

OHNEP Oral Health Case Study Resource Kit

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Clinical Oral Health Case Study Resource Kit

Interprofessional Oral Health Clinical Case Studies

The mouth is the gateway to the rest of the body. Oral health care is essential to promoting positive overall health outcomes. The innovative clinical case studies in this kit demonstrate the many ways in which oral health and overall health are linked, as well as the role of intersectional collaboration across professions and settings in providing effective whole-person care that aim to improve health equity and health care equity. The case studies incorporate the social determinants of health in the clinical exemplars of oral-systemic health in patients across the lifespan with health conditions including diabetes, COVID-19, heart disease, cancer, HPV and more. The case studies are easily integrated into the courses of both undergraduate and graduate programs, and are ideal for interprofessional simulation or clinical experiences.

The case studies included in this kit are listed below. Click on the links to view and download from our website ohnep.org.

- ◇ Pediatric Case Studies: [CS #1](#), [CS #2](#), [CS #3](#), [CS #4](#), [CS #5](#)
- ◇ Autism Spectrum Disorder [Case Study](#)
- ◇ Dental Anxiety [Case Study](#)
- ◇ NLN Accelerating Care Excellence for Pediatrics (ACE.P) [Unfolding Case](#)
- ◇ Adolescent HPV Infection [Case Study](#)
- ◇ Adolescent HPV: Promoting Vaccine Confidence [Case Study](#)
- ◇ Adult Case Studies: Autoimmune [CS #1](#), Diabetes [CS #2](#)
- ◇ Cardiovascular Disease [Case Study](#)
- ◇ Oncology Case Studies: [CS #1](#), [CS #2](#)
- ◇ OrAll in the Family Lifespan [Case Study](#)
- ◇ COVID-19: Promoting Vaccine Confidence Case Studies: [CS #1](#), [CS #2](#)
- ◇ COVID-19: OrAll in the Family Lifespan [Case Study](#)

OHNEP PEDIATRIC CASE STUDY #1

Chief Complaint:

A 2-year-old female (Sarah) presents to the pediatric dentist with intermittent “bleeding from gums x 2 weeks”. Parent reports child fell about 2 weeks ago in the playground and may have hit her mouth.

Past History:

Prenatal: twin A, no prenatal problems
L&D: Premature 32 weeks, C-Section, Apgar 7,8.
Natal: NICU x 2 weeks – uneventful
Infancy: No health problems, breastfed with supplements x 6mo.

Current Health Status:

She has had no health problems and is developing normally. Her immunizations are up to date.

Medications:

She is not taking any medications.

Family History:

Her twin brother is also well and developing normally.
They live with both parents. There is no family history of any bleeding disorders.

Physical Exam including Oral Exam:

Normal dentition for age. No signs of trauma, infection, or loose teeth.

Assessment:

Bleeding from gums with unknown etiology

What is your differential?

- Bleeding/blood disorder
- Vigorous brushing/flossing
- Normal for age

What is the best action to take?

- Advise saline rinses and soft toothbrush
- Call/Refer to pediatrician/PNP
- Send to lab for CBC
- Panoramic Xray

Call pediatrician/PNP

Pediatrician/PNP will see patient immediately.
Physical exam shows scattered petechiae and splenomegaly

What is the best action to take?

- CBC
- INR/PT/PTT
- Follow-up in 2 days

CBC Results

WBC 23,000 with 19% blasts
Hgb 10
Hct 29
Plt 17

What is the best action to take?

- a. Admit to inpatient unit for further workup
- b. Platelet transfusion
- c. Bone marrow aspirate
- d. Viral panel

DISCUSSION

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 - Anticipatory guidance
 - Oral health maintenance

- Collaboration and referral

Questions to Guide Your Interprofessional Collaboration

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 - What are the most effective ways for the IP team to communicate?
- Referrals and Follow up
 - What providers does this patient need to see? When? How often?
 - What are the appropriate follow-up actions for each member of the primary care team?

