

COVID-19 in NSW – why one case matters

SWSPHN Webinar - Infection Prevention Control, 8 December 2020

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Outline of session

- 1. Why one case matters - work towards zero community transmission**
- 2. The importance of ongoing vigilance - case studies**
- 3. The NSW COVID-19 Sewage Surveillance Program**
- 4. Key messages**
- 5. Key COVID-19 resources**

Why one case matters - work towards zero community transmission

Why one case matters

- Recent outbreaks have shown us that if the disease is able to enter the community unseen, it can spread quickly.

Table 3. COVID-19 community clusters, up to 25 July 2020

Cluster name	Number of linked cases	Source of cluster
Crossroads Hotel Casula and linked clusters	55*	Victorian-acquired case
Thai Rock Restaurant Wetherill Park and linked clusters	68	Source not identified
Soldiers Club Batemans Bay	8	Source not identified

- Crossroads Hotel Casula and linked clusters**

- The public health investigation identified that the source of the Crossroads Hotel Casula cluster was a case who had acquired their infection in Victoria. Infection was likely spread to others in a workplace and then at the hotel on 3 July when these cases attended while infectious.

- Thai Rock Restaurant Wetherall Park & Solders Club Batemans Bay**

- A thorough public health investigation has not been able to identify the source of these clusters, however, whole genome sequencing of samples collected from cases suggests the strain is similar to that circulating in Victoria at the time.

International experience

- The international situation is deteriorating after many countries suppressed the virus in the first wave.
- **Switzerland** – After the first wave, daily confirmed cases were down to 3 cases/day in June, now up to 10,000 cases/ day in November 2020.

Daily new confirmed COVID-19 cases

The number of confirmed cases is lower than the number of actual cases; the main reason for that is limited testing.

Our World
in Data



Source: European CDC – Situation Update Worldwide – Last updated 9 November, 10:06 (London time)

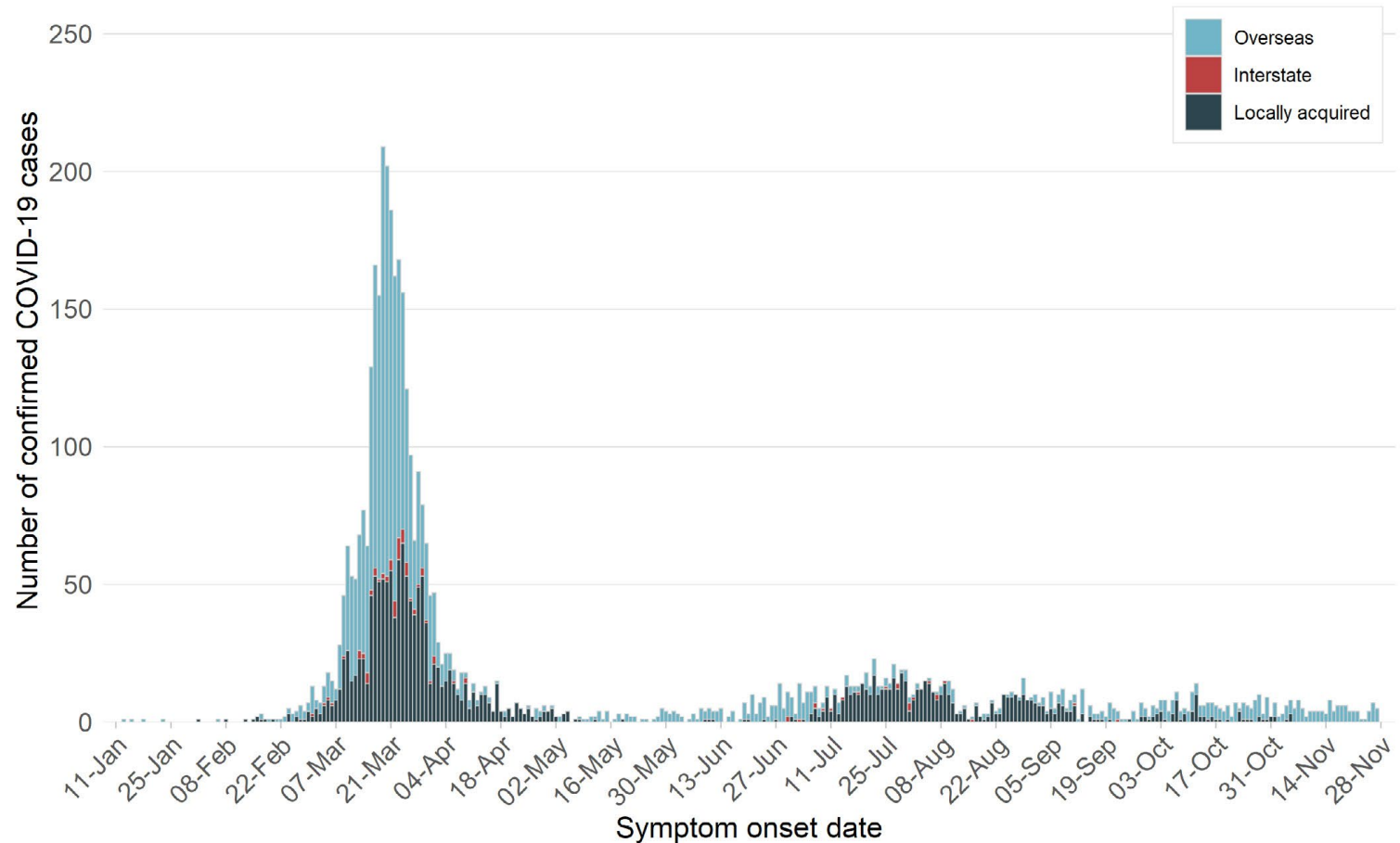
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Why one case matters – work towards zero community transmission

