

Diabetes & Oral Health

Judith Haber, PhD, APRN, FAAN

Executive Director, Oral Health Nursing Education and Practice (OHNEP)

Jessamin Cipollina, MA

Program Coordinator, Oral Health Nursing Education and Practice (OHNEP)



NYU

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Management of Oral-Systemic Conditions Calls for an *Interprofessional Team*



- 4.2 million RNs
- 290,000 NPs
- 11,800 MWs
- 1 million MD/DO
- 115,000 PAs
- 200,000 DDS/DMD
- 185,000 dental hygienists
- 150 dental therapists



Why do we need the whole IP team?

- 89 million patients seek urgent care per year
- 84% of adults have an annual medical visit
- 64% of adults have an annual dental checkup



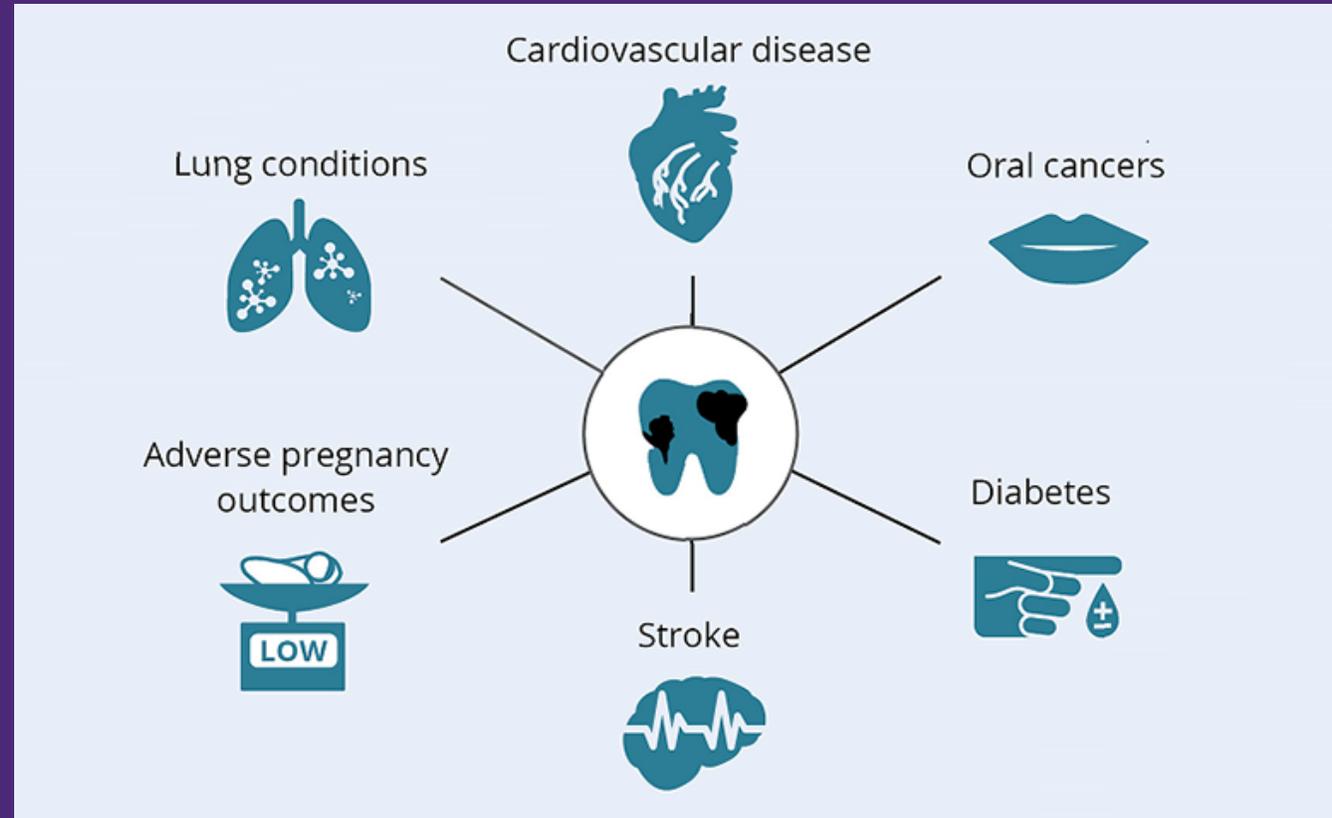
Images: Getty Images

Medical and Dental Teams Contribute to Improving Outcomes for Patients with Diabetes

