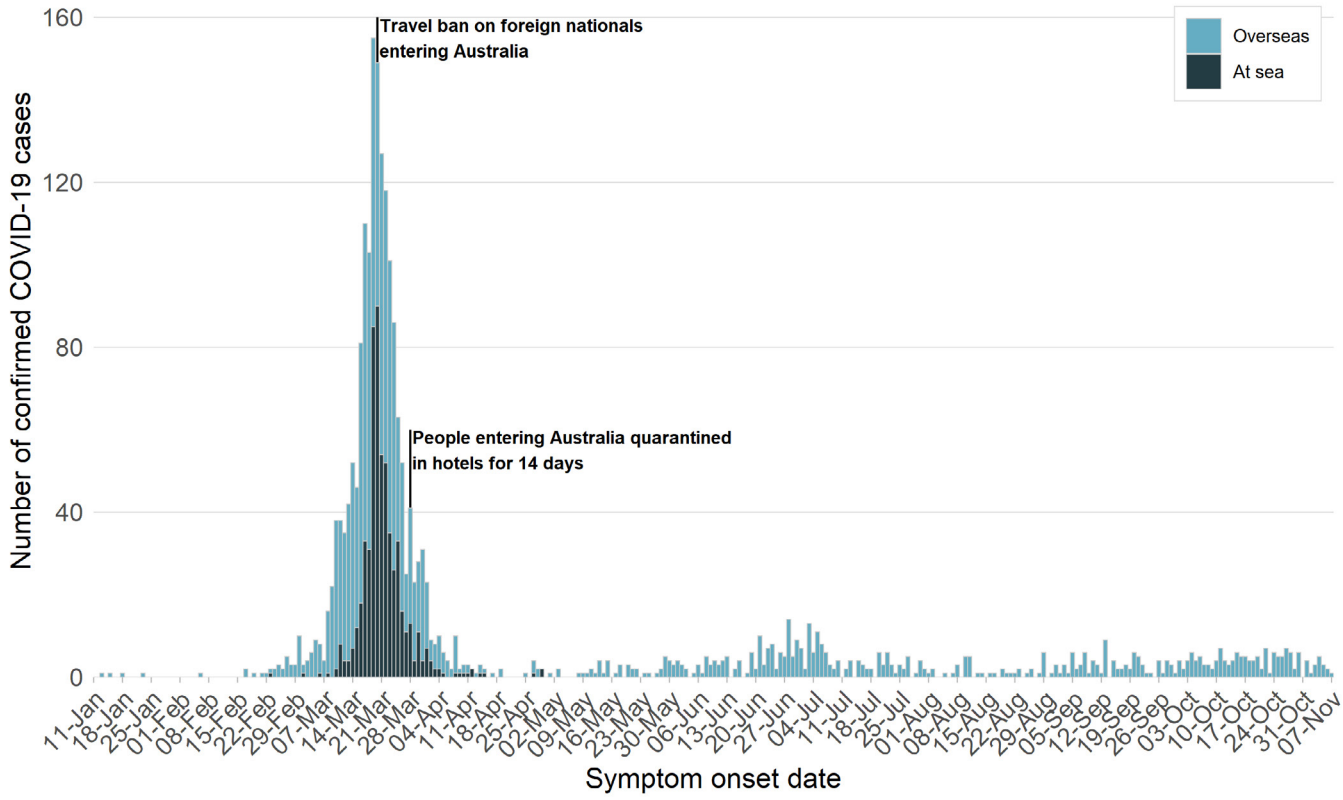
Interpretation: Testing has increased across all LGAs associated with recent cases or sewage detections. The significant increase in testing in Wingecarribee for the week ending 7 November was associated with recent locally-acquired cases residing in Moss Vale. There has been increased testing in Blacktown and The Hills Shire LGAs associated with the sewage detection in the Rouse Hill catchment.

SECTION 9: COVID-19 IN RETURNED TRAVELLERS

To limit the spread of COVID-19 into NSW, travel restrictions were introduced for all non-Australian citizens and permanent residents. In addition, since 28 March returned travellers have been quarantined in hotels for a 14-day period and travellers who develop symptoms are isolated until no longer infectious.

The graph below shows the number of cases in returned travellers by the date of symptom onset. Cases acquired at sea refers to those cruise ship passengers who acquired their infection prior to disembarking in NSW.

Figure 7. Overseas acquired COVID-19 cases by infection source and illness onset, NSW, 2020



