

# Effects of Bisphosphonate Therapy on Oral Microbiome

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## Introduction

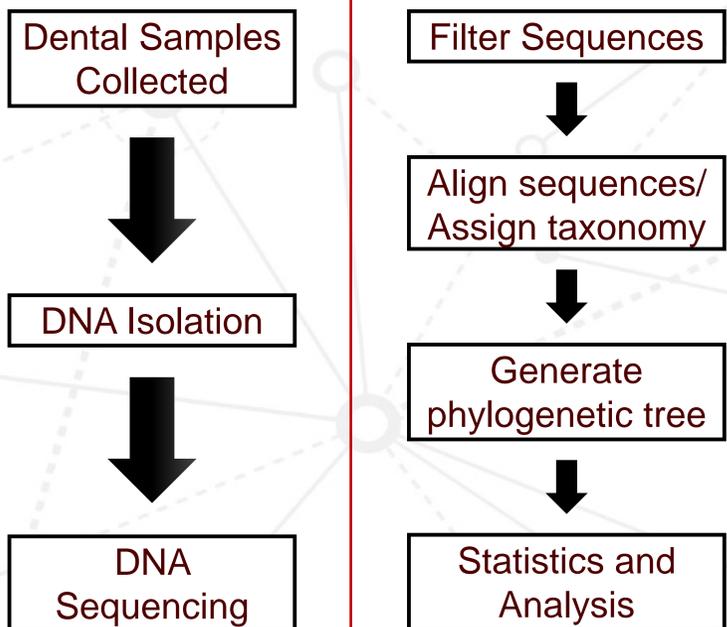
Although, bisphosphonates (BPs) are crucial for improving quality of life for cancer patients, they have been main etiological agent in development of medication-related osteonecrosis of the jaw (MRONJ). Bacterial infection has been identified as one of the top three pathophysiology of the disease.