- Prevention
- Screening
 - Oral health assessment
 - HEENOT exam
- Health Literacy
- Counseling
 - Motivational interviewing



Oral Health & Overall Health: The Oral-Systemic Connection



Oral Health: The Sixth Complication of Diabetes

1. Neuropathy
2. Nephropathy
3. Retinopathy
4. Microvascular Diseases
5. Macrovascular Diseases
6. *Oral Health Problems*



Diabetes & Oral Health

- Diabetes is the 7th leading cause of death nationwide
- 34 million US adults have Type 2 Diabetes (T2D)
 - 7.3 million are unaware that they are living with T2D
- 88 million adults 18 and older have prediabetes
 - 22% will develop T2D within 5 years if untreated
- Patients with poorly controlled diabetes have a 3-fold greater risk of developing gingivitis and periodontitis
- Patients with diabetes whose gum disease is treated, have improved glycemic control, fewer complications, and improved quality of life
- Underlying pathophysiology focuses on inflammation and infection



Oral Health Complications

People who are at risk for diabetes or who are diabetic may experience more challenges to keeping their mouth healthy and may experience more oral health problems

- Increased risk for...
 - Gingivitis & Periodontal disease
 - Tooth loss
 - Thrush
- Medications reduce saliva → dry mouth, tooth decay
- High blood sugar helps bacteria grow → tooth decay
- High blood sugar can also interfere with normal healing in your mouth

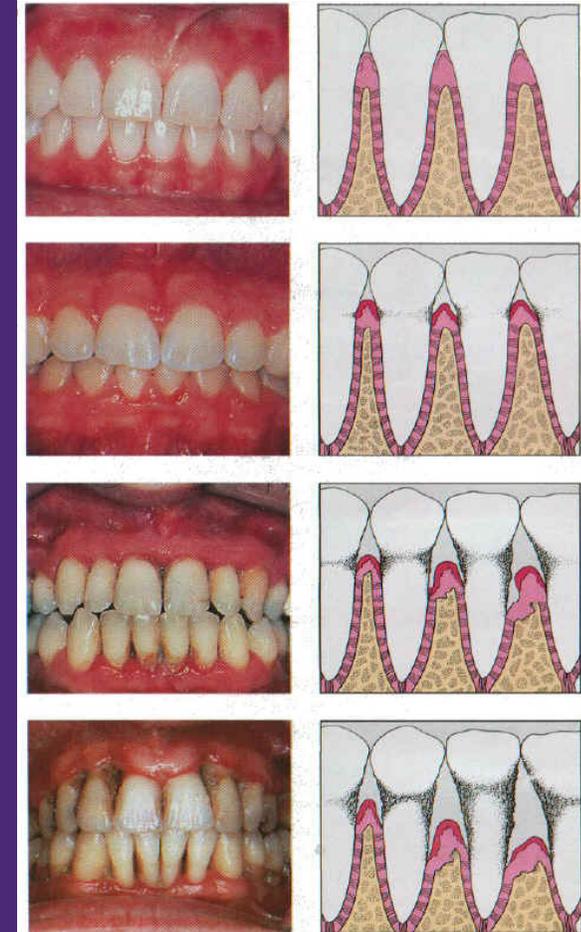
Periodontal Disease

1. Gingivitis

- The early state of periodontal disease
- Swollen gums due to inflammation

2. Periodontitis

- The most serious form of periodontal disease
- Gums pull away from the tooth
- Supporting gum tissues are destroyed



Signs & Symptoms of Periodontal Disease

- Bad breath (halitosis) or bad taste that won't go away (strong odor)
- Red, sore, or swollen gums
- Tender or bleeding gums
- Receding gums (gums pulling away from teeth)
- Painful chewing
- Loose teeth or teeth that have moved or separated
- Food that gets stuck between the teeth more than before
- Sensitive teeth
- Any change in the way teeth fit together when biting down
- Any change in the fit of partial dentures
- History of periodontal abscess

Patient Education

- ❑ Keep gums as healthy as possible to control diabetes and lower risk of complications (blindness, kidney disease)
- ❑ Brush teeth gently twice per day with a soft-bristle toothbrush and fluoride toothpaste
- ❑ Clean between teeth with floss or another interdental cleaner daily
- ❑ Visit dentist for regular check-ups and cleanings
 - Have gums checked – dentist/dental hygienist should measure the space between teeth and gums to check for periodontal disease



When Diabetes is the Diagnosis... Collaboration Among Primary Care and Dental Teams is Essential!



