



# Novel Coronavirus (COVID-19)—Water and Sanitation

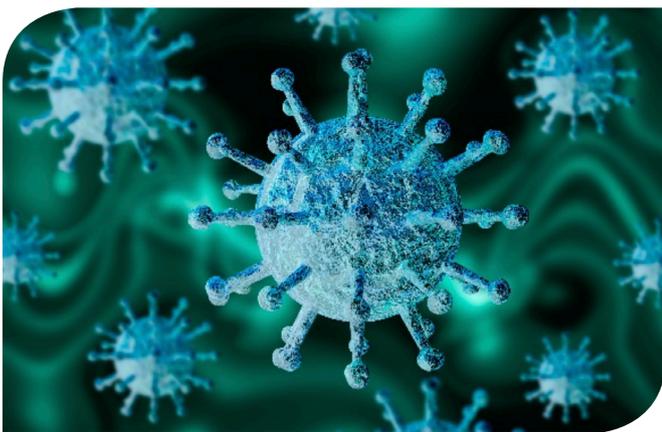


This information sheet synthesises information currently available on novel coronavirus (COVID-19) [previously known as novel coronavirus (2019-nCoV)] — what is known about the virus, similar viruses, and the management of viruses in terms of water and sanitation systems.

## What is Coronavirus (CoV)?

Coronaviruses are a large group of enveloped RNA viruses that infect people and other mammals. The term HCoV is used to represent human coronaviruses, of which there are 7 types, with the 7th recently discovered in China, namely the 2019 novel coronavirus (COVID-19).

Although most human coronavirus infections are mild, two betacoronaviruses: SARS-CoV, and MERS-CoV, have resulted in epidemics, which infected thousands in the last two decades.



## Novel Coronavirus (COVID-19)

COVID-19 was identified in late 2019 associated with an outbreak of pneumonia in Wuhan City, Hubei Province, China. Initial cases were spread from animals to humans. However, there is now evidence of direct human-human transmission, likely via droplets, direct contact with nasal secretions, and contact with surfaces that have been contaminated by someone coughing and sneezing. The features of COVID-19 bear

### Quick Facts

- Virus is enveloped, single stranded RNA
- Chlorine can inactivate COVID-19<sup>4</sup>
- Symptoms resemble viral pneumonia<sup>3,7</sup>

some resemblance to those of SARS and MERS.

*Like most infections, people with underlying medical conditions, young children and babies and the elderly are more susceptible.*

COVID-19 is most likely to be transmitted from person-to-person via respiratory secretions through sneezing and coughing.

## COVID-19, water and sanitation systems

Consideration of water and sanitation systems is not a first priority when seeking to monitor and manage the spread of these pathogens. However, there are factors that need to be understood where the spread of COVID-19 might have implications for the management of water and sanitation systems.

## Working around wastewater

It is currently unknown if infectious COVID-19 particles are excreted in faeces and urine, and if so, how well the virus is able to survive in wastewater. However, the existing, standard approaches used for working safely with wastewater still apply and no special or specific changes need to be made due to COVID-19. COVID-19 is just one of many viruses present in wastewater and is susceptible to treatment processes, including chlorine and other oxidant disinfection process'. Exposure to all pathogens in the workplace and in sewage should be managed by 'business as usual' hygiene practices, below.

### 'Business as usual' hygiene practices

- Wash your hands often with soap and water before and after eating as well as after attending the toilet. If soap and water are not available use an alcohol-based hand rub;
- Wear appropriate PPE when working in areas where exposure to untreated wastewater is possible – safety goggles, face shields (or masks), as well as increased hand hygiene;
- Avoid touching eyes, nose and mouth with unwashed hands;
- Avoid contact with others if they have cold and flu like symptoms;
- Clean and disinfect surfaces;
- Cough and sneeze into your elbow;
- Stay home if you are unwell



# Novel Coronavirus (COVID-19)—Water and Sanitation



The water industry should continue to provide safe working environments by following conventional precautions for working with wastewater. This involves providing the appropriate tools, equipment, work methods and procedures, personal protective equipment and sanitisation for all workers.

