

Connecting the mouth to the body: The role of non-dentists

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Why is the mouth important?

The consequences of oral disease are often minimized or discounted, yet oral complications reflect, exacerbate, and may even initiate, other health problems—and they can have a profoundly negative impact on quality of life.

Why is the mouth important?

Oral diseases are among the most common chronic conditions affecting children and adults

- Oral disease and dysfunction can result in: pain, difficulty talking, smiling, kissing, poor facial esthetics and halitosis
 - Poor self esteem
 - Problems with socialization
 - Depression
 - Disturbed sleep
 - Poor academic performance
- The mouth is central to eating and nutrition, which are essential to maintaining good health
 - Digestion begins in the mouth, teeth are needed to chew and break down the food
 - Facial and oral muscles help with swallowing
 - Taste buds are important for enjoyment of food

Fruit and vegetable intake negatively associated with loss of teeth (Joshipura et al, 1996; Sheiham et al, 1999)
Individuals who have lost a substantial number of teeth are more likely to be obese (Sheiham et al, 2002)

Financial burden

- Lost school and work days
 - In the US, employed adults lose 164 million works hours each year due to oral health problems
 - Average of 2.9 school days/year; parents lose 2.5 work days/year (US)
- Difficulty finding employment: Aesthetics, Speech
- Trauma: Sports, road safety
- Curative care is expensive, prevention is relatively cheap!
 - Late stage interventions waste precious Shillings
 - In the US, \$111 Bi spent on restorative procedures for diseases that could be prevented

The Oral-Systemic Disease Axis

Medical co-morbidities
are increasingly being
associated with
periodontal diseases

Diabetes

Heart disease

Pre-term birth/low
birth weight



Common Drugs' Oral Effects

Drug Class	Oral Side Effects
Antihistamines	Dry mouth, distortion in taste, dry throat
Anticoagulants	Gingival bleeding, swelling/pain in salivary glands
Antidepressants	Dry mouth, glossitis, loss of taste, oral ulceration, gingival hyperplasia
Anti-inflammatories	Canker sores, glossitis, local irritation of mouth
Antiglycemics	Numbness/tingling of mouth, distortion of taste
Anticonvulsants	Glossitis, black hairy tongue, gingival overgrowth
Proton pump inhibitors	Dry mouth, candidiasis
Diuretics	Dry mouth
Ace inhibitors	Dry mouth, sore throat, glossitis, oral ulceration, distortion in taste
Ca Channel blockers	Gingival overgrowth, dry mouth
Beta-blockers	Dry mouth

The oral care system in East Africa

Curative dental services are by definition, resource intensive

- Highly trained professional
- Infrastructure (chairs, lights, water, electricity)
- Instruments (sterilization, sharpening)
- Surgical procedures

The oral care delivery system therefore, does not reach those most in need - the poor, the disabled, those in rural areas, urban poor, chronically ill

In East Africa, there is a severe shortage of dental personnel (330 in Uganda (37 mi population); 900 in Kenya (44mi population))

The role of Primary Care

We need a multidisciplinary comprehensive approach that involves community, dental and non-dental providers and policy makers

Engagement in oral health is a strategy to achieve primary care's goal of improved care and quality of life, while reducing overall costs, and

Primary care providers already provide guidance on many of the risk factors for oral diseases – diet, tobacco, sexual practices

Dental Caries

Risk factors:

- Sugar (fermentable CHO) intake
- Susceptible tooth surfaces
- Dental plaque
- Reduced frequency and effectiveness of oral self-care
- Dry mouth/reduced salivary flow



Dental caries: symptoms and prevention

Symptoms

- Sensitivity to hot and cold foods and drinks
- Pain
- Difficulty eating
- Bad breath

Prevention

- Daily oral care (toothbrushing, flossing)
- Low carbohydrate diet
- Fluoride (toothpaste, water)
- Special treatments (fluoride varnishes, sealants)

Xerostomia

- Defined as dry mouth
- Symptom, not a disease. Associated with different conditions:
 - Diabetes mellitus
 - Sjogren's Syndrome
 - Side effect of medications and mouth breathing
- Sequelae include difficulty with mastication, poor enjoyment of food, difficulty speaking, halitosis and increased dental caries risk