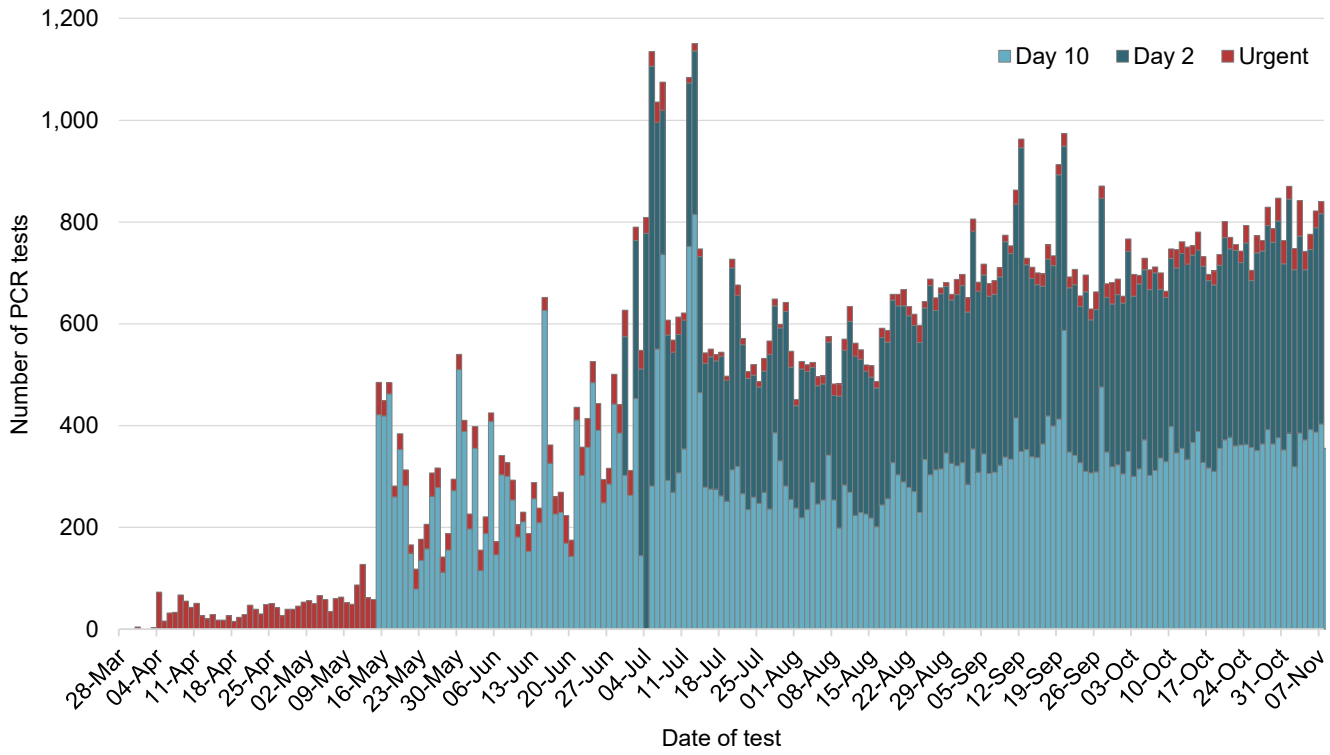
The date of the first positive test is used for cases who did not report symptoms.

Interpretation: The number of new cases in returned travellers has decreased markedly since March in line with travel restrictions and declined further again since mid-July. There were 28 overseas-acquired cases reported in the week ending 7 November, 20% less than the previous week.

Hotel quarantine

The program of screening all overseas travellers after arrival in NSW commenced on 15 May 2020. From 30 June 2020, the program was extended to include screening on both day two and day 10 after arrival.

Figure 8. COVID-19 testing in returned travellers in hotel quarantine, reported from 29 March to 7 November, NSW, 2020



Interpretation: In the week ending 7 November, there were 5,640 tests conducted through the hotel quarantine screening programs. Of these, 10% were screening tests for domestic travellers from Victoria. Since hotel quarantine began on 29 March, a total of 106,858 PCR tests have been conducted with 529 overseas-acquired cases and four interstate-acquired COVID-19 cases detected while in hotel quarantine.

SECTION 10: OTHER RESPIRATORY INFECTIONS IN NSW

Influenza and other respiratory virus cases and tests reported in NSW, up to 1 November 2020

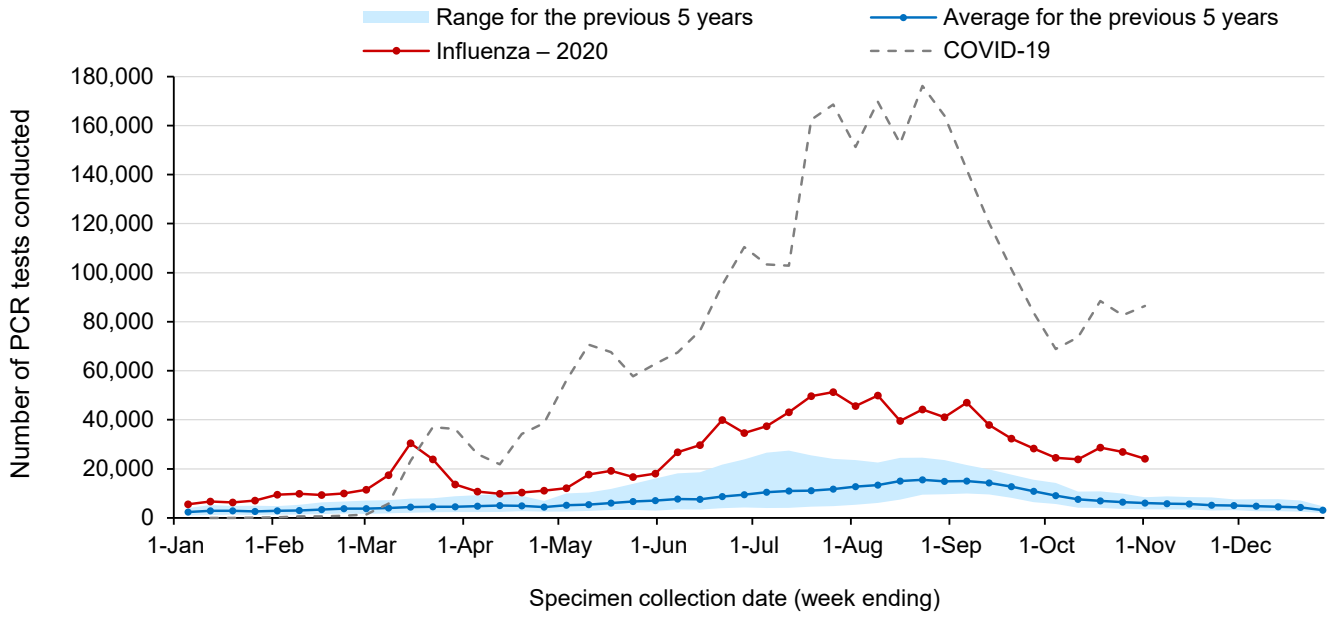
In NSW, routine surveillance for influenza and other respiratory viruses is conducted through sentinel laboratories. The number of all PCR tests (positive and negative) are provided to NSW Health by participating laboratories each week. Testing counts reflect the number of influenza PCR tests conducted; not all samples are tested for all respiratory viruses.

