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### **SARS-CoV-2 Salivary Viral Load: a Critical Review**

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**Objectives** Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) salivary viral load when patients are incubating the virus, asymptotically or symptomatically infected, can theoretically lead to contamination of the dental operator during dental procedures leading to transmission of infection. It is, therefore, important to review the literature on the level of detection of SARS-CoV-2 in saliva and compare this to nasopharyngeal swabs to understand the risk for public health.

**Methods** Systematic literature search was conducted across multiple scientific servers including PubMed, MEDLINE, Science Direct, and Google Scholar from 2019 to 2023. This was followed by manual screening of all reference lists of the included studies. Quantitative studies utilizing real time polymerase chain reaction (qPCR) and antigen testing to detect SARS-CoV-2 in saliva were included. Critical appraisal and bias assessment were conducted using the relevant Joanna Briggs Institute tools.

**Results** Out of 2588 studies, a total of 37 studies were relevant, 25 used general probes for SARS-CoV-2 and 12 used specific probes for the different variants of concern. Out of the total number, 20 studies compared the viral load of SARS-CoV-2 in saliva and nasopharyngeal swabs. The cycle threshold (Ct) values ranged between 24-34 for saliva and 20-34 nasopharyngeal swabs. Furthermore, in 12 studies, the Omicron variant, showed the highest salivary viral load during the first stage (0-3 days) of symptomatic infection, with mean Ct value of 21 (ranging from 17 to 27).

**Conclusions** Salivary SARS-CoV-2 viral load is like nasopharyngeal swabs with Omicron variant exhibited the highest salivary viral load. These findings highlight the importance of adhering to best practice of infection prevention and control to prevent infection transmission in the dental operator during aerosol generated procedures (AGPs).