Classes of Drugs with Xerostomia as a side effect

- Analgesics (centrally acting)
- Angiotensin – converting enzyme inhibitors
- Antacids
- Antiacne agents
- Antiallergy agents
- Antianxiety agents
- Anticholinergic/antispasmodic agents
- Anticonvulsants
- Antidepressants
- Antidiarrheal agents
- Antidysrhythmics
- Antihistamines
- Antihypertensives
- Antinausea agents
- Antiparkinsonism agents
- Antipsychotics
- Bronchodilators
- Calcium channel blockers
- Decongestants
- Diuretics
- Muscle relaxants
- Narcotic analgesics
- Nonsteroidal anti-inflammatory drugs
- Sedatives
- Smoking-cessation agents

Source: Ciancio, JADA, 10/2004

Oral Diseases

Periodontal Diseases

Risk Factors:

- Poor oral hygiene (dental plaque, calculus/tartar)
- Cigarette smoking
- Diabetes

- ANUG
 - Particularly common in adolescents
 - Stress during exam time



Periodontal Diseases: Symptoms and Prevention

Symptoms

- Painful, swollen and reddish gums
- Bleeding on brushing
- Loose teeth
- Foul smell

Prevention

- Daily oral care (toothbrushing, flossing)
- Regular professional dental care
- Tobacco cessation

Oral diseases

Oral cancer (oral squamous cell carcinoma; OSSC)

- **Traditional risk factors**

- Cigarette smoking
- Smokeless tobacco/Chewing tobacco/Snuff
- Alcohol consumption
- Sun exposure (lip cancer)
- OSSC occurring in younger individuals has been linked to HPV 16 (oral sex)

Stage at Diagnosis	Distribution (%)	5-year Survival (%)
Localized (primary site)	32	82.4
Regional (spread to regional lymph nodes)	47	57.3
Distant (metastasized)	16	34.9
Unknown (unstaged)	6	50.5

Oral cancer symptoms

Early disease is asymptomatic

- A sore in the mouth
- A cough or hoarseness that does not heal
- Difficulty or pain when swallowing
- Feeling that there is a lump stuck in the throat



Squamous cell carcinoma



Chronic atrophic candidiasis



Oral disease prevention

Oral diseases are very easy to prevent and/or arrest in the early stages through:

- Daily oral care
- Dietary modification
- Professional dental services at regular intervals

Daily oral care

Daily oral care is key to prevention of oral diseases and improving quality of life

- Reduction of morbidity
- Arrest disease processes
- **Simple, non-invasive, relatively inexpensive**

What is daily oral care?

- Brush teeth at least once/day—twice is optimal
- Clean soft tissues (e.g., tongue, gums, palette, etc.) at least once/day – after every meal is optimal
- Floss as possible

The role of the non-dental provider Physicians

- Assess risk
 - Behaviors: Diet, tobacco, self care
 - Chronic disease: medications
 - Access to and utilization of professional dental services
 - Trauma: sports, road safety
 - Sexual Practices
 - Vaccinations: HPV
- Signs and symptoms
 - Pain, swelling, difficulty eating, difficulty talking, foul breath
 - Non-verbal cues in patients with disabilities
- Consider assessment of the oral cavity on an annual basis
- Consider special treatments (fluoride varnishes, sealants, silver diamine, chlorhexidine)
- Pain management, antibiotics, referrals, protection (helmets, mouth guards), HPV vaccination
- Reinforce daily oral care

The role of the non-dental provider Nurses

- Monitor risk and signs and symptoms
- Report deviations from the norm to physician or dentist
- Reinforce daily oral care
- Promote healthy behaviors
- Consider oral assessment once a year

The role of the non-dental provider

Social workers/case managers

- Assess risk and risky behaviors
- Ask about signs and symptoms
- Linkages and referrals to dentists
- Consider outreach

Daily oral care supplies

Advise patients to use:

- Soft/ultra soft toothbrushes (change brush when non-functional)
- Fluoridated toothpaste
- Alcohol-free rinses
- Eat a diet low in fermentable carbohydrates
- Avoid tobacco
- Minimize alcohol
- Practice safe sex

Addressing oral health

Policy considerations

- Financing for access to and utilization of professional dental services
- Financing for daily oral care aides (toothbrush, toothpaste, floss, rinse)
- Improve training of dental and non-dental providers to address oral health in older adults
 - Scopes of Practice
- Reinforce oral health through schools (teachers, nurses), life skills training, peer education
- Engage environmental health (fluoride, potable water)