The most recent data available is for testing carried out to 1 November. A total of 1,092,766 influenza tests have been performed at participating laboratories to 1 November, with 24,157 tests conducted in the most recent week. Refer to Appendix B for PCR testing results for a range of respiratory viruses.

How much influenza testing is happening?

The red line in the figure below shows the number of PCR tests for influenza carried out each week. The blue line shows the average number of tests carried out for the same week in the last five years and the shaded area shows the range of counts reported in the previous five years. The grey line shows the number of COVID-19 tests.

Figure 9. Testing for influenza and COVID-19 by week, to 1 November 2020

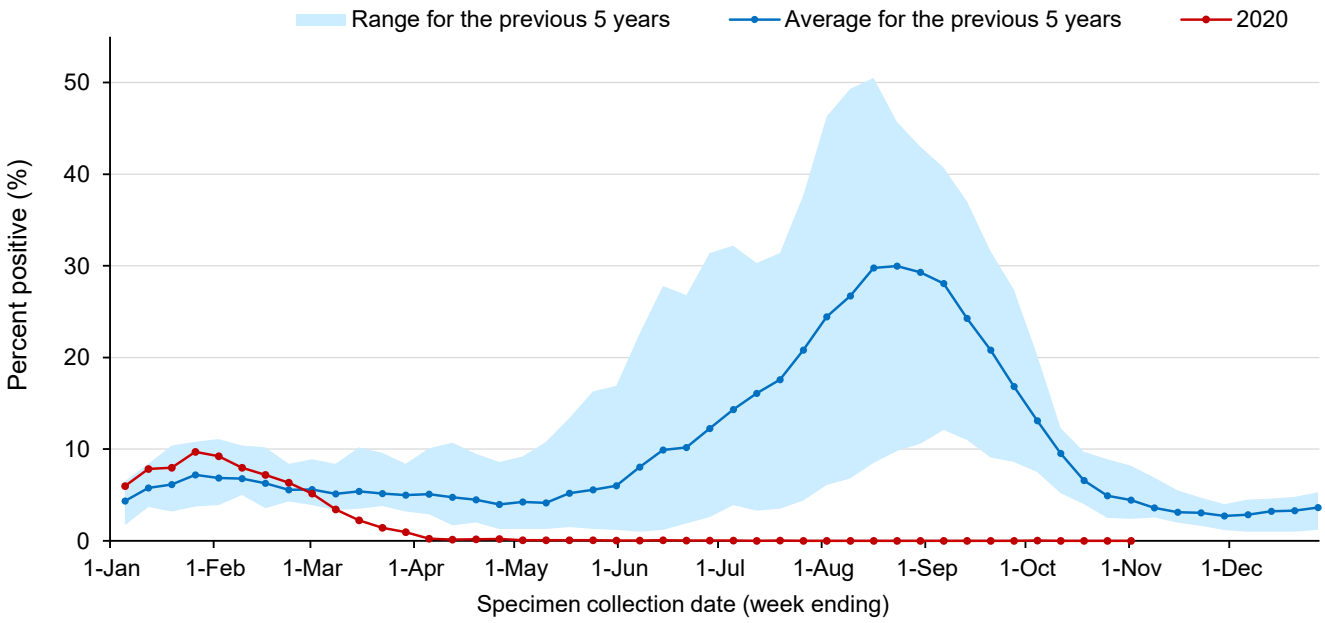


Interpretation: In every week this year, the number of influenza tests performed has exceeded the previous five-year average.

How much influenza is circulating?

The graph below shows the proportion of tests found to be positive for influenza with the red line showing weekly counts for 2020, the blue line showing the average for the past five years and the shaded area showing the range recorded in the previous five years.

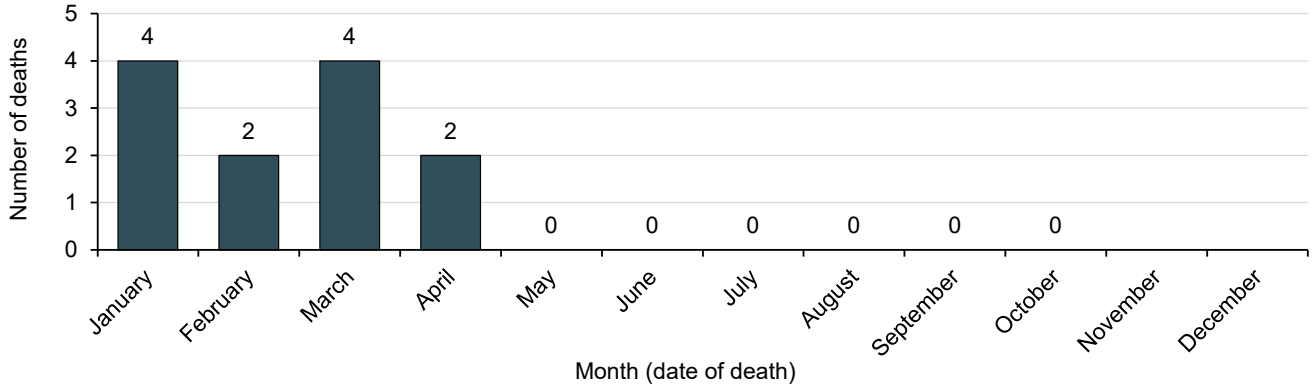
Figure 10. Proportion of tests positive for influenza, to 1 November 2020



Interpretation: In the week ending 1 November, the percent of influenza tests that were positive continued to be very low (<0.01%), indicating limited influenza transmission in the community. Since early March, this percentage has remained far lower than the usual range for the time of year.