- A key pillar of the NSW COVID-19 strategy is to work towards **zero** community transmission.
- When there is just **one** case that is not linked to a known cluster, it tells us that COVID-19 is still circulating in the community and that there are unrecognised chains of transmission.
- Maintaining **high rates of testing** is critical for finding new cases early and stopping chains of transmission.
- When there is no community transmission, it is then possible to carefully ease restrictions, while maintaining some level of protection – **the need to test will remain.**
- Achieving this goal needs commitment – from people and communities, business, industry and government, including an effective **public health and primary care** response.
- This will help control the virus until an effective vaccine is widely available.

NSW COVID-19 cases by source of infection – week ending 28 Nov 2020

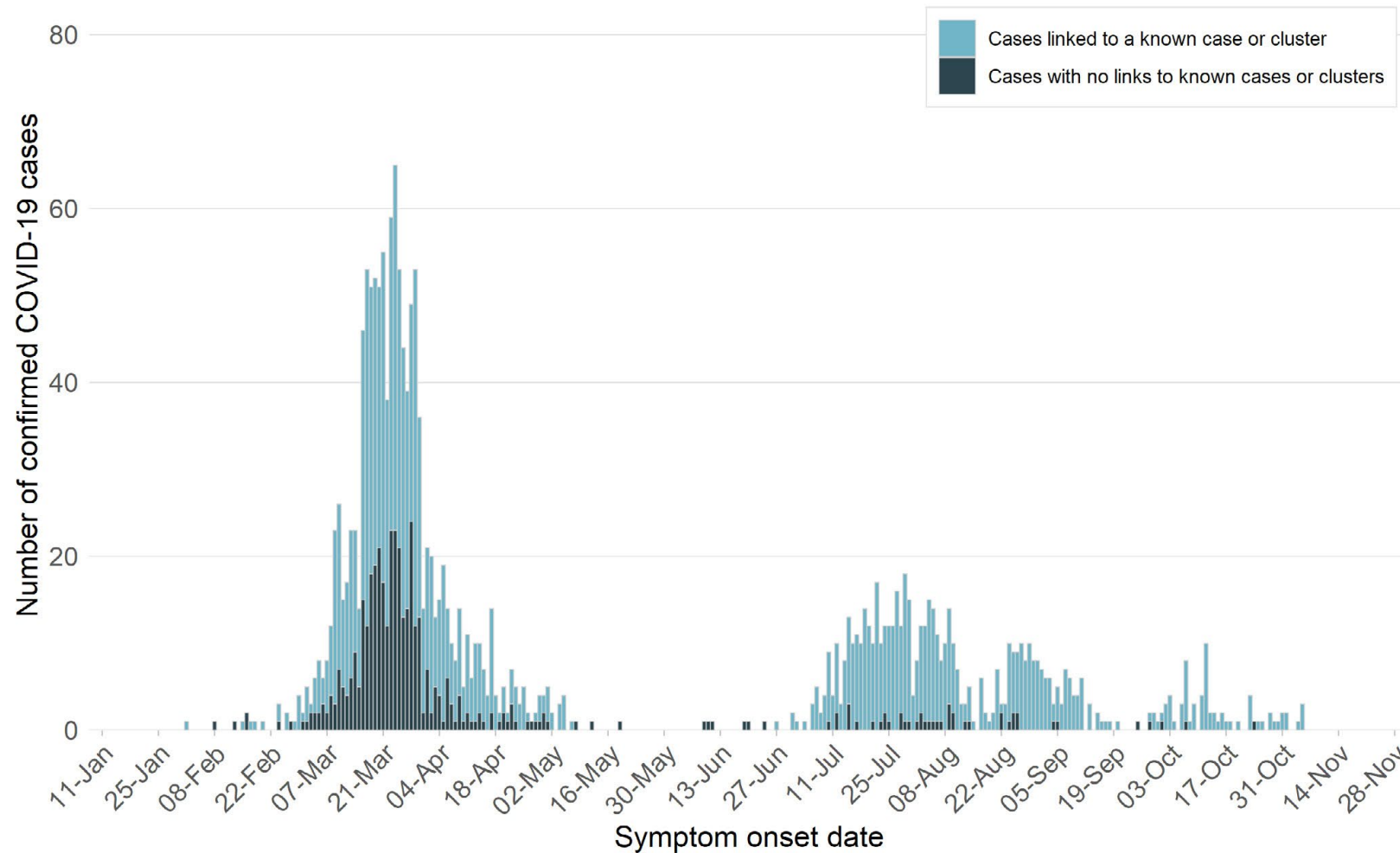
Figure 1. COVID-19 cases by likely infection source and illness onset, NSW, 2020



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

Locally acquired COVID-19 cases by linked and unlinked status – week ending 28 Nov 2020

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.

The importance of ongoing vigilance- lessons from case studies

The importance of ongoing vigilance - lessons from case studies

The following NSW cases were identified in the second half of 2020.

Case example – ‘Dani’

- Dani, in her 30s with no relevant prior medical history, started to feel unwell on a Friday. Her symptoms included fever, cough, chills/rigors, headache, fatigue, loss of taste/smell, joint pain, muscle pain, abdominal pain and general malaise.
- She presented to her GP three days later with those symptoms, as well as a fever of 38.3°C and dry throat. Her GP diagnosed a viral illness, and prescribed Panadol and rest. No testing for respiratory viruses was performed.
- Four days later, Dani returned to her GP with a persistent fever. Her GP recommended COVID-19 testing. Dani was confirmed positive 7 days after onset of symptoms.

Key message: If you suspect viral illness, test for COVID-19, even when COVID-19 prevalence is low in the community.

