Saliva is an obvious source for SARS-CoV-2 detection. The virus's ability to infect and actively reproduce in the upper respiratory tract was shown last month by Wendtner et al, who reported on experiments that virus from the throats of nine people with COVID-19 could be cultured, showing that the virus is actively reproducing and infectious there. Saliva gland ducts also express the ACE2 receptor for the virus in rhesus macaques. High viral loads were already present in the saliva of COVID-19 patients at the onset of disease, which could account for the fast-spreading nature of this epidemic. Also, SARS-CoV-2 infection appears to shed viral particles from the throat into saliva even before symptoms start. Pre-symptomatic transmission was estimated to contribute to up to 60% of COVID-19 cases in China. Saliva may therefore be the obvious tool to detect a-symptomatic and pre-symptomatic individuals before actual symptoms present. When saliva proves to detect low viral loads, COVID-19 patients, who may remain symptomatic for weeks to months, can be followed to see whether they still spread the virus. To validate saliva for these purposes, we propose a study where we 1. Follow confirmed COVID-19 patients with home self -sampling of saliva for 4-6 weeks and at least two weeks after symptoms have stopped. 2. Follow household members for 4-6 weeks to detect potentially pre-symptomatic and a-symptomatic SARS-CoV-2 infected individuals. 3. Follow emerging IgA and IgG anti-SARS-COV-2 antibodies in saliva over time 4. Detect other respiratory viruses present in relation to symptoms of infection. The study is a close collaboration between the Spaarne hospital, Streeklaboratorium Haarlem, and the RIVM where viral diagnostics will be performed and mucosal SARS-CoV-2 antibody emergence.
If we can use saliva for early detection, and at low viral loads in the course of infection, containment of viral spread is made easier and allows for improved policies in this pandemic.