How many people have died as a result of influenza?

Figure 11. Laboratory-confirmed influenza deaths by month of death, to 1 November 2020



Note: *month to date.

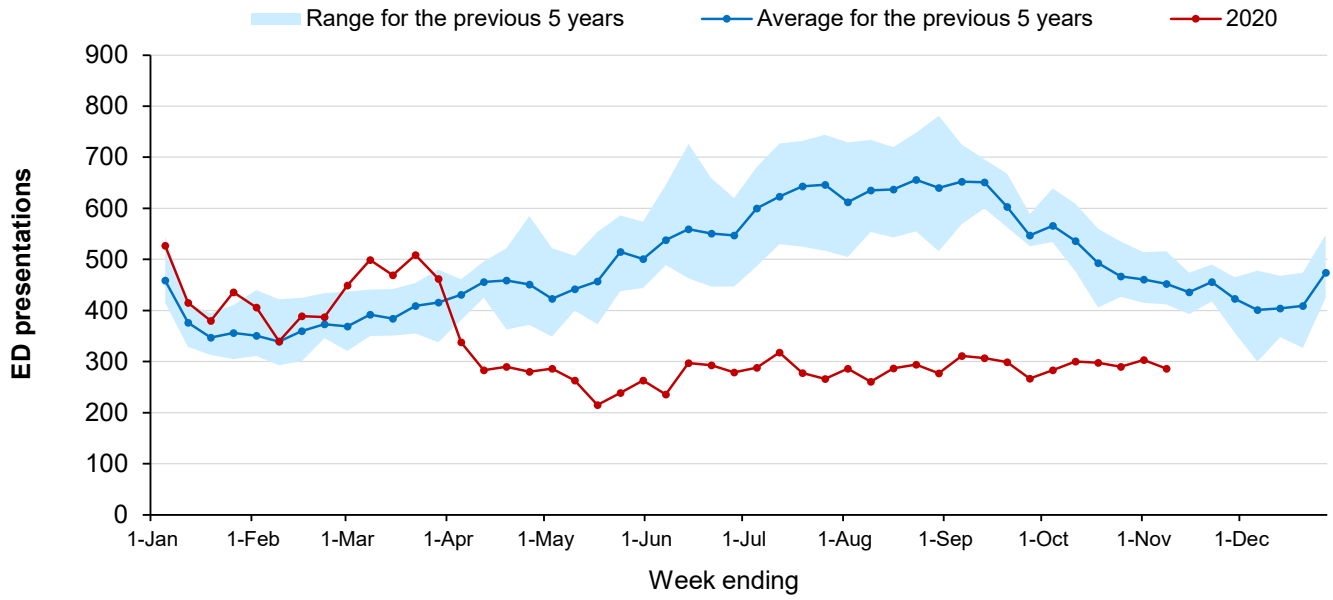
Interpretation: No influenza deaths have been reported in NSW since April 2020. The number of influenza-related deaths identified via coroner's reports and death registrations from 1 January to 1 November 2020 is lower than the same period last year (12 deaths in 2020 compared with 316 in 2019).[2] Two-thirds of the deaths were in people aged 65 years and over

[2] Includes deaths in people with laboratory-confirmed influenza.

How are emergency department presentations for respiratory infections tracking?

The two figures below show weekly pneumonia and bronchiolitis presentations to Emergency Departments in NSW, using PHREDSS.[3] The red line shows the weekly counts for 2020, the blue line shows the average for the same week for the past five years, and the shaded area shows the range recorded in the previous five years.

Figure 12. Emergency Department pneumonia presentations in NSW by week, to 8 November 2020