The importance of ongoing vigilance - lessons from case studies

Case example – ‘Luca’

- Luca, a 40 year old male with a prior history of asthma (medication – salbutamol MDI prn and Fluticasone propionate/Salmeterol 100/50µg mdi BD) woke up feeling unwell on Friday. His symptoms included cough, chills/rigors, sore throat, shortness of breath, headache, diarrhoea.
- He visited his GP six days later with worsening respiratory symptoms. His GP attributed symptoms to asthma and prescribed additional steroids and antibiotics.
- Luca returned to his GP five days later for a follow-up appointment, reporting that the additional treatment appeared to have been helpful.
- The next day, Luca and his family were identified as household contacts of a confirmed case and swabbed.
- 12 days after symptom onset, Luca tested positive for COVID-19 and was the likely source for his family and the broader community transmission linked with cluster - a total of 9 cases.

Key message: Anyone presenting with new respiratory symptoms, even if they have pre-existing respiratory conditions, should be tested.

The importance of ongoing vigilance - lessons from case studies

Case example – ‘Andre’

- Andre works in a GP practice. His medical history includes asthma.
- On Sunday his wife developed COVID-like symptoms and went for testing. She was negative for COVID-19.
- The following day Andre started to feel unwell with cough, runny nose and fatigue. He did not get tested and attended work.
- Andre continued to work at the practice on and off over the next eleven days, with frequent patient contact. During this period he started to experience additional symptoms (sore throat, loss of taste/smell, muscle pain, diarrhoea).
- 14 days after onset of symptoms, Andre tested positive after being identified as a close contact from a case who attended the practice.
- Andre working while infectious has been linked to and potentially commenced a number of chains of transmission.

Key message: Anyone presenting with new respiratory symptoms, even if they are confident the source is not COVID-19, should be tested as missing even one case can lead to uncontrolled transmission. It is important to stay at home while symptomatic.

The importance of ongoing vigilance - lessons from case studies

Case example – ‘Angelina’

- Angelina is a 35 year old female with no prior medical history.
- On Tuesday she started to feel unwell with a sore throat. She made a telehealth appointment with a GP for later that day. The GP suspected bacterial tonsillitis and prescribed antibiotics. No in-person physical examination was performed.
- Three days later Angelina developed a runny nose and attempted to get tested, however her closest clinic was closed.
- The following day she was tested, after being identified as part of a new case investigation.
- She tested positive four days after symptom onset. This led to transmission to 3 people in her family and friendship group.

Key message: COVID-19 mimics many common respiratory illnesses – it is an important diagnosis of exclusion.

The importance of ongoing vigilance - lessons from case studies

Case example – ‘Mia ’

- Mia, a female in her 50s, is a GP working in Sydney. She has a history of asthma.
- On Thursday she started to feel unwell while at work with cough, sore throat, fatigue and a headache. She went to the nearest emergency department and was tested for COVID-19. Her husband was also tested the same day.
- Following the test, they both went home and isolated away from family and friends.
- Both Mia and her husband tested positive and were contacted by the local Public Health Unit (PHU).
- The PHU determined that Mia’s practice had suitable procedures in place, including:
 - Infection prevention and control measures including hand hygiene and PPE use
 - Screening patients and staff and limiting face to face consultations
 - Staff consulted with each other over the phone instead of face to face
 - Staff were prohibited from congregating in tea room and GPs were not to enter the reception area.
- None of the patients or colleagues from Mia’s practice were assessed as close contacts by the PHU.
- The practice was closed for cleaning and use telehealth during this time.
- No additional cases were identified related to Mia working at the practice while infectious.
- The source infection for Mia and her husband has not been identified.

Key message: Early detection with appropriate precautions can help prevent a healthcare setting outbreak.