The Australian Department of Health has published guidance for employers in response to COVID-19. The guidance refers to drinking water stating that “Drinking water in Australia is high quality and is well treated. It is not anticipated that drinking water will be affected by novel coronavirus”<sup>5</sup>.

**Drinking water in Australia is high quality and is well treated. It is not anticipated that drinking water will be affected by COVID-19: no change in practice is required<sup>5</sup>.**

## Monitoring and Research

### Routine water quality monitoring

Routine water quality monitoring should continue as normal, that is monitoring microbial faecal indicators of wastewater that are already widely used and well understood. This includes monitoring *E. coli* in drinking water and waters potentially affected by wastewater as well as enterococci in natural bathing waters. This type of verification monitoring of water quality is already routinely used across the country.

### Research priorities

In specialist facilities that are equipped with adequate containment to undertake research with COVID-19, research should occur for the following purposes:

- To better understand the resistance of COVID-19 to disinfection and treatment processes.

**Note** - SARS has been shown to be sensitive to chlorination and UV disinfection, and that it would be reasonable to expect that this applies to other coronaviruses such as COVID-19. As enveloped viruses are surrounded by a lipid host cell membrane, which is not very robust, the COVID-19 is likely to be more sensitive to chlorine and other oxidant disinfection processes than many other viruses such as coxsackieviruses, which have a protein coat.

Where a virus is being widely shed by infected people in an outbreak situation, wastewater monitoring can provide a simple means to find out what subtypes are present.

## Acknowledgements

WaterRA acknowledges the contributions of our members and partners in the authorship and development of this factsheet:

- Dr Kelly Hill | Water Research Australia
- Dr Dan Deere | Water Futures
- Prof Peter White | University of New South Wales
- Dr Paul Monis | SA Water
- Jurisdictional health representatives
- Water Services Association of Australia

## References

- <sup>1</sup> Lee N, Hui D, Wu A, et al. A major outbreak of severe acute respiratory syndrome in Hong Kong. *N Engl J Med* 2003; **348**: 1986–94.
- <sup>2</sup> Assiri A, Al-Tawfiq JA, Al-Rabeeh AA, et al. Epidemiological, demographic, and clinical characteristics of 47 cases of Middle East respiratory syndrome coronavirus disease from Saudi Arabia: a descriptive study. *Lancet Infect Dis* 2013; **13**: 752–61.
- <sup>3</sup> WHO. Novel coronavirus – China. Jan 12, 2020. <http://www.who.int/csr/don/12-january-2020-novel-coronavirus-china/en/> (accessed Feb 05, 2020).
- <sup>4</sup> WHO. Novel coronavirus (2019-nCoV) – advice for the public: mythbusters. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/myth-busters> (accessed February 05, 2020).
- <sup>5</sup> Australian Government Department of Health – Novel coronavirus (COVID-19): Information for employers. [https://www.health.gov.au/sites/default/files/documents/2020/02/coronavirus-covid-19-information-for-employers\\_0.pdf](https://www.health.gov.au/sites/default/files/documents/2020/02/coronavirus-covid-19-information-for-employers_0.pdf) (accessed February 05, 2020).
- <sup>6</sup> Huang *et al.*, (2019). Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet* 2020. [https://doi.org/10.1016/S0140-6736\(20\)30183-5](https://doi.org/10.1016/S0140-6736(20)30183-5) (accessed February 04, 2020).
- <sup>7</sup> European Centre for Disease Prevention and Control. Case definition and European surveillance for human infection with novel coronavirus (2019-nCoV). <https://www.ecdc.europa.eu/en/case-definition-and-european-surveillance-human-infection-novel-coronavirus-2019-ncov> (accessed February 06, 2020).