Include Comprehensive & Oral Health History Approach with ALL Patients

- Monitor HgbA1c
- BP Monitoring
- Assess Risk
- Explore Facilitators & Barriers to Diabetic and Oral Health Goals
- Partner with trusted community leaders & frontline team members (CHWs, PCAs)
- Symptom Management
- Oral Health Literacy Coaching
- Vaccine Advocacy and Administration
- Use Motivational Interviewing to Promote Lifestyle Change
 - Diet
 - Exercise
 - Weight Loss
 - Oral Hygiene
- Referral to Obtain or Continue with Usual Source of Dental or Primary Care & Other Referrals (Podiatrist, Ophthalmologist, SW, Meals on Wheels)

Interprofessional Oral-Systemic Health Experience at NYSIM

Standardized Patient Experience

- I. Team Brief (5 min):
- II. History and physical exam (45 min)
- III. Debriefing (10 min)

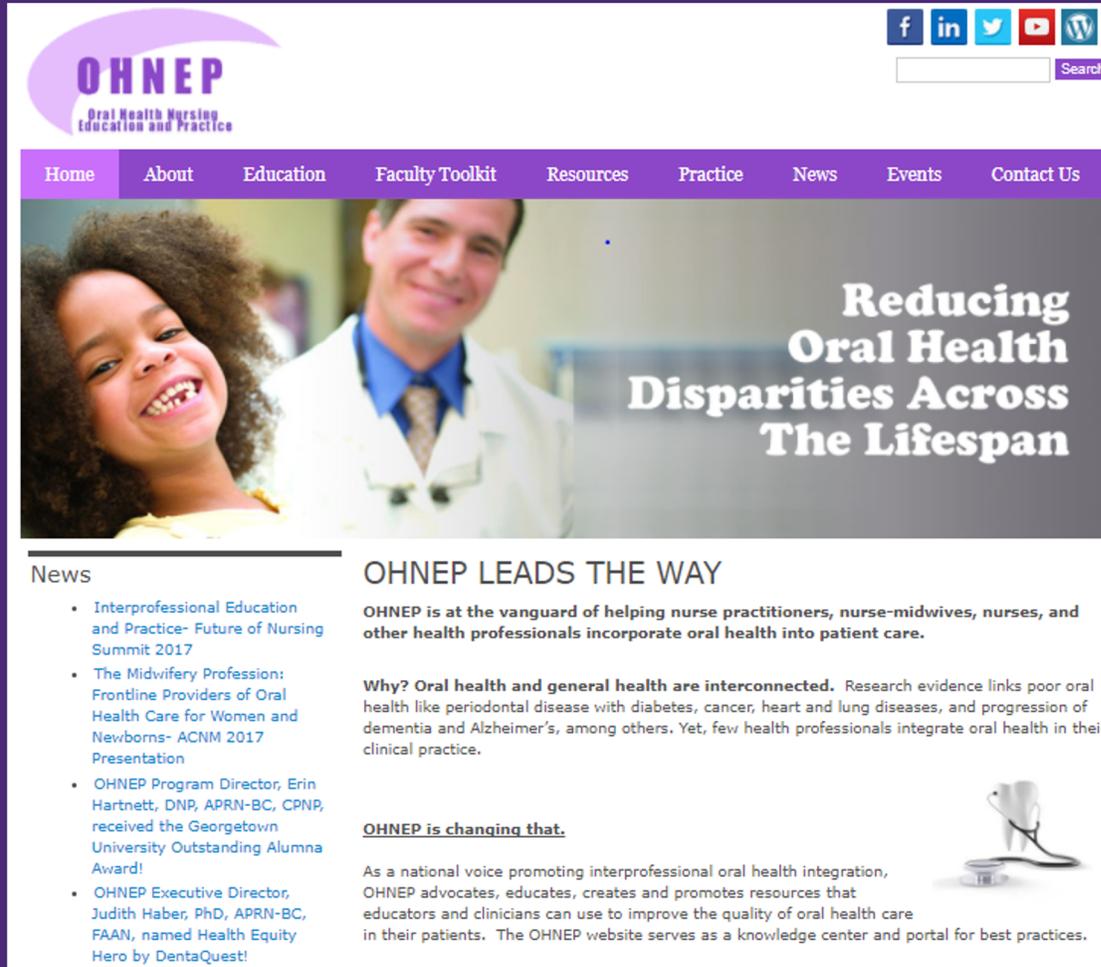


Case Study Discussion

- I. Team Brief (5 min)
- II. Case Study Discussion (40 min)
- III. Debriefing (15 min)