Need to maintain vigilance

- While Australians return from overseas there remains a risk of transmission of COVID-19 into the NSW community.
- Some chains of transmission are long and may involve individuals with minimal or no symptoms – people have generally underestimated the risks of the locations where they may have encountered COVID-19 (e.g. weddings, funerals, family and friend gatherings, workplaces) compared to more obvious, structured large-scale events (which have generally not been associated with transmission).
- Even when multiple ‘doughnut days’ occur – COVID-19 is still a diagnosis of exclusion for anyone presenting with an exacerbation of their normal symptoms (e.g. rhinorrhea in someone with a history of hay fever, cough in someone with asthma).
- Even if a household contact tests negative to COVID-19 it does not mean a different member of the same household couldn’t have COVID-19.
- Every case matters. A single case can set off chains of transmission that are long and potentially deadly.
- Please encourage testing for anyone with symptoms. Most people get their results within 24 hrs.

The NSW COVID-19 Sewage Surveillance Program

The NSW COVID-19 Sewage Surveillance Program

- An infected person can shed COVID-19 virus even if they do not have any symptoms, and shedding can continue for several weeks after they are no longer infectious.
 - Fragments of the virus enter the sewage when washed off hands and bodies via sinks and showers and via faeces
 - Emerging evidence indicates that viral load of SARS-CoV-2 peaks in:
 - Upper respiratory tract around time of symptom onset
 - Lower respiratory tract slightly later and may persist for longer; and
 - Stool samples at a later stage.
- The NSW Sewage Surveillance Program tests untreated sewage for fragments of the COVID-19 virus at more than 70 sewage treatment plants across NSW (metro and regional sites).
- Testing sewage can help track infections in the community and provide early warning of an increase in infections.
- It also provides reassurance that we are not missing cases.

Sources:

<https://www.health.nsw.gov.au/Infectious/covid-19/Documents/covid-surveillance-report-20201128.pdf>

<https://www.health.nsw.gov.au/Infectious/covid-19/Pages/sewage-surveillance.aspx>

(K.A. Walsh, K. Jordan and B. Clyne et al., SARS-CoV-2 detection, viral load and infectivity over the course of an infection, Journal of Infection, <https://doi.org/10.1016/j.jinf.2020.06.067>)

Table 6. Locations with positive SARS-CoV-2 detections in sewage samples since September for the week ending 28 November 2020

Pop.	Sewage treatment plant	LHD	26	3	10	17	24	31	7	14	21	28
			Sep	Oct	Oct	Oct	Oct	Oct	Nov	Nov	Nov	Nov
			Week									
			39	40	41	42	43	44	45	46	47	48
60,514	Blue Mountains (Winmalee)	NBMLHD										
4,681	North Richmond	NBMLHD										
13,052	Richmond	NBMLHD										
110,114	Penrith	NBMLHD										
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										
1,341,986	North Head	NS&WSLHD										
26,997	Castle Hill Cattai	WSLHD										
	Castle Hill Glenhaven	WSLHD										
163,374	Quakers Hill	WSLHD										

Discovery of COVID-19 virus fragments in sewage

- Most positive results align with known cases in associated catchment areas.
 - (e.g. Bondi and Malabar plants serve over 2 million people, including Sydney city and quarantine hotels, and have been positive for consecutive weeks)
- A detection prompts a call for increased testing in surrounding areas.
 - Media alerts are issued.
 - Community members are encouraged to come forward for testing.
- Detections in the following catchments have resulted alerts being issued:
 - Rouse Hill, Liverpool, Glenfield, Bathurst, West Camden, North Richmond and Riverstone

Public Health Alert - South Western Sydney

05 November 2020

NSW Health is calling on people in South Western Sydney to get tested if they have even the mildest COVID-19 symptoms after the state's sewage surveillance program detected traces of the virus at a sewage pumping station in the area.

Fragments of the virus that causes COVID-19 have been detected in samples taken on 4 November from the sewerage system that drains parts of Leppington, Catherine Field, Gledswood Hills, Varroville and Denham Court.

Symptoms like a runny nose or scratchy throat, cough, tiredness, fever or loss of taste or smell can all signal COVID-19.

