

FOR NON-ORAL HEALTH PROFESSIONALS

Relationship Between Oral and Systemic Diseases

Background

The link between oral diseases and some of the most common systemic diseases such as diabetes¹ and cardiovascular disease² has been established in scientific literature. Shared underlying pathways and common risk factors between oral diseases and systemic conditions have been identified.

This factsheet explains the oral-systemic association and ways in which other healthcare professionals can collaborate with dental teams in the interests of their patients.



The oral-systemic connection

The FDI Whole Body Health Project is a dynamic platform where research on the association between oral diseases and the most common noncommunicable diseases (NCDs) is kept updated. Click on the following link to learn how oral health relates to twelve different systemic conditions: <https://whole-body-health.fdiworlddental.org/>

Underlying mechanisms and inflammation

In the presence of gingival and periodontal inflammation, pathogenic microorganisms from the periodontal tissues enter the blood circulation during normal daily functions through microscopic ulcers under the gum margin.³ This can activate certain white blood cells in the blood stream to release damaging oxygen radicals and inflammatory mediators. It can also activate an acute-phase response in the liver, resulting in the release of C-reactive protein, which also causes inflammation in the body.³ Research suggests that the inflammatory mediators produced during periodontitis can 'spill over' into the blood stream and increase the systemic inflammatory burden.⁴

In addition, periodontal inflammation can change proteins in the periodontal tissues to make them autoantigenic and to predispose to diseases like rheumatoid arthritis.

Oral diseases share common risk factors with non-communicable diseases (NCDs)

NCDs are the leading cause of premature deaths in the world. They include oral diseases and systemic NCDs, such as cardiovascular diseases (CVD), cancer, chronic respiratory diseases, type 2 diabetes, cancers, chronic obstructive pulmonary disease (COPD) and asthma, share modifiable risk factors.

Most of the common risk factors for oral diseases and other NCDs are modifiable and include ⁵:

- Tobacco use
- An unhealthy diet-high in free sugars
- Alcohol use⁶
- Physical inactivity.
- Air pollution⁷

Collaboration between dentists and dental teams and medical practitioners

Examples of common areas of collaboration between dentists and dental teams and medical practitioners include:⁸

- Referrals for routine and emergency care
- Pain management
- Medically complex patients
- Anticoagulation
- Antibiotic prophylaxis
- Gastroesophageal reflux disease.

Oral healthcare delivery framework for Medical Practitioners⁸

Ask

Obtain detailed medical, dental and social history and lab tests, if needed, to investigate underlying causes of potential oral and systemic diseases. Ask about common risk factors, such as tobacco, cannabis and alcohol use in a standardized risk assessment protocol. For specific questions, consult the following resources:

- <https://www.safetynetmedicalhome.org/sites/default/files/Oral-Health-Screening-Questions.pdf>
- <https://www.safetynetmedicalhome.org/sites/default/files/Rapid-Oral-Health-Screening-Risk-Assessment.pdf>

Look

Medical practitioners should look for signs and symptoms of oral and systemic disease by conducting both physical and basic oral examinations. During the oral examination, they should look at the:

- Labial mucosa and labial sulcus (upper and lower)
- Labial part of the commissures and buccal mucosa (right and left)
- Tongue (dorsal, lateral and ventral surfaces)
- Floor of the mouth
- Hard and soft palate
- Alveolar ridges/gingiva (upper and lower)
- Tonsillar beds
- Gums
- Teeth mobility

Decide

Decide what conditions require immediate attention, examples include:

- Oral abscess
- Cellulitis
- Ludwig's angina (a type of bacterial infection that occurs in the tissues under the tongue)
- Acute necrotizing ulcerative gingivitis
- Life-threatening conditions like oral cancer or precancerous lesions or oral manifestations of systemic diseases
- Advanced dental caries and chronic alveolar abscesses
- Difficulty swallowing or speaking

Decide whether it is appropriate to provide brief advice on behaviours that can have an impact on your patient's health, such as on tobacco and alcohol use, their diet and level of physical activity, and whether a specialist referral is required.¹⁰

Decide what other investigations or tests you may need to confirm oral or systemic conditions.

Act

- Evaluate and initially manage oral urgencies/emergencies.
- Screen for oral diseases and facilitate appropriate referrals.
- Encourage favourable and healthy behaviours that promote oral and general health and arrange for the patient's follow-up with oral and general specialists based on data obtained from the initial screening.
- All patients with the comorbidities listed in oral-systemic conditions on the FDI Whole Body Health Project platform should be referred to a dentist or a member of the dental team for an examination and periodontal screening.
- In areas where Noma is endemic, non-oral healthcare professional should carry out the basic principles of oral examination and be able to distinguish the reversible (necrotizing ulcerative gingivitis and edema) from the irreversible (gangrenous, scarring and sequalae) stages of Noma.⁹
- Examples of specific interventions that can be carried out by other healthcare professionals can be found here: <https://www.safetynetmedicalhome.org/sites/default/files/Primary-Care-Clinical-Interventions.pdf>.
- Medical practitioners should monitor conditions such as diabetes, which affect both oral and systemic health, both directly and indirectly, via ensuring the patient has access to optimal management.

Document

Document the patient's history, diagnosis, and management of oral and systemic diseases.

Role-Specific Considerations

Pharmacists

- Educate patients about the effects of medications on oral health, such as dry mouth or gum overgrowth.
- Review medications that may affect dental treatments or conditions.
- Provide guidance on managing medication side effects that impact oral health.

Nutritionists/Dietitians

- Advise on diets that support oral and systemic health.
- Educate patients on the impact of nutrition on oral health conditions, such as the role of sugar in dental caries or the impact of eating disorders on oral health.

Collaborate with dental teams to develop comprehensive dietary plans for patients with specific oral health needs.

This factsheet is supported by:



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Other Resources

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Smiles For Life. A module: The Relationship of Oral and Systemic Health. Available from: <https://www.smilesforlifeoralhealth.org/courses/the-relationship-of-oral-and-systemic-health/> [Accessed on 13 March 2024].

A list of comprehensive references on this topic can be found here: https://s3.xopic.de/openwho-public/courses/276klvITWOfKXg5giHHujh/rfiles/3UL20433leKUy9jpfGAR9N/Module_3_Further_Reading.pdf [Accessed on 13 March 2024].

Disclaimer:

The provided fact sheet offers general information and may require adaptation to suit the unique scope of work and regulations governing other healthcare professionals in each country.