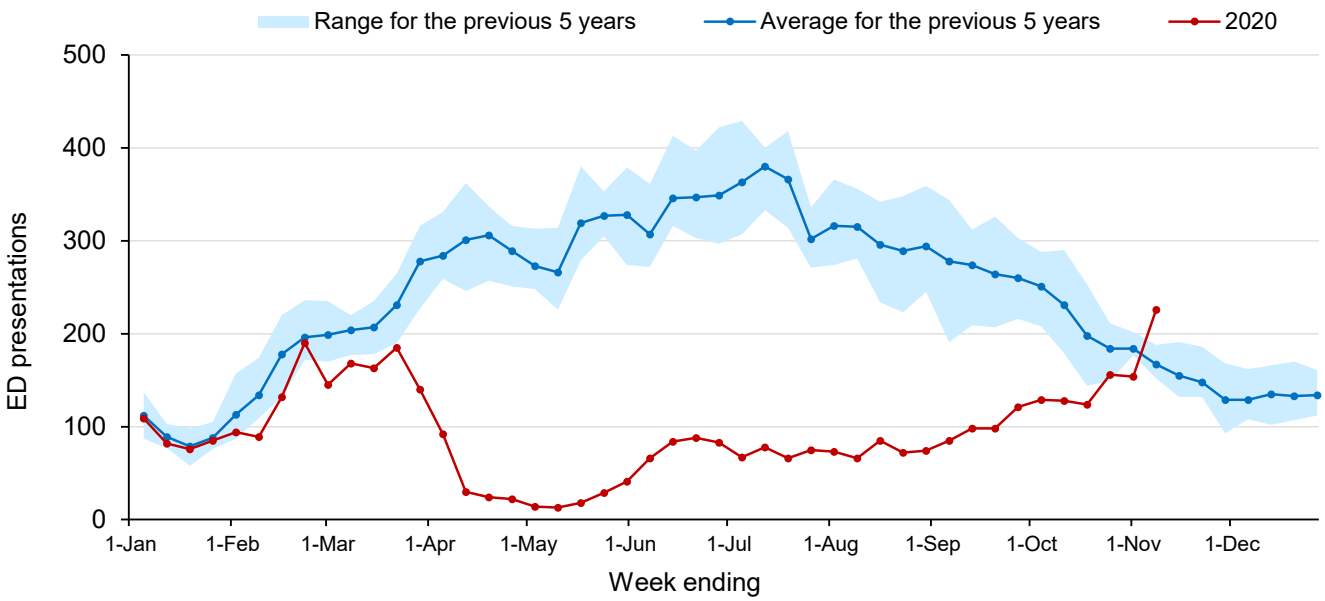


Interpretation: Pneumonia presentations include people with diagnoses of viral, bacterial, atypical or unspecified pneumonia, and Legionnaires' disease, but excludes 'pneumonia with influenza' and provides an indicator of more severe respiratory conditions.

Pneumonia presentations decreased from the end of March and have continued to remain well below the usual range for this time of year.

[3] NSW Health Public Health Rapid, Emergency Disease and Syndromic Surveillance (PHREDSS) system, CEE, NSW Ministry of Health. Comparisons are made with data for the preceding five years. Includes unplanned presentations to 67 NSW emergency departments (accounts for 87% of total public ED activity).

Figure 13. Emergency Department bronchiolitis presentations in NSW by week, to 8 November 2020



Interpretation: Bronchiolitis is a common disease of infants often caused by respiratory syncytial virus (RSV). Bronchiolitis presentations increased above the usual five-year average range. This increase corresponds to an increase in RSV detections.

APPENDIX A: COVID-19 PCR TESTS IN NSW

Local Health District	Local Government Area	Week ending				Total	
		7 November		31 October			
		No.	Tests per 1,000 population	No.	Tests per 1,000 population	No.	Tests per 1,000 population
Central Coast	Central Coast / LHD Total[2]	3759	10.7	2760	7.8	117547	333.1
Far West	Balranald	21	9.0	15	6.4	476	203.6
	Broken Hill	98	5.6	88	5.0	4572	261.6
	Central Darling	10	5.4	3	1.6	349	189.8
	Wentworth	62	8.8	60	8.5	2089	296.2
	LHD Total[2]	191	6.3	166	5.5	7486	248.3
Hunter New England	Armidale Regional	243	7.9	224	7.3	9049	294.0
	Cessnock	331	5.5	224	3.7	14764	246.1
	Dungog	73	7.8	51	5.4	2277	241.6
	Glen Innes Severn	16	1.8	28	3.2	1716	193.4
	Gunnedah	53	4.2	54	4.3	3052	240.7
	Gwydir	18	3.4	12	2.2	657	122.7
	Inverell	55	3.3	53	3.1	3927	232.5
	Lake Macquarie	2091	10.2	1632	7.9	79037	383.9
	Liverpool Plains	37	4.7	37	4.7	1970	249.3
	Maitland	948	11.1	708	8.3	36240	425.5
	Mid-Coast	364	3.9	335	3.6	21194	225.9
	Moree Plains	32	2.4	28	2.1	2785	210.0
	Muswellbrook	73	4.5	60	3.7	4237	258.7
	Narrabri	32	2.4	36	2.7	2562	195.1
	Newcastle	1948	11.8	1411	8.5	78539	474.4
	Port Stephens	458	6.2	414	5.6	26645	362.6
	Singleton	222	9.5	154	6.6	8768	373.7
	Tamworth Regional	471	7.5	361	5.8	20603	329.4
	Tenterfield	28	4.3	11	1.7	1023	155.1
	Upper Hunter Shire	64	4.5	62	4.4	3775	266.2
	Uralla	18	3.0	27	4.5	1154	192.0
	Walcha	36	11.5	17	5.4	842	268.7
	LHD Total[2]	7599	8.0	5935	6.2	324547	340.8
Illawarra Shoalhaven	Kiama	251	10.7	182	7.8	8654	370.1
	Shellharbour	776	10.6	604	8.3	27068	369.6
	Shoalhaven	786	7.4	689	6.5	30687	290.5
	Wollongong	2222	10.2	2003	9.2	72303	331.5
	LHD Total[2]	4035	9.6	3478	8.3	138712	330.6
Mid North Coast	Bellingen	125	9.6	80	6.2	3284	252.7
	Coffs Harbour	387	5.0	403	5.2	18254	236.2
	Kempsey	182	6.1	144	4.8	8228	276.6
	Nambucca	102	5.2	82	4.1	4444	224.4
	Port Macquarie-Hastings	471	5.6	455	5.4	23142	273.8
	LHD Total[2]	1267	5.6	1164	5.2	57352	254.2