After testing, you must remain isolated until a negative result is received.

Nearby clinics include:

- Prestons Drive-through Clinic, Ash Road, Ash Road Sporting Complex, 8am-6pm
- Oran Park Pop-up Clinic, Julia Reserve Community Centre, Peter Brock Drive, 8am-6.30pm
- Leppington Clinical Labs Pathology Drive-through, Emerald Hills Shopping Village, Emerald Hills Boulevard, 9am-4pm
- Gledswood Hills Douglass Hanly Moir Pathology Drive-through Clinic, 7 Gregory Hills Drive. Bookings required on 1800 026 622 or 9111 3405
- Ingleburn Laverly Pathology, 47a Oxford Rd, 8am-5pm

For other nearby clinics, visit [COVID-19 testing clinics](#) or contact your GP.

There are more than 300 COVID-19 testing locations across NSW. Sewage testing for molecular markers of SARS-CoV-2, the virus that causes

COVID-19, started in July, adding another tool in the fight against the global pandemic.

There is no evidence COVID-19 is transmitted via wastewater systems.

Public health alert - Liverpool

24 November 2020

The discovery of COVID-19 virus fragments in sewage at the Liverpool sewage treatment plant has prompted renewed calls for residents to get tested.

The virus fragments were detected through the state's ongoing sewage surveillance program.

Detection of the virus in sewage samples could reflect the presence of known cases of COVID-19 diagnosed in recent weeks in the area served by this sewage treatment plant. However, NSW Health is concerned there could be other active cases in the local community in people who have not been tested and who might incorrectly assume their symptoms are just a cold.

The area served by the treatment plant includes the suburbs of Bardia, Hinchinbrook, Hoxton Park, Abbotsbury, Ingleburn, Prestons, Holsworthy, Edmondson Park, Austral, Cecil Park, Cecil Hills, Elizabeth Hills, Bonnyrigg Heights, Edensor Park, Green Valley, Pleasure Point, Casula, Hammondville, Liverpool, Moorebank, Wattle Grove, Miller, Cartwright, Lurnea, Warwick Farm, Chipping Norton, Voyager Point, Macquarie Links, Glenfield, Catherine Field, Gledswood Hills, Varroville, Leppington, West Hoxton, Herringsea Park, Middleton Grange, Len Waters Estate, Carnes Hill, Denham Court.

People in these areas must be aware of any symptoms of illness, and immediately isolate and get tested should even the mildest of symptoms appear that might appear to be just a cold. Symptoms such as a runny nose or scratchy throat, cough, tiredness, fever or other symptoms could be COVID-19.

After testing, you must remain in isolation until a negative result is received. The only way to find new cases and prevent further transmission is to increase testing. There are more than 300 COVID-19 testing locations across NSW. To find your nearest clinic visit [COVID-19 testing clinics](#) or contact your GP.

Sewage testing for genetic material of SARS-CoV-2, the virus that causes COVID-19, started in July, adding another tool in the fight against the global pandemic. There is no evidence COVID-19 is transmitted via wastewater systems.

Public health alert – Riverstone

02 December 2020

NSW Health is calling on people in Sydney's north-west to get tested if they have even the mildest COVID-19 symptoms, after the state's sewage surveillance program detected traces of the virus at a sewage treatment plant in Riverstone.

Fragments of the virus that causes COVID-19 have been detected in samples taken on Sunday 29 November from the sewerage system that drains parts of Riverstone, Vineyard, Marsden Park, Shanes Park, Quakers Hill, Oakville, Box Hill, The Ponds, Rouse Hill, Nelson, Schofields and Colebee.

Detection of the virus in sewage samples could reflect the presence of known cases of COVID-19 diagnosed in recent weeks in the area served by this sewage treatment plant. However, NSW Health is concerned there could be other active cases in the local community in people who have not been tested and who might incorrectly assume their symptoms are just a cold.