Oral Health Nursing Education and Practice (OHNEP)



The screenshot shows the OHNEP website homepage. At the top left is the OHNEP logo with the text "Oral Health Nursing Education and Practice". To the right are social media icons for Facebook, LinkedIn, Twitter, YouTube, and WordPress, along with a search bar. A purple navigation bar contains the following menu items: Home, About, Education, Faculty Toolkit, Resources, Practice, News, Events, and Contact Us. Below the navigation bar is a large banner image of a smiling young girl and a male dentist. The banner text reads "Reducing Oral Health Disparities Across The Lifespan". Below the banner is a "News" section with a list of four items. To the right of the news is a section titled "OHNEP LEADS THE WAY" with a paragraph of text and a sub-section titled "OHNEP is changing that." with another paragraph. A small image of a stethoscope is positioned to the right of the "OHNEP is changing that." section.

OHNEP
Oral Health Nursing
Education and Practice

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Reducing Oral Health Disparities Across The Lifespan

News

- Interprofessional Education and Practice- Future of Nursing Summit 2017
- The Midwifery Profession: Frontline Providers of Oral Health Care for Women and Newborns- ACNM 2017 Presentation
- OHNEP Program Director, Erin Hartnett, DNP, APRN-BC, CPNP, received the Georgetown University Outstanding Alumna Award!
- OHNEP Executive Director, Judith Haber, PhD, APRN-BC, FAAN, named Health Equity Hero by DentaQuest!

OHNEP LEADS THE WAY

OHNEP is at the vanguard of helping nurse practitioners, nurse-midwives, nurses, and other health professionals incorporate oral health into patient care.

Why? Oral health and general health are interconnected. Research evidence links poor oral health like periodontal disease with diabetes, cancer, heart and lung diseases, and progression of dementia and Alzheimer's, among others. Yet, few health professionals integrate oral health in their clinical practice.

OHNEP is changing that.

As a national voice promoting interprofessional oral health integration, OHNEP advocates, educates, creates and promotes resources that educators and clinicians can use to improve the quality of oral health care in their patients. The OHNEP website serves as a knowledge center and portal for best practices.



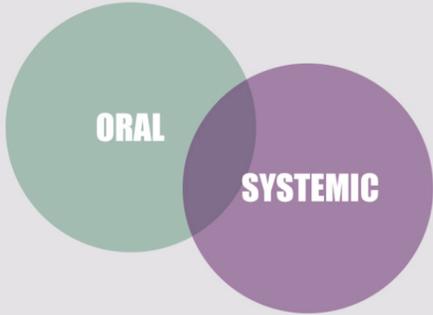
www.ohnep.org

Smiles for Life: A National Oral Health Curriculum

Smiles for Life
A national oral health curriculum

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ORAL **SYSTEMIC**

The Relationship of Oral and Systemic Health

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www.smilesforlifeoralhealth.org

HEENT to HEENOT – Putting the Mouth Back in the Head



COMMENTARIES

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Putting the Mouth Back in the Head: HEENT to HEENOT

Improving oral health is a leading population health goal; however, curricula preparing health professionals have a dearth of oral health content and clinical experiences. We detail an educational and clinical innovation transitioning the traditional head, ears, nose, and throat (HEENT) examination to the addition of the teeth, gums, mucosa, tongue, and palate examination (HEENOT) for assessment, diagnosis, and treatment of oral-systemic health. Many New York University nursing, dental, and medical faculty and students have been exposed to interprofessional oral health HEENOT classrooms, simulation, and clinical experiences. This was associated with increased dental-primary care referrals.