Local Health District	Local Government Area	Week ending				Total	
		7 November		31 October			
		No.	Tests per 1,000 population	No.	Tests per 1,000 population	No.	Tests per 1,000 population
Murrumbidgee	Albury	493	9.1	645	11.9	15602	287.1
	Berrigan	34	3.9	37	4.2	1848	211.2
	Bland	37	6.2	26	4.4	1420	237.8
	Carrathool	8	2.9	4	1.4	301	107.5
	Coolamon	46	10.6	15	3.5	1131	260.5
	Cootamundra-Gundagai Regional	56	5.0	60	5.3	2624	233.6
	Edward River	61	6.7	89	9.8	2429	267.4
	Federation	91	7.3	123	9.9	2608	209.7
	Greater Hume Shire	98	9.1	94	8.7	2899	269.3
	Griffith	173	6.4	160	5.9	7658	283.3
	Hay	12	4.1	15	5.1	486	164.8
	Hilltops	127	6.8	116	6.2	4693	250.9
	Junee	17	2.5	22	3.3	1132	169.4
	Lachlan[1]	11	1.8	13	2.1	872	143.5
	Leeton	59	5.2	48	4.2	2325	203.2
	Lockhart	12	3.7	8	2.4	717	218.3
	Murray River	22	1.8	26	2.2	754	62.2
	Murrumbidgee	14	3.6	17	4.3	722	184.3
	Narrandera	22	3.7	28	4.8	1012	171.6
	Snowy Valleys	70	4.8	63	4.4	3917	270.5
	Temora	19	3.0	29	4.6	1173	186.0
	Wagga Wagga	517	7.9	553	8.5	22450	344.0
	LHD Total[2]	1994	6.7	2180	7.3	78190	262.3
Nepean Blue Mountains	Blue Mountains	1163	14.7	1009	12.8	38293	484.0
	Hawkesbury	927	13.8	665	9.9	27359	406.6
	Lithgow	134	6.2	144	6.7	5844	270.5
	Penrith	2750	12.9	2275	10.7	96454	452.9
	LHD Total[2]	4940	12.6	4065	10.4	166587	426.1
Northern NSW	Ballina	304	6.8	246	5.5	12807	287.0
	Byron	294	8.4	275	7.8	11866	338.3
	Clarence Valley	202	3.9	197	3.8	10146	196.4
	Kyogle	34	3.9	46	5.2	1605	182.5
	Lismore	341	7.8	291	6.7	13292	304.2
	Richmond Valley	119	5.1	111	4.7	6181	263.4
	Tenterfield	28	4.3	11	1.7	1023	155.1
	Tweed	478	4.9	442	4.6	22006	226.9
	LHD Total[2]	1783	5.7	1611	5.2	78159	251.8

Local Health District	Local Government Area	Week ending				Total	
		7 November		31 October			
		No.	Tests per 1,000 population	No.	Tests per 1,000 population	No.	Tests per 1,000 population
Northern Sydney	Hornsby	1885	12.4	1384	9.1	52412	344.7
	Hunters Hill	363	24.2	305	20.4	12315	822.1
	Ku-ring-gai	2422	19.1	1886	14.8	64808	509.7
	Lane Cove	1051	26.2	827	20.6	33776	841.1
	Mosman	442	14.3	337	10.9	13115	423.3
	North Sydney	776	10.3	607	8.1	24842	331.1
	Northern Beaches	3715	13.6	2977	10.9	105615	386.2
	Parramatta[1]	3070	11.9	2394	9.3	80763	314.0
	Ryde	1606	12.2	1255	9.6	47510	361.9
	Willoughby	885	10.9	781	9.6	25523	314.4
	LHD Total[2]	13736	14.4	10821	11.3	395176	413.4
South Eastern Sydney	Bayside	1926	10.8	1736	9.7	55002	308.3
	Georges River	1485	9.3	1355	8.5	47773	299.6
	Randwick	2240	14.4	2094	13.5	75694	486.3
	Sutherland Shire	3358	14.6	2656	11.5	101669	440.9
	Sydney[1]	3715	15.1	3401	13.8	116152	471.5
	Waverley	1210	16.3	1202	16.2	43114	580.3
	Woollahra	1114	18.8	1029	17.3	35435	596.7
	LHD Total[2]	12836	13.4	11562	12.1	400932	418.0
South Western Sydney	Camden	2163	21.3	2090	20.6	59050	582.1
	Campbelltown	2794	16.3	2577	15.1	78472	459.1
	Canterbury-Bankstown[1]	3647	9.7	3184	8.4	125202	331.3
	Fairfield	1831	8.7	1496	7.1	64392	304.2
	Liverpool	3939	17.3	3263	14.3	97524	428.5
	Wingecarribee	1864	36.5	577	11.3	23006	449.9
	Wollondilly	572	10.8	509	9.6	17011	320.1
	LHD Total[2]	15016	14.5	12058	11.6	402052	387.1
Southern NSW	Bega Valley	170	4.9	187	5.4	8445	245.0
	Eurobodalla	236	6.1	240	6.2	14006	364.1
	Goulburn Mulwaree	232	7.5	224	7.2	8997	289.0
	Queanbeyan-Palerang Regional	323	5.3	308	5.0	12492	204.5
	Snowy Monaro Regional	129	6.2	120	5.8	5437	261.5
	Upper Lachlan Shire	56	7.0	42	5.2	1933	239.9
	Yass Valley	60	3.5	34	2.0	3028	177.2
	LHD Total[2]	1206	5.6	1155	5.3	54365	250.5
Sydney	Burwood	313	7.7	275	6.8	10210	251.4
	Canada Bay	1235	12.9	1066	11.1	41779	434.9
	Canterbury-Bankstown[1]	3647	9.7	3184	8.4	125202	331.3
	Inner West	2960	14.7	2516	12.5	99862	497.3
	Strathfield	638	13.6	580	12.4	19129	407.6
	Sydney[1]	3715	15.1	3401	13.8	116152	471.5
	LHD Total[2]	9104	13.1	7936	11.4	306115	439.3

