

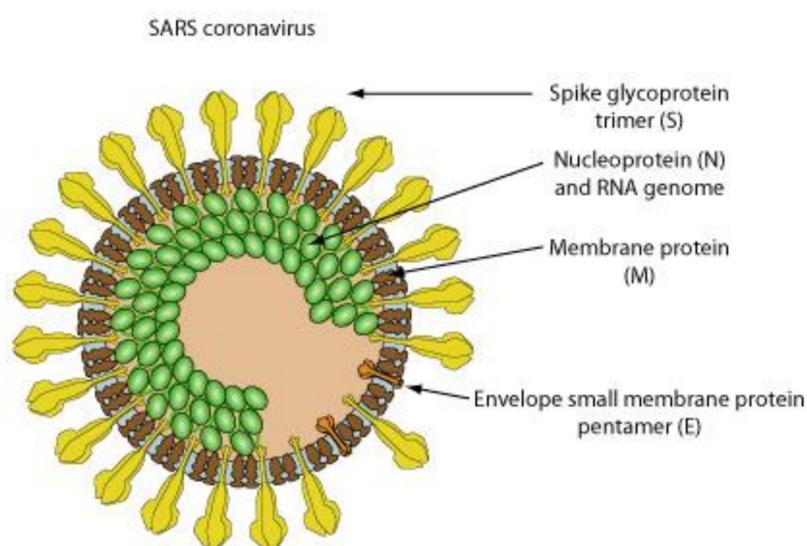
# The impact of Covid-19 pandemic on water supplies and wastewater sewer system

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## Abstract:

Besides other issues, the global pandemic caused by SARS CoV-2 also brought a number of water management questions which mainly concern the likelihood of virus spread through drinking water and possible contamination of wastewater. This paper reviews principal data on the virus and the recent course of the pandemics. It shows that there is no risk of the virus spread through drinking water and that drinking water disinfection is sufficiently effective. On the contrary, wastewater was observed for SARS CoV-2 RNA particles. As a result, a number of papers deal with research in the observation of the virus in wastewater, which may become an early-warning tool before an epidemic develops. The monitoring of the virus in wastewaters may also enable researchers to predict the course of Covid-19 illness rates in the future.

SARS CoV-2 virus belongs among coronaviruses which have positive single-stranded genomic RNA. Their name is derived from their characteristic surface, i.e. a lipid envelope, shaped liked a solar *corona*. The virus particle's diameter is approximately 120 nm - see its structure in Figure 1 below.



However, the current research shows that SARS CoV-2 virus is very low resistant to chlorine disinfection. It is thus possible to eliminate potential water SARS CoV-2 contamination by chlorine. The currently applied water treatment processes, such as coagulation, filtration and disinfection, eliminate coronavirus effectively.

Figure 1. Virus particle structure

The waves occurred mainly in spring and autumn. The example from the Czech Republic in Figure 2 shows the times of the 3 waves so far.

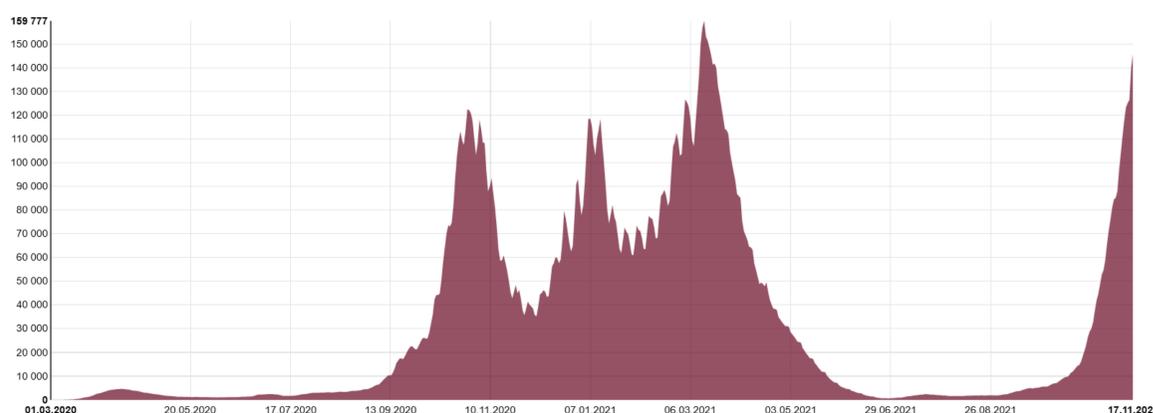


Figure 2: Covid-19 illness development in the Czech Republic 1.3.2020 – 17.11.2021

## Conclusion

A wide range of data on Coronavirus in the aqueous environment has been collected in a rather short time. We know the structure of the virus, we know and apply methods to determine SARS CoV-2 RNA in water. It shows there is no evidence on the occurrence of the virus in the drinking water resources, and thus water purification plants need not change or modify their current technologies. However, the proved occurrence of SARS CoV-2 RNA in wastewater, which has been the subject of research, serves to develop and study methods how to predict and evaluate the course of Covid-19 epidemic in people from the contents of SARS CoV-2 RNA in their wastewater.