Oral Evaluation

- The mouth should be evaluated at least once every twelve months or when a change in behavior or oral symptoms are noticed
- Look out for:
 - Difficulty eating/pain on eating
 - Pain on drinking hot or cold drinks
 - Difficulty speaking
 - Halitosis (bad breath)

Oral Evaluation

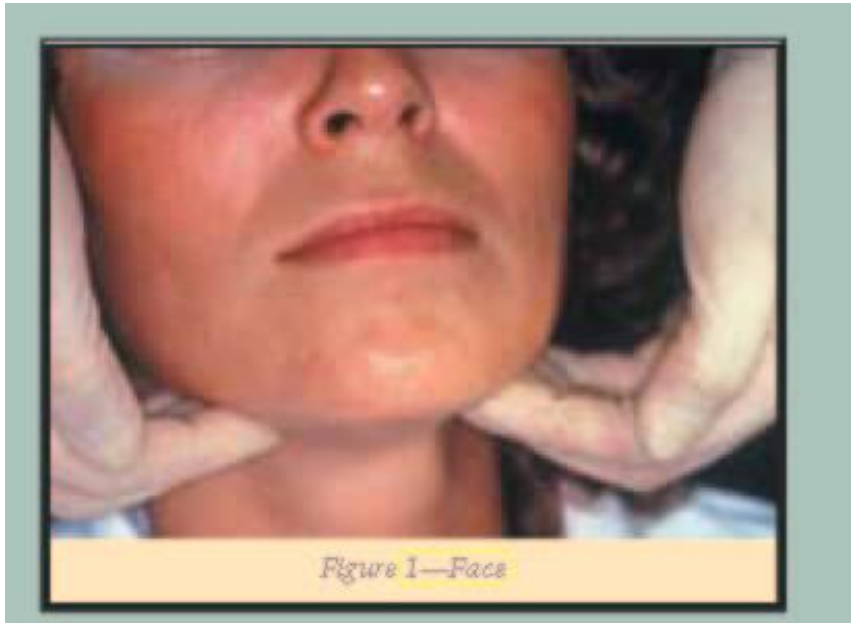