Local Health District	Local Government Area	Week ending				Total	
		7 November		31 October			
		No.	Tests per 1,000 population	No.	Tests per 1,000 population	No.	Tests per 1,000 population
Western NSW	Bathurst Regional	503	11.5	579	13.3	15690	359.7
	Blayney	85	11.5	69	9.4	2563	347.3
	Bogan	7	2.7	6	2.3	539	208.9
	Bourke	6	2.3	7	2.7	423	163.3
	Brewarrina	2	1.2	3	1.9	277	171.9
	Cabonne	52	3.8	73	5.4	2550	187.0
	Cobar	43	9.2	28	6.0	818	175.6
	Coonamble	11	2.8	9	2.3	790	199.6
	Cowra	61	4.8	72	5.7	2791	219.0
	Dubbo Regional	448	8.3	452	8.4	15015	279.5
	Forbes	47	4.7	65	6.6	1814	183.1
	Gilgandra	20	4.7	13	3.1	805	189.9
	Lachlan[1]	11	1.8	13	2.1	872	143.5
	Mid-Western Regional	159	6.3	186	7.4	6752	267.4
	Narromine	48	7.4	34	5.2	1413	216.8
	Oberon	42	7.8	44	8.1	1427	263.7
	Orange	416	9.8	420	9.9	16410	386.6
	Parkes	73	4.9	68	4.6	3518	237.1
	Walgett	17	2.9	14	2.4	1369	230.0
	Warren	27	10.0	19	7.0	1089	403.8
	Warrumbungle Shire	39	4.2	38	4.1	2290	246.8
	Weddin	8	2.2	16	4.4	699	193.5
	LHD Total[2]	2120	7.4	2226	7.8	79657	279.5
Western Sydney	Blacktown	4712	12.6	3959	10.6	142766	381.3
	Cumberland	2725	11.3	2242	9.3	84689	350.7
	Parramatta[1]	3070	11.9	2394	9.3	80763	314.0
	The Hills Shire	3583	20.1	2546	14.3	87623	492.4
	LHD Total[2]	13582	12.9	10760	10.2	383375	363.9
NSW Total[3]		**100,642**	**12.4**	**84,974**	**10.5**	**3,181,960**	**393.3**

[1]Local Government Area (LGA) spans multiple Local Health Districts.
[2]Local Health District total counts and rates includes tests for LHD residents only. Murrumbidgee includes Albury LGA residents.
[3]NSW Total counts and rates include tests where residential information is incomplete.
See https://www.health.nsw.gov.au/Infectious/covid-19/Pages/counting-tests.aspx for detail on how tests are counted.

APPENDIX B: NUMBER OF POSITIVE PCR TEST RESULTS FOR INFLUENZA AND OTHER RESPIRATORY VIRUSES AT SENTINEL NSW LABORATORIES, 1 JANUARY TO 1 NOVEMBER 2020

The reported testing numbers reflect the number of influenza PCR tests conducted. Not all samples are tested for all of the other respiratory viruses. Therefore, data presented may tend to under-represent current respiratory virus activity in NSW.

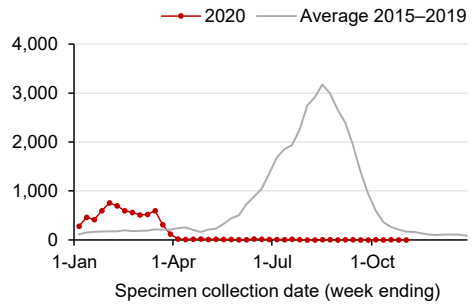
Specimen collection date	Total PCR tests conducted	Influenza A		Influenza B		Adeno-virus	Para-influenza	RSV	Rhinovirus	HMPV	Enterovirus
		No.	%Pos.	No.	%Pos.						
1 Jan—1 Nov 2020											
Total	1,092,766	6,623	0.61%	952	0.09%	7,803	9,087	9,307	125,006	2,092	4,992
Month ending											
3 February*	34,953	2,508	7.18%	401	1.15%	846	1,900	752	5,036	599	335
1 March	40,575	2,363	5.82%	315	0.78%	798	2,435	1,118	8,245	437	1,007
29 March	85,238	1,549	1.82%	200	0.23%	898	4,117	1,977	18,088	664	1,502
3 May*	54,128	70	0.13%	13	0.02%	175	273	410	2,250	48	210
31 May	71,525	35	0.05%	6	0.01%	237	62	115	3,511	27	112
28 June	130,922	42	0.03%	11	0.01%	629	83	178	28,321	112	246
2 August*	227,152	34	0.01%	2	0.00%	1,251	89	209	31,589	79	427
30 August	174,594	9	0.01%	2	0.00%	1,137	37	299	13,926	14	235
27 September	145,489	6	0.00%	1	0.00%	938	35	866	8,416	61	259
1 November	128,190	7	0.01%	1	0.00%	894	56	3,383	5,624	51	659
Week ending											
4 October	24,539	4	0.02%	1	0.00%	203	9	426	1,229	10	89
11 October	23,875	0	0.00%	0	0.00%	163	7	473	912	11	84
18 October	28,720	2	0.01%	0	0.00%	192	23	640	1,035	11	116
25 October	26,899	1	0.00%	0	0.00%	175	13	803	1,062	4	157
1 November	24,157	0	0.00%	0	0.00%	161	4	1,041	1,386	15	213

Notes: Preliminary laboratory data is provided by participating sentinel laboratories on a weekly basis and are subject to change. Serological diagnoses are not included.
HMPV - Human metapneumovirus
RSV - Respiratory syncytial virus
*Five-week period

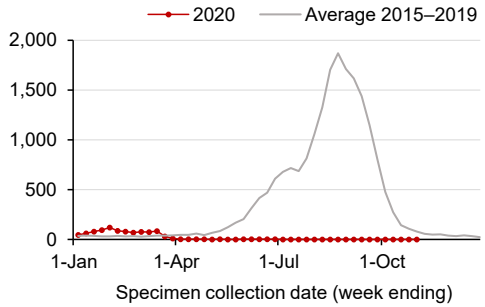
APPENDIX C: NUMBER OF POSITIVE PCR TEST RESULTS FOR INFLUENZA AND OTHER RESPIRATORY VIRUSES AT SENTINEL NSW LABORATORIES, 1 JANUARY TO 1 NOVEMBER 2020

Not all samples are tested for all of the other respiratory viruses. Therefore, data presented may tend to under-represent current respiratory virus activity in NSW.