## Aim

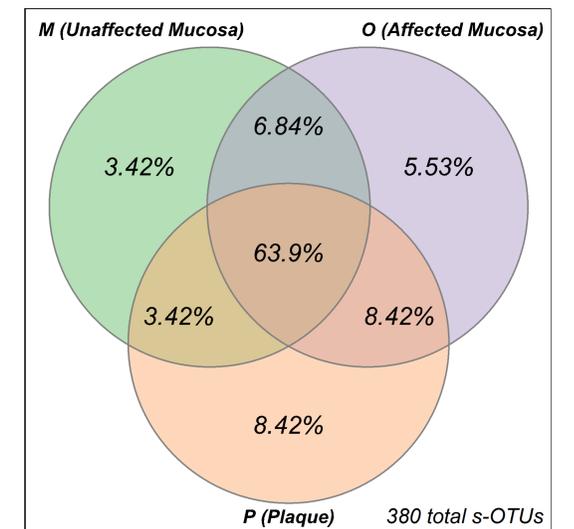
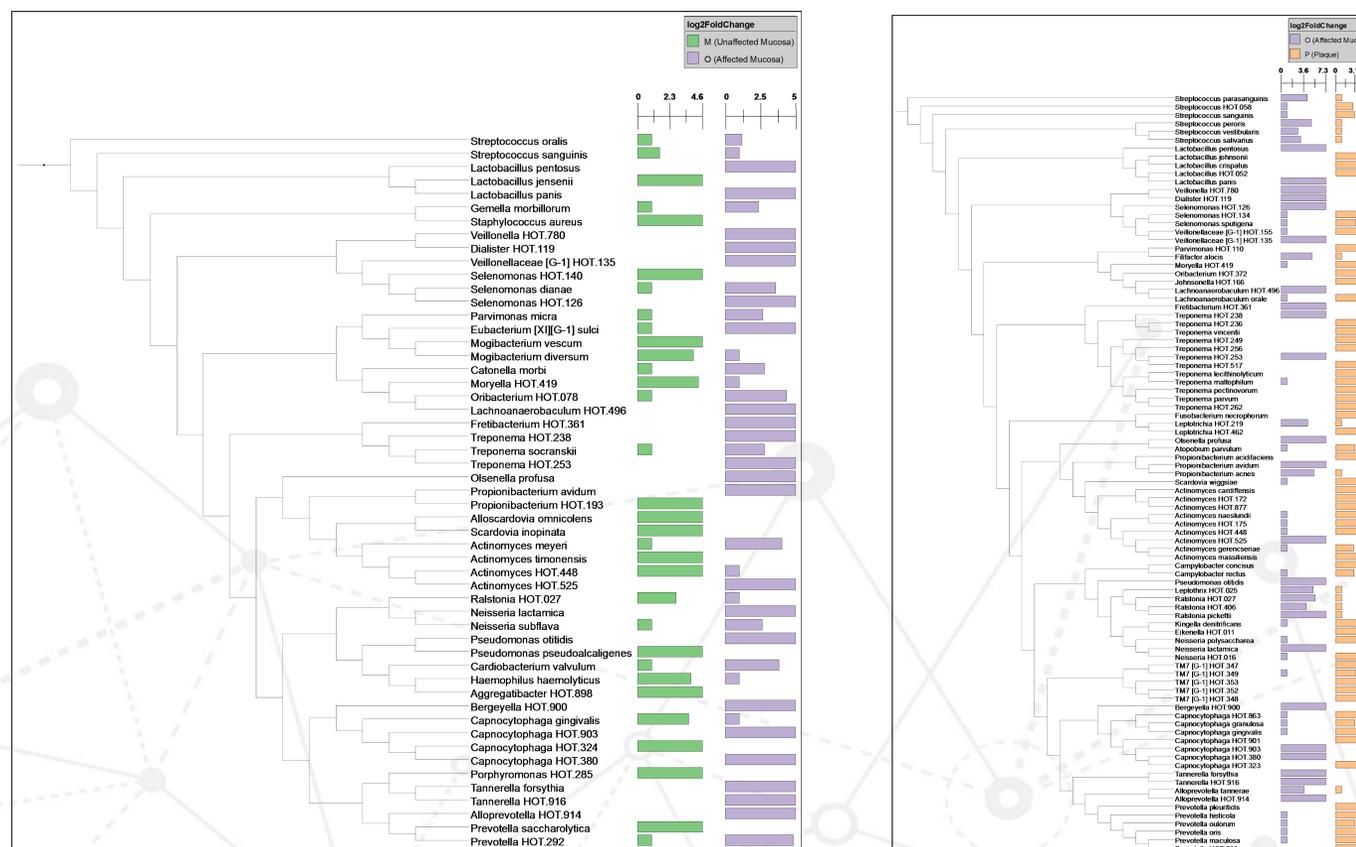
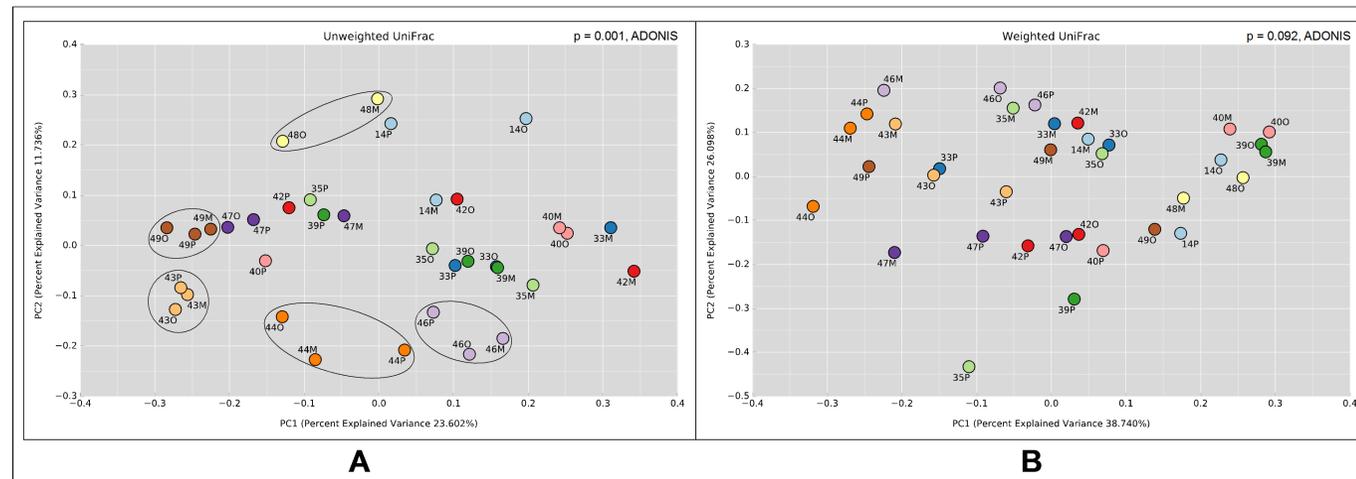
Previous studies do not address the oral microbial changes caused by MRONJ in the oral cavity. With increasing evidence of the role of microorganisms, especially those found in mucosal and periodontal pockets in the evolution of MRONJ, this research attempts to understand the impact of the disease in shifting the microbial composition in MRONJ patients

## Methods

Subgingival plaque as well as affected and unaffected oral site samples were collected from 12 subjects undergoing BPs therapy.



## Results



## Results

Principal Co-ordinate Analysis and UPGMA clustering identified significant groupings based on subject.

Over 50% of microenvironment bacterial composition is shared among all sites.

Significantly higher abundance of gram negative facultative were observed in unaffected samples compared to affected sites.

Higher abundance of gram-positive facultative were observed in affected sites compared to plaque samples.

As per previous results, Actinomyces was observed in higher abundance in this patient cohort.

## Bibliography

Ruggiero, S. L., Dodson, T. B., Fantasia, J., Goodday, R., Aghaloo, T., Mehrotra, B., et al. (2014). American Association of Oral and Maxillofacial Surgeons Position Paper on Medication-Related Osteonecrosis of the Jaw—2014 Update. *Journal of Oral and Maxillofacial Surgery*, 72 (10), 1938-1956.

## Acknowledgement

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## Conclusion

Composition of microbiome changes depending subject.

Significant differences are observed based on microbial abundance.

Personalized as well as targeted therapy will be needed for tackling MRONJ.