Figure 1 - Face



Figure 2 - Lips



Figure 3 – Labial Mucosa



Figure 4 – Labial Mucosa



Figure 5 – Right Buccal mucosa



Figure 6 – Left Buccal Mucosa

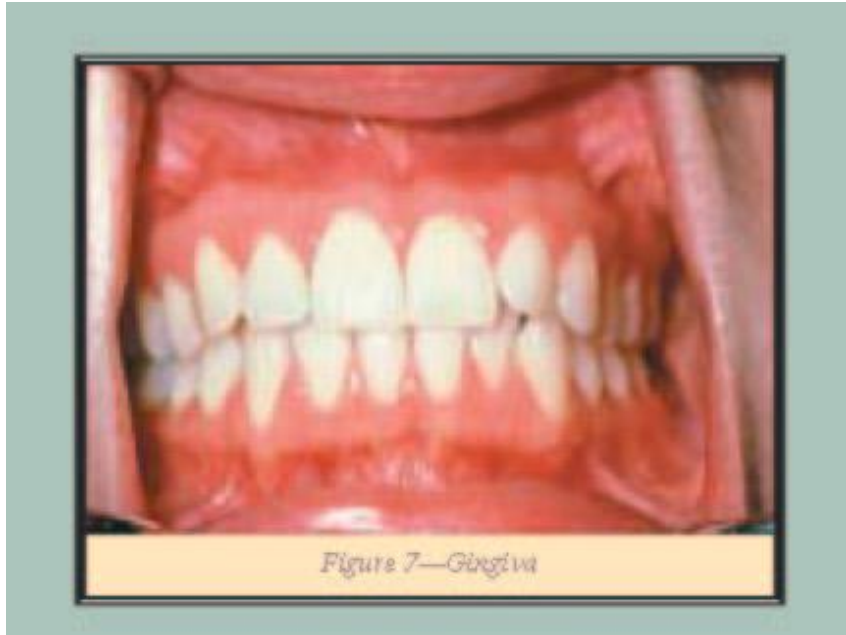


Figure 7 - Gingiva

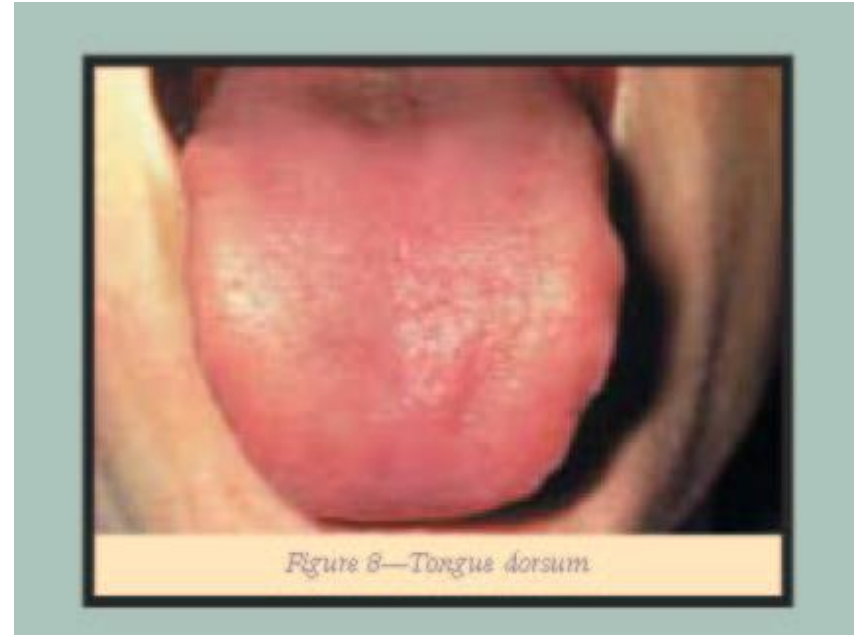


Figure 8 – Tongue Dorsum



Figure 9 – Tongue Left Margin



Figure 10 – Tongue Right Margin

