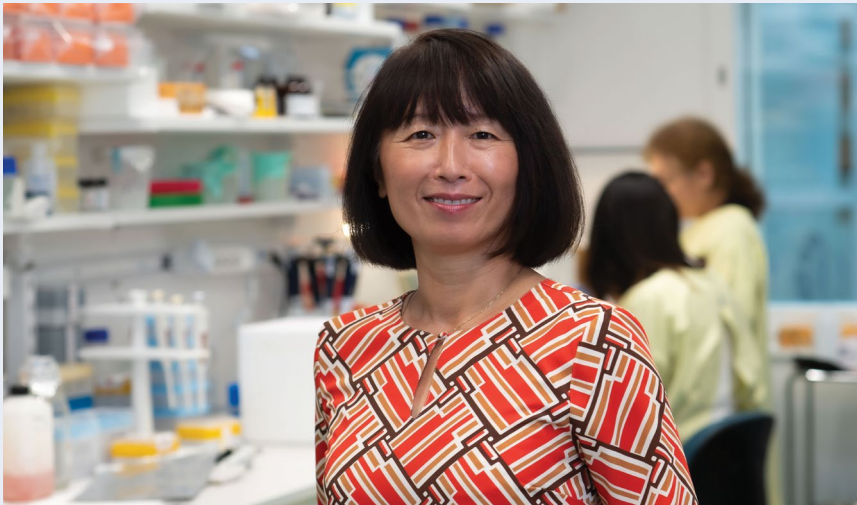


# Study sheds new light on the link between oral bacteria and diseases



Margaret Sällberg Chen, Professor at the Department of Dental Medicine at Karolinska Institutet, Sweden. Photo: Stefan Zimmerman

Researchers at Karolinska Institutet in Sweden have identified the bacteria most commonly found in severe oral infections. Few such studies have been done before, and the team now hopes that the study can provide deeper insight into the association between oral bacteria and other diseases. The study is published in *Microbiology Spectrum*.<sup>1</sup>

Previous studies have demonstrated clear links between oral health and common diseases, such as cancer, cardiovascular disease, diabetes and Alzheimer's disease. However, there have been few longitudinal studies identifying which bacteria occur in infected oral and maxillofacial regions. Researchers at Karolinska Institutet have now analysed samples collected between 2010 and 2020 at the Karolinska University

Hospital in Sweden from patients with severe oral infections and produced a list of the most common bacteria.

This was a collaborative study that was performed by Professor Margaret Sällberg Chen and adjunct Professor Volkan Özenci's research groups.

Professor Sällberg Chen of the Department of Dental Medicine at Karolinska Institutet said: 'We're reporting here, for the first time, the microbial composition of bacterial infections from samples collected over a ten-year period in Stockholm County. The results show that several bacterial infections with link to systemic diseases are constantly present and some have even increased over the past decade in Stockholm.'

The study shows that the most common bacterial phyla amongst the samples were

Firmicutes, Bacteroidetes, Proteobacteria and Actinobacteria, while the most common genera were *Streptococcus* spp, *Prevotella* spp, and *Staphylococcus* spp.

Professor Sällberg Chen said: 'Our results provide new insight into the diversity and prevalence of harmful microbes in oral infections. The finding isn't only of importance to dental medicine, it also helps us understand the role of dental infection in patients with underlying diseases. If a certain bacterium infects and causes damage in the mouth, it's very likely that it can be harmful to tissues elsewhere in the body as the infection spreads.'

The research group has previously shown that the occurrence of oral bacteria in the pancreas reflects the severity of pancreatic tumours.

Professor Volkan Özenci at the Department of Laboratory Medicine, Karolinska Institutet, said: 'Our study was a single-centre epidemiology study and to ensure the validity of the results we need to make more and larger studies. We now hope that dentists will collaborate with clinical microbiology laboratories more to gain a better understanding of the bacteria that cause dental infections, to improve diagnostics and therapeutic management of oral infections.'

## References

1. Al-Manei K, Ghorbani M, Naud S *et al*. Clinical Microbial Identification of Severe Oral Infections by MALDI-TOF Mass Spectrometry in Stockholm County: an 11-Year (2010 to 2020) Epidemiological Investigation. *Microbiol Spectr* 2022; doi: 10.1128/spectrum.02487-22.

## Have you encountered a clinical conundrum?

The *BDJ* editorial team is planning a new section within Upfront for 2023 called 'Clinical puzzle'. A clinical image will be shown and readers will have to try and identify or diagnose what is shown in the image. The answer will be revealed in a subsequent issue of the *BDJ*.

If you would like to submit an image for the 'Clinical puzzle', please send a jpeg file by email attachment, measuring at least 6 cm in width when set at a resolution of 300 pixels per inch (300 dpi) to the News Editor, Kate Quinlan, k.quinlan@nature.com – along with a brief explanation of the image. Please ensure that you have obtained written patient consent for the photo to be published.



We look forward to publishing our first Clinical puzzle – watch this space!