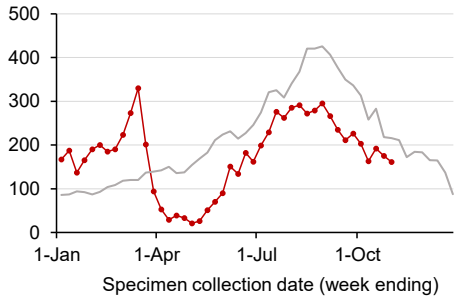
Influenza A



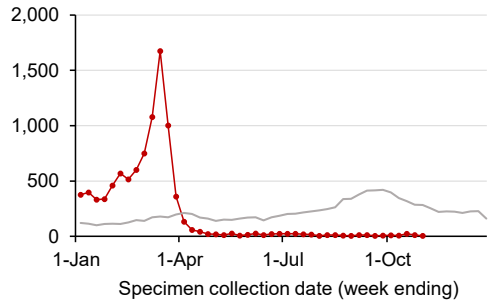
Influenza B



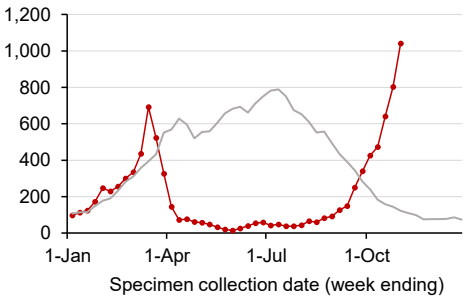
Adenovirus



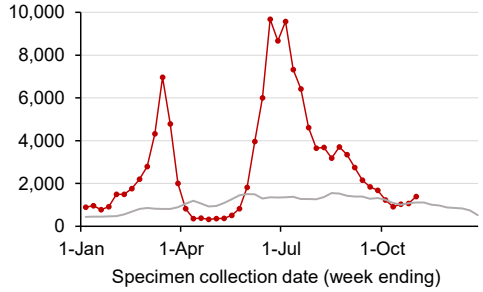
Parainfluenza



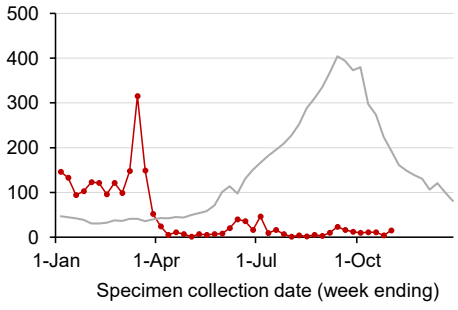
Respiratory syncytial virus (RSV)



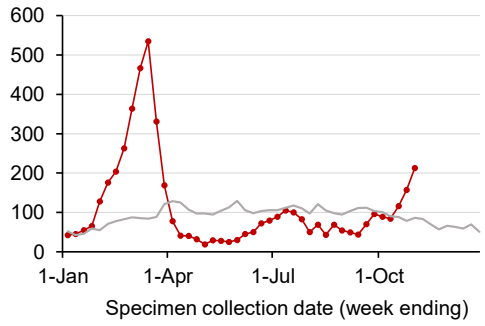
Rhinovirus



Human metapneumovirus (HPMV)



Enterovirus



Notes: Preliminary laboratory data is provided by participating sentinel laboratories on a weekly basis and are subject to change. Serological diagnoses are not included.

GLOSSARY

Term	Description
Case	A person infected who has tested positive to a validated specific SARS-CoV-2 nucleic acid test or has had the virus identified by electron microscopy or viral culture. Blood tests (serology) is only used in special situations following a public health investigation and require other criteria to be met in addition to the positive serology result (related to timing of symptoms and contact with known COVID-19 cases). Case counts include: - NSW residents diagnosed in NSW who were infected overseas or in Australia (in NSW or interstate), and - interstate or international visitors diagnosed in NSW who were under the care of NSW Health at the time of diagnosis.
Healthcare workers	Individuals who work within a hospital or other healthcare settings, including staff in direct or indirect contact with patients or infectious materials.
Incubation period	The time in which the case was infected. The incubation period for COVID-19 is between 1 and 14 days prior to symptom onset.
Overseas-acquired case	Case who travelled overseas during their incubation period. While testing rates in NSW are high and case counts are low, cases who have travelled overseas in their incubation period are considered to have acquired their infection overseas.
Interstate-acquired case	Case who travelled interstate during their infection and the public health investigation concludes the infection was likely acquired interstate.
Cluster	Group of cases sharing a common source of infection or linked to each other in some way.

Dates used in COVID-19 reporting

Event	Date name	Source
Person first starts to feel unwell	Date of symptom onset	Public health staff interview all cases at the time of diagnosis. This is the date provided to NSW Health by the case.
Person has a swab taken	Date of test	This date is provided to NSW Health by the laboratory when the test result (positive or negative) is notified.
Laboratory notifies NSW Health of result	Date of notification	This date is provided to NSW Health by the laboratory. Laboratories prioritise notification of positive results to allow prompt public health action. Positive cases: The date of notification is collected by NSW Health on the day of notification. Cases are informed of their diagnosis by their doctor or public health staff as soon as the result is available. The date of notification to NSW Health is usually the same day as the date the case finds out about the result. Negative cases: Some laboratories notify NSW Health of negative results in batches at regular intervals. For these laboratories the date of notification to NSW Health does not reflect the date the negative result was available at the laboratory. NSW Health does not collect information on the date the person was informed of the result.