This innovation has potential to build interprofessional oral health workforce capacity that addresses a significant public health issue, increases oral health care access, and improves oral-systemic health across the lifespan. (*Am J Public Health.* 2015;105:K32-K41. doi:10.2196/AJPH.2014.300499)

Judith Haber, PhD, APRN, BC, Erin Harvett, DNP, CFNP, BC, Kenneth Allen, DDS, MBA, Doreen Hallak, PhD, CFNP, BC, Caroline Dorsen, MSN, FNP, BC, Julia Lange-Kessler, DNP, CM, RN, MacLeine Lloyd, MS, FNP, BC, PMHNP, BC, Edelidge Thomas, DNP, ANP, BC, and Dorothy Wohlman, DNP, ANP, BC, CFNP, BC

DURING THE DECADE FOLLOWING publication of the Surgeon General's Report, *Oral Health in America*, health professionals, physicians (MDs), nurse practitioners (NPs), nurse-midwives (NMs), and physician assistants (PAs) began to align with the dental profession to heed Satcher's call to "view the mouth as a window to the body."¹ The most significant interprofessional movement that followed this report occurred with family practice and pediatric physicians coming together to work on preventive oral health initiatives for children in which those professionals would provide screenings, fluoride varnish, and referrals for children to find dental homes.

Mobilization of the overall health community to work collaboratively has been slower. Development of "Bridges for Life: A National Oral Health Curriculum"² represented an important interprofessional "tipping point" for engaging health professionals focused on treating populations across the lifespan in considering oral health and its relationship to overall health as an integral component of their practice.

Yet, evidence from national databases monitoring oral health data continue to reveal a high

incidence and prevalence of dental caries, especially in lower socioeconomic and minority group populations.^{3,4} Data from the 2009–2012 National Health and Nutrition Examination Survey⁵ reveal that approximately one in four children (1.9%) aged 3 to 5 years living at the poverty level have untreated dental caries. The survey data further reveal that 19% of non-Hispanic Black children aged 3 to 5 years and 20% of Hispanic children aged 6 to 9 years had untreated dental caries compared with non-Hispanic White children aged 3 to 5 years (1.1%) and 6 to 9 years (1.4%).⁶ Although national statistics show an improvement in access to oral health care for children aged 5 years and older, the data reveal significant disparities in access to care for children aged 2 to 4 years.⁷

In the adult population, oral cancer morbidity and mortality rates have not declined over the past 10 years, at least in part related to absent or inadequate oral examinations,⁸ and human papillomavirus is associated with the recent rise in the incidence of oropharyngeal cancer.⁹ Among adults aged 65 years and older, only 30% have a dental benefit.¹⁰ Primary care providers have been

challenged by the Institute of Medicine to play a significant role in improving those oral health disparities by building interprofessional oral health workforce capacity.¹¹

One important component of the problem is that the majority of curricula for preparing health professionals have a dearth of oral health content and clinical experiences. Approximately 70% of medical schools include 4 hours or less on oral health in their curriculum; 10% have no oral health content at all.¹² Similarly, NPs and NMs have also not had a defined oral health curricular knowledge base nor a set of oral health clinical competencies.^{13,14} The PA programs have generally followed medical school curricula and have not required dental oral health content or competencies.¹⁵

The recent publication of several important national reports, two oral health reports by the Institute of Medicine,^{16,17} the listing of oral health as one of the Healthy People 2020 Leading Health Indicators,¹⁸ the release of the Health Resources and Services Administration document "Integration of Oral Health and Primary Care Practice,"¹⁹ and the dissemination of "Oral Health Care During Pregnancy: A



Oral health and diabetes

Gain the confidence to discuss this important topic with your patients.

By Cynthia S. Darling-Fisher, PhD, FNP-BC; Wenche S. Borgnakke, DDS, MPH, PhD; and Judith Haber, PhD, APRN-BC, FAAN

MOST ADULTS with diabetes don't know they're at high risk for oral complications, such as periodontitis. They don't realize how important practicing good oral care at home—brushing twice a day and flossing regularly—and getting routine professional dental check-ups are.

Patients with diabetes visit their

dentist less frequently than their peers without diabetes, perhaps because they're already overburdened by managing their diabetes and comorbidities. Currently, few of these patients receive information about the significance of oral health and its potential impact on their overall health from healthcare providers. Many providers say they

don't address oral health issues because they're not confident in their knowledge of the subject.

In this article, we address this lack of confidence by discussing common oral health issues associated with diabetes, suggesting simple approaches for improving patient assessment and education, and recommending resources.

