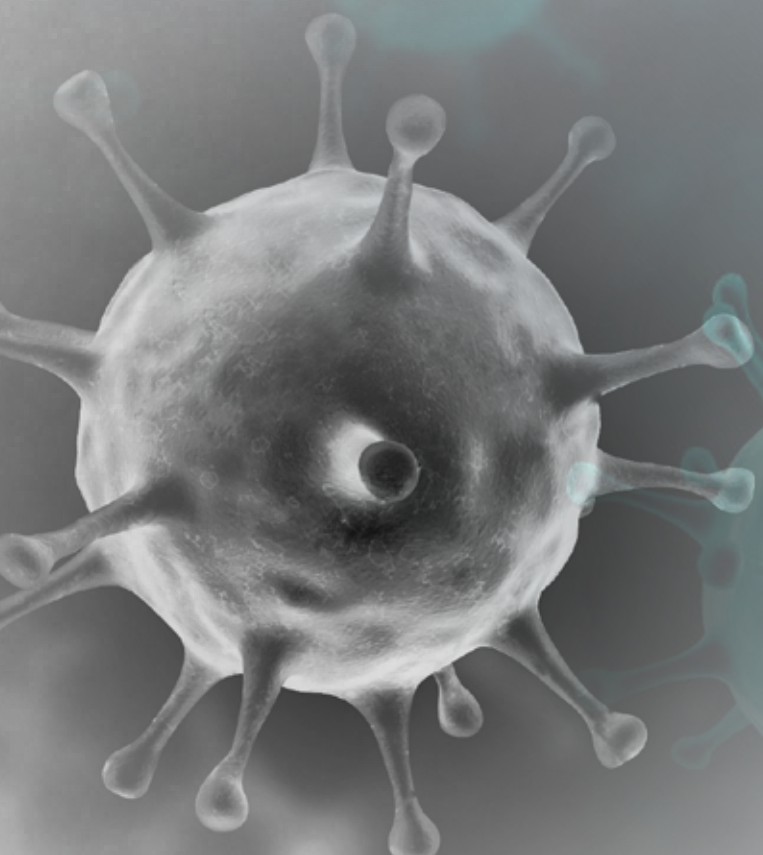


COVID-19:

Water, Wastewater and Human Health Risks

Around the world, the COVID-19 (SARS-CoV-2) pandemic is raising many questions among the public, as well as in the water supply and wastewater sector. This information sheet aims to provide the general public, and water and wastewater service providers, with answers to some of the frequently asked questions.



What is SARS-CoV-2 (COVID-19) and why is it suddenly so important?

COVID-19 is an infectious disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2).¹ The disease was first identified on 31 December 2019 in Wuhan, the capital of China's Hubei province, and has spread globally, resulting in the ongoing 2019–20 Coronavirus pandemic.^{2, 3} By 1 May 2020, more than 3.34 million cases had been reported across 185 countries and territories, and there have been more than 238 628 deaths, and more than 1.16 million people have recovered.⁴ On 5 March 2020 the first case of COVID-19 was confirmed in South Africa, and on 11 March 2020, COVID-19 was declared a pandemic by the World Health Organization (WHO) due to the global spread of the disease.⁵

SARS-CoV-2 belongs to a family of single-stranded enveloped RNA viruses that originates from animals and can spread from animals to animals or animals to humans (zoonotic)⁶ and is further perpetuated through human to human transmission.

To date, there is no vaccine available to prevent the disease.

How is SARS-CoV-2 spread? Can I get it through water?

The virus can mainly be transmitted between people during contact, via small droplets produced by coughing, sneezing or talking. It is thought that the droplets usually fall to the ground or onto surfaces rather than remain in the air over long distances.

When an infected person coughs or sneezes in close contact with another person, droplets can spread the virus to the other person. Droplets can land on surfaces and remain viable and from there, the virus in the droplets can cause direct contact transmission.⁷

It is highly unlikely that a person can contract COVID-19 through treated drinking water. There is a low risk of transmission via untreated wastewater as only the viral gene fragments and not a whole virus have been found in faeces of infected patients and in untreated wastewater.⁸ A whole virus is the disease-causing agent, and to date, infectivity from wastewater or faeces has not yet been proven. Research in the Netherlands has proved that wastewater treatment was successful in removing the SARS-CoV-2 gene fragments as none were found in treated wastewater effluent.⁹

How does SARS-CoV-2 compare to most common waterborne viruses?

SARS-CoV-2 is much more susceptible to environmental degradation (such as heat, sunlight) compared to enteric viruses, such as adenoviruses, noroviruses, rotaviruses and hepatitis A (which are known to cause waterborne diseases in humans).

What do we know and what do we not know about COVID-19 and water?

We do not yet have all the answers about SARS-CoV-2 in water and the perseverance of infectious viral particles in the environment. However, there is sufficient knowledge about similar viruses and viruses more resistant than the SARS-CoV-2 virus to know the following:

We know:

- Drinking water and ground water pose a very low risk of SARS-CoV-2;
- Even if present in wastewater, wastewater treatment has been found to be effective in removing the SARS-CoV-2 gene fragments;⁸
- The SARS-CoV-2 virus is more sensitive to environmental factors compared to other known waterborne viruses; and
- There is no evidence to suggest any additional risk posed by COVID-19 to water and wastewater plant operators or workers. Workers should follow routine practices to prevent exposure to wastewater.

We do not know:

- The infectivity of SARS-CoV-2 gene fragments found in faeces of patients and in wastewater. In other words, if the viral particles detected in faeces and in untreated sewage are able to produce an infection.

Water Sanitation and Hygiene (WASH) and COVID-19

The most important take-home message is to stay safe and healthy and to prevent the spread of any virus from or to your eyes, face, hands and mouth by following good hand hygiene practices through washing your hands properly and regularly.

Keeping Water Supplies Safe from COVID-19

Conventional municipal water treatment processes that use filtration and disinfection should inactivate the COVID-19 virus. In places where safe water supplies are not available, household water treatment technologies, such as boiling, solar irradiation and free chlorine dosing are effective in removing and destroying viruses.⁵

*** Note: Information regarding the knowledge available on the spread of SARS-CoV-2 is increasing very rapidly, and it is based on what was available in international and national sources on 1 May 2020.

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