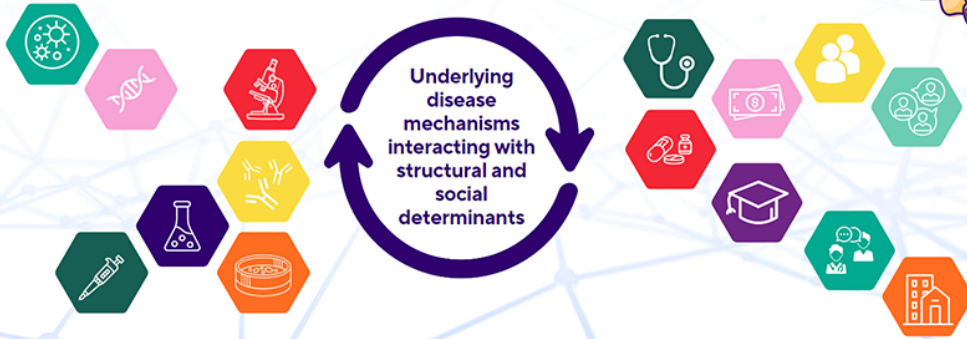




19TH ANNUAL CHILD HEALTH RESEARCH DAYS
Outcomes in Child Health



October 25 + 26, 2023 | RBC Convention Centre, Winnipeg, Manitoba

Abstract Submission Form

CHRD 2023: Abstract Submission Form

Submitter Name

Mohd Wasif Khan

Presenter Name

Mohd Wasif Khan

Presenter Status

PhD Student

Research Category

Basic Science

Role in the project

Design
Perform Experiments
Analyze Data
Write Abstract

Title

Taxonomic and functional variations in dental plaque samples among Manitoba children with early childhood caries or caries-free

Background

Tooth decay in the primary dentition of children less than 72 months of age is known as early childhood caries (ECC), affecting approximately half of the children worldwide. ECC is influenced by the interplay of environmental, microbial, and behavioral factors that may determine its development and severity.

Objective

This study explored the multifactorial aspects of ECC by utilizing a cohort of 554 children. The study aims to examine taxonomic and functional profiles of ECC microbiome in dental plaque samples. The impact of ECC on oral health-related quality of life (OHRQoL) and the role of nutrition on ECC were also evaluated.

Methods

Dental plaque samples were subjected to 16S rRNA and ITS1 sequencing and data was analyzed using Qiime2 and PICRUSt2. We used statistical and machine learning models to identify significant variables in both taxonomic and functional profiles, and to classify ECC and caries-free samples. To evaluate the role of OHRQoL and nutrition, the early child oral health impact scale (ECOHis) and NutriSTEP questionnaires, univariate and multiple regression models were used.

Results

We observed that *Streptococcus mutans* and *Candida dubliniensis* were significantly enriched in ECC

samples, whereas *Neisseria oralis* was associated with caries-free samples. Among the top bacterial pathways, ADP-L-glycero- β -D-manno-heptose and aerobic respiration I pathways were significantly different between the two groups. Furthermore, a significant association was found between ECC outcomes and ECOHIS score.

Conclusion

Our study analyzed how the oral microbiome and determinants of oral health influence ECC risk or protection. Our findings offer valuable insights into ECC and serve as a guide to help prevent the occurrence of caries in children and its effective management.

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