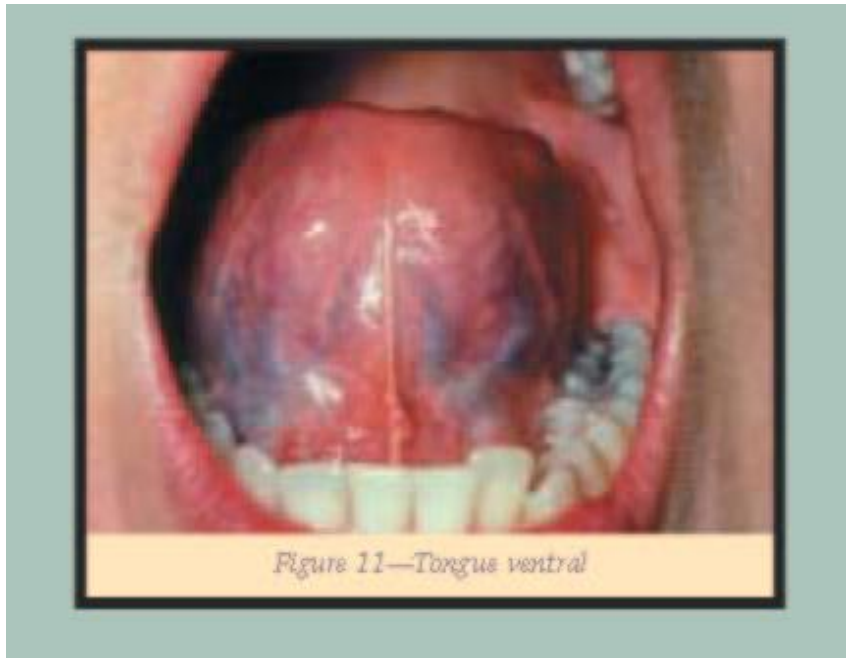


Figure 11 – Tongue Ventral

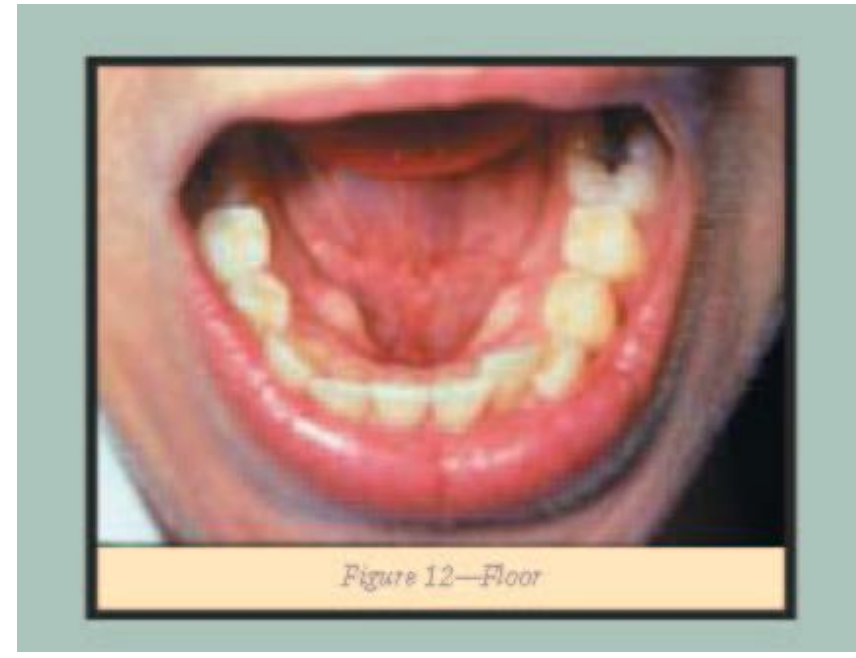


Figure 12 - Floor

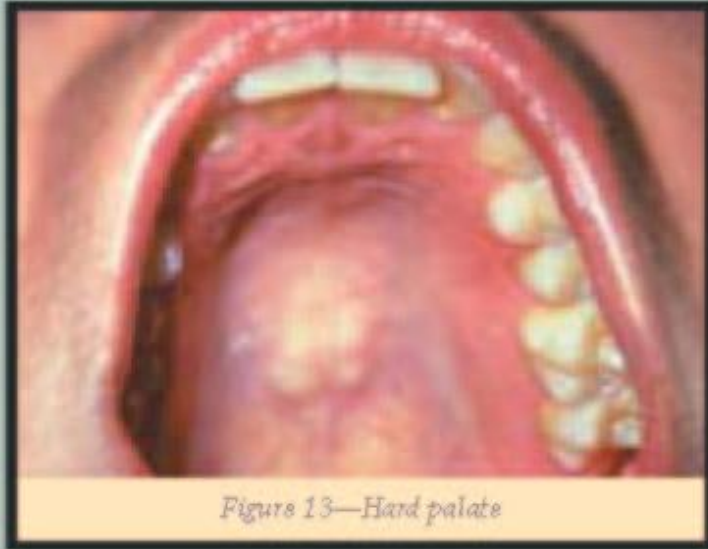


Figure 13—Hard palate

Figure 13 – Hard Palate

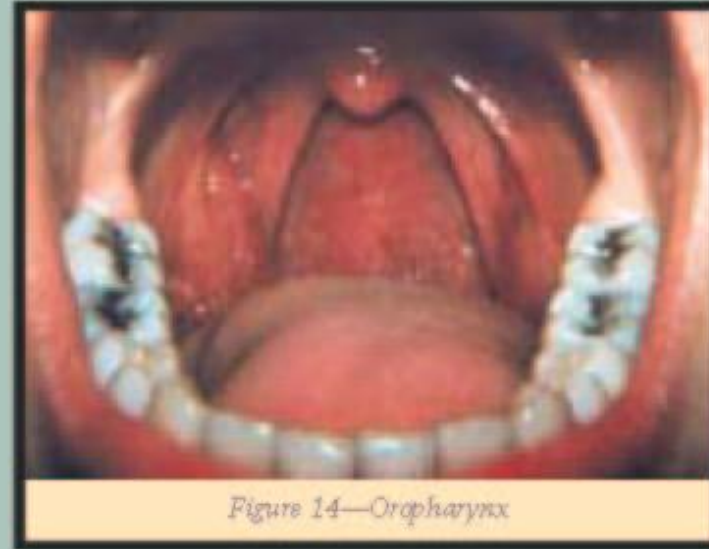


Figure 14—Oropharynx

Figure 14 - Oropharynx



Figure 15 - Palpation