

## ORAL HEALTH MAY PREVENT SEVERE COVID-19 DISEASE

The potential for healthy gums to reduce the severity of COVID-19 disease is outlined in a paper recently published in the *Journal of Oral Medicine and Dental Research*.<sup>1</sup>

The paper follows evidence published earlier this year in the *Journal of Clinical Periodontology*, the official publication of the European Federation of Periodontology (EFP), that patients with COVID-19 were three times more likely to experience complications if they also had gum disease.<sup>2</sup> Gum disease affects up to half of all adults worldwide.

The authors compiled existing evidence to propose a pathway by which the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is transmitted to the lungs, where it causes COVID-19 lung disease.

They suggest that the virus enters the body through the upper airways (nose and mouth), collects in the saliva in the mouth and enters dental plaque under the gums. It then crosses the gums into the blood vessels, where it travels to the arteries in the lungs – rather than travelling to the lungs via the airways. The biological basis for this route of infection is outlined. In addition, the authors put forward the idea that diseased or damaged gums could weaken the mucosal barrier in the mouth and allow the virus to more easily enter the bloodstream.

According to the paper: ‘If confirmed, this hypothetical model may provide a rationale for understanding why some individuals develop COVID-19 lung disease and others do not. It would also fundamentally change the way COVID-19 is managed, providing a new line of exploration into treatments targeted at the source of the viral reservoir, the mouth.’

The authors add that, if correct, ‘simple antimicrobial oral healthcare measures could be implemented not only with the aim of reducing the risk of transmission between individuals’ but also as ‘a means of mitigating the risk of developing lung disease, and therefore the most severe form of the disease.’

Co-author Professor Iain Chapple of the University of Birmingham said: ‘Dental plaque contains billions of microbes and needs to be removed daily. Otherwise, the gums become inflamed and small ulcers that communicate directly with the bloodstream form between the gums and teeth. These allow microbes like viruses to enter the bloodstream. The plaque under the gums forms a biofilm, a complex mixture of bugs, proteins, and sugars, which acts as a self-protective environment for many microbes to survive and prosper. Given the high SARS-CoV-2 viral load in saliva, this blood-borne route of transfer to the lungs is highly plausible.’

Professor Nicola West, EFP secretary general, said: ‘More research is needed to substantiate this theory, but in the meantime, it seems sensible to take extra care in looking after our teeth and gums, get regular check-ups and undergo treatment when needed.’

*The EFP has recently edited the short animated film ‘Gum disease and Covid-19 complications’, which is publicly available on the EFP’s YouTube channel at <https://bit.ly/3mx8TRK>.*

### References

1. Lloyd-Jones G, Molayem S, Pontes C C, Chapple I. The COVID-19 pathway: A proposed oral-vascular-pulmonary route of SARS-CoV-2 infection and the importance of oral healthcare measures. *J Oral Med Dent Res* 2021; 2(1)-S1. Available at: <https://www.genesispub.org/j-oral-med-and-dent-res/the-COVID-19-pathway-a-proposed-oral-vascular-pulmonary-route-of-sars-cov-2-infection-and-the-importance-of-oral-healthcare-measures> (accessed April 2021).
2. Marouf N, Cai W, Said K N *et al*. Association between periodontitis and severity of COVID-19 infection: a case-control study. *J Clin Periodontol* 2021. doi:10.1111/jcpe.13435.

## Elephant to take oral health to children on hospital wards



The oral health of children in hospital is recognised as fundamental to their wellbeing thanks to the Mini Mouth Care Matters programme.

The British Society of Paediatric Dentistry (BSPD) applauds the programme which is benefitting thousands of children throughout the UK, and the work of one of BSPD’s members, Dr Urshla (Oosh) Devalia, the national lead for Mini MCM.

A Consultant in Paediatric Dentistry, Dr Devalia (pictured) began devising Mini Mouth Care Matters (Mini MCM) nearly three years ago. At the heart of the programme is training for ward staff in hospitals to ensure that young in-patients always benefit from an oral health check.

Hospital teams are taught to ‘lift-the-lip’ so they have the confidence to look inside the mouth of young patients and understand any warning signs.

In addition to training, a range of resources, including an assessment tool, is made available to hospital-based healthcare practitioners. The programme branding includes a little elephant by the name of Elwood, a reminder to ‘never forget’ tooth brushing. Images of Elwood are now to be found in hospitals up and down the country beside the beds of paediatric patients, and also on posters and leaflets in hospital staff rooms and waiting areas.

Claire Stevens, BSPD’s spokesperson, said: ‘It’s incredible to see the way in which this programme is not only embedded as routine in hospitals with paediatric wards but also that it’s extending into other settings including the training of health visitors and hospice staff.’

‘The small adaptations in care delivered by Mini MCM can significantly improve the quality of life of this cohort of children

and young people and also provide new knowledge and skills for healthcare practitioners who learn to “lift the lip”. As an innovative and transferable programme, Mini MCM has outstripped its vision.’

Mini MCM was modelled on the Mouth Care Matters programme devised and led by Mili Doshi to benefit older patients in residential and hospital settings by training their carers in mouth care.

The Mini MCM resources can be downloaded from: <https://www.bspd.co.uk/Professionals/Resources/mini-mouth-care-matters>.

