Like soap for the patient’s mouth – cyclodextrins are important for future of oral care

By Dental Tribune International

During viral epidemics, dental offices face significant challenges. There are requirements for meticulous hygiene and virus spread prevention, and cyclodextrins in oral care products could help dentists do their jobs while keeping everyone healthy and safe. While cyclodextrins are not primarily meant for the prevention or cure of viral infections, in the same way as soap does, they destroy the membranes of viruses and make them weaker.

In times of viral epidemics, the dental profession ranks as one of the most vulnerable professions when it comes to risk of viral infection. As a result, dental offices need to take exceptional precautions in order to prevent virus transmission and ensure the health and safety of both patients and staff. Oral care products should contribute to these efforts and make dental practices a healthier place altogether.

Using cyclodextrins as a broad-spectrum antiviral is one of the ways oral care products can help with the prevention and treatment of viral infections in dental offices. Although it is not at all common today, more and more oral care products could include cyclodextrins in the future in order to take advantage of their virus-fighting properties, as well as their other attributes.

What are cyclodextrins?

Cyclodextrins are substances commonly used in drug delivery as solubilisers, that is, media that help deliver drugs to where they are needed. This includes, for example, antiviral drugs that need to reach the mucous membranes where viruses tend to settle in and spread.

More importantly though, modified cyclodextrins act as effective broad-spectrum antivirals. According to a recent study published in Science Advances, a cyclodextrin developed by researchers “inhibits a broad-spectrum viral reef, irreversibly disrupting its activity and spread. Cyclodextrins can also help counteract viral resistance, and is biocompatible”.

How does it work?

Cyclodextrins fight viruses through sequestering the cholesterol from viral particles, causing lipid raft disruption. In other words, cyclodextrins disturb the lipid membrane of the virus, effectively disturbing its activity and spread. Cyclodextrins can also impede cholesterol from host cell membranes, rendering them less susceptible to viral infection.

Applying cyclodextrins to the mucous membranes of the mouth can therefore help prevent infection and the spread of viruses in the mouth, nose and throat. Prophylactic nasal sprays can be developed to prevent viral transmission via the respiratory route.

What does it mean for the future of oral care?

At present, there are very few oral care products on the market that contain cyclodextrins. In order to actively fight the spread of viral infections, cyclodextrins should be included in future mouthwashes and rinse solutions as active agents.

This will not only help dental offices maintain higher standards of viral safety, but also enable each and every one of us to actively treat and prevent infections through every day gargles that are easy to use and beneficial for the general health of the mouth, throat and nose and thus effectively the whole body.

What else can I do to help prevent infection in my dental office?

While cyclodextrins can help improve the health of mucous membranes, they are not a primary means of prevention or treatment of viruses. Using cyclodextrin-containing mouthwashes is just a part of a larger effort.

There are many useful manuals that describe what to do to protect yourself and your patients during viral epidemics.