Particularly in light of the easing of restrictions on gatherings announced earlier today, it is important that people in these areas be aware of any symptoms of illness, and immediately isolate and get tested should even the mildest of symptoms appear. Cold-like symptoms, including a runny nose or scratchy throat, cough, tiredness, fever or other symptoms could be COVID-19.

After testing, you must remain in isolation until a negative result is received. The only way to find new cases and prevent further transmission is to increase testing. There are more than 300 COVID-19 testing locations across NSW. To find your nearest clinic visit [COVID-19 testing clinics](#) or contact your GP.

Sewage testing for genetic material of SARS-CoV-2, the virus that causes COVID-19, started in July, adding another tool in the fight against the global pandemic.

There is no evidence COVID-19 is transmitted via wastewater systems.

Key messages

Key messages

1. Have a low threshold for recommending testing

- Promote COVID-19 testing for anyone (staff and patients) with symptoms of COVID-19, even mild symptoms, to ensure a COVID-19 diagnosis as close as possible to the time symptoms start.
- Many of the symptoms are non-specific, including some non-respiratory symptoms. Symptoms include fever, cough, sore/scratchy throat, shortness of breath, runny nose, loss of smell, loss of taste, fatigue, muscle pain, joint pain, headache, diarrhoea, nausea/vomiting, loss of appetite, unexplained chest pain and conjunctivitis.
- There are over 300 COVID-19 testing locations across NSW.
<https://www.health.nsw.gov.au/Infectious/covid-19/Pages/clinics.aspx>

2. Support staff wellbeing

- Communicate regularly with staff to remind everyone that they should not attend work if unwell with symptoms, even if mild, and get tested.



**Don't delay a
COVID-19 test.**

- > **Get tested immediately, even with the mildest symptom**
- > **It's free, quick and easy**
- > **Most people get their result within 24 hours**

> HELP US STAY COVID SAFE

For the latest information about COVID-19 visit [nsw.gov.au](https://www.nsw.gov.au)

Key messages



3. Complete and maintain a NSW COVID-19 Safety Plan for your practice

- COVID-19 Safety Plans are comprehensive checklists designed by NSW Health and approved by the Chief Health Officer.
- A NSW COVID-19 Safety Plan for general practice and other primary health service providers is now available.
 - Outlines considerations for wellbeing of staff and customers; physical distancing; hygiene and cleaning; and record keeping
 - <https://www.nsw.gov.au/covid-19/covid-safe/general-practice-and-other-primary-health-service-providers>
- Having a COVID-19 Safety Plan in place will help minimise risk of transmission of COVID-19 on your premises.
- Complete the plan in consultation with all staff, and update as restrictions and advice changes.

Key COVID-19 resources

NSW COVID-19 Safety Plan for general practice and other primary health service providers

<https://www.nsw.gov.au/covid-19/covid-safe/general-practice-and-other-primary-health-service-providers>

NSW COVID-19 testing clinics

<https://www.health.nsw.gov.au/Infectious/covid-19/Pages/clinics.aspx>

NSW COVID-19 communication resources including a wide range of translated materials (posters, factsheets etc)

<https://www.health.nsw.gov.au/Infectious/covid-19/Pages/resources.aspx>

NSW COVID-19 RACGP webinars

<https://www.health.nsw.gov.au/Infectious/covid-19/Pages/racgp-webinar.aspx>

Research:

Gidding et al, Seroprevalence of SARS-CoV-2-specific antibodies in Sydney, Australia following the first epidemic wave in 2020. Med J Aust 2020

<https://www.mja.com.au/journal/2020/seroprevalence-sars-cov-2-specific-antibodies-sydney-australia-following-first>

Walsh et al, SARS-CoV-2 detection, viral load and infectivity over the course of an infection, Journal of Infection

<https://doi.org/10.1016/j.jinf.2020.06.067>



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