

Dealing with COVID-19

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We are now facing several cases of COVID-19 (atypical pneumonia) in our country's borders. This disease is caused by the SARS-CoV-2 virus¹, a large RNA virus in the order Nidovirales, family Coronaviridae, subfamily Coronavirinae.² Due to its newly-emergent status, there is currently no targeted treatment against SARS-CoV-2.

Although the disease burden in South Africa is quite different from other countries, the infection control and hygiene measures advocated to limit spread of the SARS-CoV-2 virus can still be applied effectively to prevent a spectrum of infectious diseases from spreading.

These are some key points that need to be taken into consideration when dealing with COVID-19:

Physical contact and droplet spread are the main modes for transmission of SARS-CoV-2. Therefore, avoidance of physical contact is the first line of defence.¹ Close proximity to a person showing signs of disease should also be avoided, and the World Health Organization (WHO) recommends a 1 meter minimum distance.³ However, once present on the skin, the virus still requires entry into the body to infect cells and cause disease.

Regular and thorough hand-washing is strongly recommended: The SARS-CoV-2 virus has a lipid bilayer which it obtains from budding from the host cell's endoplasmic reticulum and golgi-complex.²

This lipid bilayer is susceptible to competitive amphiphiles found in soap.⁴ Soap manipulates the solvent interaction with the lipid bilayer, disrupting the normal architecture and inducing micelle formation. Once the viral membrane is compromised, the structure is no longer viable and therefore not infectious.

Limiting the spread of droplets during coughing or sneezing is another important hygiene practice to limit spread of infectious organisms. The use of face-masks is not only to prevent the dispersion of large droplets, but also to prevent the user from touching the face.⁵ Another WHO recommendation is not to touch your face, especially when you have not yet washed your hands.³

Should the virus gain entry into the body via mucosal surfaces or otherwise, it requires receptor-activation for cellular uptake. Angiotensin-converting enzyme 2 (ACE2) is expressed in the lower respiratory tract, and is a receptor used by the virus to gain entry into the cell. In other sites such as the lungs, liver and small intes-



tine, a protein found on the host cell surface called furin interacts with viral membrane proteins and is the necessary first step for infection.⁶ These receptor interactions are therapeutic targets currently under investigation, and vaccine development is also ongoing.

Finally, be aware of the signs and symptoms that indicate a possible case of COVID-19. These include onset symptoms such as fever, a dry cough, and fatigue which may progress to acute respiratory distress syndrome.⁷ Have yourself checked out if at any point you suspect you may have been exposed.

A sincere word of thanks to our contributors for the stimulating content for this month's edition. We invite you to join us for the 2020 SADA congress taking place in Johannesburg on the 28th-30th August, and look forward to productively engage with you.

References

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