American Nurse Today, 2017



Oral Health: An Untapped Resource in Managing Glycemic Control in Diabetes and Promoting Overall Health

Cynthia S. Darling-Fisher, PhD, FNP-BC, Preetha P. Kanjirath, BDS, MS, Mathilde C. Peters, DMD, PhD, and Wenche S. Borgnakke, DDS, PhD

ABSTRACT

Periodontitis was declared the sixth complication of diabetes in 1993, and it is the sixth most common disease globally. Nonetheless, its 2-way relationship with diabetes is largely ignored by primary care providers. Poorly controlled diabetes predisposes to periodontitis. Periodontitis contributes to both the worsening of diabetes control and development of diabetes. Routine nonsurgical periodontal treatment improves glycemic control. In this article we describe simple, efficient ways for nurse practitioners to enhance oral health history-taking and examination, educate diabetes patients about their oral health needs, and promote collaborative relationships with dentists. This proactive approach can positively impact glycemic control and improve patients' health.

Keywords: diabetes mellitus, gingivitis, oral health, periodontitis, primary health care

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INTRODUCTION

Periodontal diseases (gum diseases) are a greatly underemphasized complication of poorly controlled diabetes mellitus that all health care providers need to be aware of and address when assessing and counseling their patients. Prevention, early diagnosis, and intervention can reduce the impact of this "sixth complication of diabetes"¹ and greatly improve diabetes management.^{2,3} The American Diabetes Association recommends providers ask about "dental disease" as part of a patient's medical history as well as refer for comprehensive periodontal examination.⁴ Nonetheless, oral health is not routinely addressed in patients with diabetes. Traditionally, nursing and medical providers have perceived oral health issues like periodontitis as outside of their realm and, at best, advise patients to see a dentist without further explanation or attention.⁵ Unfortunately, patients often do not follow through for multiple

reasons, including lack of access to dental care or understanding its significance.^{2,3} Reports by the Institute of Medicine,^{2,3} as well as nursing, medical, and dental organizations, call for integration of oral and primary care to prevent disease and improve health, particularly for the chronically ill.⁵⁻⁸

The purpose of this study is to provide nurse practitioners and other primary care providers with information needed to efficiently and effectively address oral health issues during routine care of diabetes patients. Diabetes, the oral-systemic relationship, and the development of periodontal problems and their treatment are reviewed. We describe some brief additions to the medical history that can clue the provider to risks for periodontitis, common conditions in the mouth seen in patients with diabetes, and related common physical exam findings. Finally, we present recommendations to facilitate referral to dental health professionals as well as resources for patients and providers.

ORAL-SYSTEMIC RELATIONSHIP IN DIABETES

Diabetes

The prevalence of diabetes is increasing worldwide. By 2030, diabetes is projected to be the seventh

American Association of Nurse Practitioners (AANP) members may receive 0.69 continuing education contact hours, approved by AANP, by reading this article and completing the online posttest and evaluation at cecenter.aanp.org/program/arec-jnp.

The Journal for Nurse Practitioners, 2015



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Patient FACTS www.acponline.org/patient_ed

Oral Health and Diabetes

How Are Diabetes and Oral Health Linked?

People with diabetes are at greater risk for oral health problems, like gum disease and tooth decay. Gum disease can also be a warning sign for diabetes. To lower risk for oral health problems, it is important to control blood sugar and practice good oral health habits. If you have diabetes, discuss any special care you may need with both your dentist and primary health care professional (physician, nurse practitioner, physician assistant).



What Are Common Oral Health Problems Related to Diabetes?

Diabetes can make it hard for your body to fight off infection. This means you may be at higher risk for some of these problems:

- **Gum Disease (Periodontitis)** occurs when tartar builds up and contributes to infections deep in your gums. It can lead to loss of tissue, bone, and teeth and increases your risk for other serious health problems, like heart attack or stroke.
- **Oral Thrush** can cause uncomfortable creamy white patches in your mouth or small white cracks at the corners of your mouth.
- **Dry Mouth** can cause soreness, ulcers, infections, and cavities. Dry mouth may be caused by medicines for high blood pressure, depression, or other health problems.

What Are Warning Signs of Oral Health Problems Related to Diabetes?

- Red, swollen, or tender gums or other pain in your mouth
- Bleeding while brushing, flossing, or eating
- Loose or separating teeth
- Sores in your mouth
- Bad breath, bad taste in mouth, or loss of taste
- White patches in the mouth
- A sticky, dry feeling in the mouth

How Are Oral Health Problems Diagnosed?

Oral health problems may be diagnosed after your mouth, teeth, gums, and tongue are examined. X-rays of your mouth may also help diagnose problems. If you are having any other problems related to your diabetes, talk with your primary health care professional.





Oral Health Literacy Modules



Oral Health and Diabetes
Linking Diabetic Health & Oral Health

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OHNEP Oral Health Case Study Resource Kit

Judith Haber, PhD, APRN, FAAN

Erin Hartnett, DNP, PPCNP-BC, CPNP, FAAN

Jessamin Cipollina, MA



OrALL in the FAMILY

Oral health has a significant impact on the overall health and well-being of individuals across their lifespan. The Oral Health Across the Lifespan Module was created and funded by the Oral Health Nursing Education & Practice (OHNEP) program and the National Interprofessional Initiative on Oral Health (NIOH).

You are the RN in the OB clinic.

Ms. Jones is 24 weeks pregnant and tells you that her gums have been bleeding and she has a “lump” above one of her teeth. She is on Medicaid and does not have a dental home. During your HEENOT exam you notice that Ms. Jones gums look red and swollen and there is a 1 cm. raised red nodule on the gum above the right lateral incisor. You want to give her the correct information on what she is experiencing.

- **eResource:** Download and install *Smiles for Life (SFL)* app on your mobile phone
 - [SEL Oral Health App](http://www.smilesforlifeoralhealth.org/apps.html) (www.smilesforlifeoralhealth.org/apps.html)
- In the SFL app, select **Diagnostic Modules** and then select **Prenatal**
- Answer the 2 questions under **Prenatal**
- Follow the app as you answer the questions for Ms. Jones
 - Is she having any problems with her mouth?
 - What do you recommended for her bleeding gums
- Find the photo of the **Soft Tissue Enlargement**
 - What is this called?
 - What do you recommended Ms. Jones do for this?
 - Does Medicaid cover dental care for pregnant women in your state?

You are the RN in the Postpartum Clinic.

Ms. Jones returns for her 6 week postpartum check-up. She says her gums no longer bleed, but the lump in her mouth has gotten larger and interferes with chewing. During your HEENOT exam you notice that the 1 cm. raised red nodule on the gum above the right lateral incisor is now is now extending to the posterior aspect of the gum behind the tooth.

- Return to the photo of the **Soft Tissue Enlargement** on the SFL app.
 - What are your recommendations for her?
 - Does Medicaid cover dental care at 6 weeks postpartum?

You are the RN in the Well-Child Clinic.

Newborn

Ms. Jones brings her baby Eliza to the clinic for her 1 week newborn check-up. She is breastfeeding well.



OHNEP COVID-19: OrAll in the Family Case Study

COVID-19 risk increases for individuals, families and communities disproportionately affected by chronic diseases and the social determinants of health. These same populations are at higher risk for oral disease. Common risk factors include obesity, poverty, stress, poor diet, alcohol and tobacco use, substance misuse, mental health issues and domestic violence. Many of these factors have been heightened during the pandemic. These and other social determinants of health contribute increased risk of COVID-19, exacerbation of chronic disease and poor oral health.

- ◊ **The Collins family is a multi-generational African-American family living in the Bronx.**
- ◊ The family wanted to gather for Grandma Collins’ 90th birthday. She resides in assisted living and is fully vaccinated. The Collins family discussed how to gather as safely as possible.
- ◊ Grandma and Carla are fully vaccinated. Joe is reluctant to get the vaccine even though he is qualified for it. Laurette, Mike and their children Tanisha and Troy are not. **What would you consider their risk level for COVID-19 for having an indoor family dinner?**

Collins Family Members

- ✓ **Grandma Collins, age 90** – mother of **Carla** and **Joe**
- ✓ **Carla, age 68** – daughter of Grandma Collins; widow; mother of **Laurette**
- ✓ **Joe, age 69** – son of **Grandma Collins**; single
- ✓ **Laurette, age 42** and **Mike, age 44** - parents to **Tanisha, age 13** and **Troy, age 5**

Grandma Collins has mild dementia, has poor oral health, and requires assistance for all activities of daily living (ADL) including oral hygiene.

Read: [Edahiro, A., Okamura, T., Motohashi, Y., Takahashi, C., Sugiyama, M., Miyamae, F. ... & Awata, S. \(2020\). Oral health as an opportunity to support isolated people with dementia: useful information during coronavirus disease 2019 pandemic. *Psychogeriatrics*, 21\(1\), 140-141. doi: 10.1111/psyg.12621.](#)