OHNEP PEDIATRIC CASE STUDY #2

Chief Complaint:

Parent brings fourteen-month-old female (Amy) to the PNP at the primary care office with complaints of intermittent vomiting, occurring for past 2 weeks which has increased in frequency this week.

Past History:

Prenatal: No problems

L&D: NSVD, Apgar 9,10

Infancy: breastfed until 12 months. 8 months Hgb 11.3; Lead level normal

Current Health Status:

Amy has had no other health problems. Her development is normal. She was in the 50% for height and weight and head circumference. She has not had a fever or any illness. She was weaned from breastfeeding at 13 months and vomiting began shortly after weaning. Mother thought that she might be intolerant to lactose and started giving her soy formula, but it has not affected the vomiting. Vomiting does not seem to be related to time, type of food, activity or illness. Amy vomits 2-3x/day and has a poor appetite. Frequently the emesis consists of undigested food even after 12 hours after ingestion.

Medications:

None

Family History:

Only child, lives with both parents. No family history of food intolerance or GI problems.

Physical Exam:

Alert, oriented, small, thin, pale 14-month-old female.

HEENOT – all central incisors are thin grey/translucent. Delayed eruption of dentition – central incisors at age 13 months

Abdomen – soft, nontender

MS – normal

Neuro – wnl

What is your differential diagnosis?

- A. Lactose intolerance
- B. Celiac disease
- C. Viral Illness
- D. Constipation

What diagnostic tests will help you?

- A. CBC
- B. Abdominal X ray
- C. Upper GI
- D. Celiac panel
- E. Dental consult

Results

CBC shows: WBC 4.2, Hgb.11.3, Plt 200,000

Abdominal X ray – normal,

Upper GI – delayed gastric emptying

Celiac panel – elevated Deaminated Gliadin ABS IgG: 45.5 (normal is 1-10).

All other markers in normal range. IgA was on lower end of normal 21, (normal is 20-100). Low IgA has been linked to autoimmune disorders.

Plan

Refer to Pediatric Gastroenterologist

Refer to Pediatric Dentist

Diagnosis

Delayed gastric emptying of unknown etiology -

GI specialist unconcerned about elevated Deaminated Gliadin ABS IgG Dentist – told mother not to worry about grey transparent teeth, they would fall out.

Management Plan

Pediatric Gastroenterologist prescribed Elecare formula, Miralax and Prevacid which she continued to take for over the next 16 months. During this time, the vomiting decreased, but was still occasional. Amy frequently complained of abdominal pain and constipation. Her growth improved. She gained 8lbs over the 1 1/2 year but often did not feel well.

Her parents were concerned and took her for additional consults. Patient was seen by four different pediatric GI specialists, her pediatrician and her dentist during this time. All providers agreed to continue the prescribed treatment since she was growing and improving. None of the providers had an explanation for Amy's thin, grey transparent teeth.

At age 2 1/2, her mother decided to take her to a specialist in GI motility at a Children's Hospital. When she sent Amy's medical records to the GI Motility clinic, they requested that she repeat the Celiac markers which had not been repeated since age 14 months. At this time endomysial antibody IgA was positive, TTG IgA was >100 (normal is <5), all three markers were extremely high and the patient was then referred to the Celiac clinic instead of the GI motility clinic. She was seen by the Celiac team, referred for a small intestine biopsy and diagnosed with Celiac Disease.

How could her primary care providers have prevented her from this delay in diagnosis by connecting her oral-systemic symptoms?

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Questions to Guide Your Interprofessional Collaboration

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- Referrals and Follow Up
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 - What are the follow-up actions for each team member to promote effective whole-person care?

PEDIATRIC CASE STUDY #3

A 10-year-old girl presented with a 3-day history of fever, sore throat, pain on swallowing, and headache. There was no associated cough, runny nose, or hoarseness. She had been exposed to a child with sore throat a few days ago.

Physical examination findings included temperature of 38.5°C, an inflamed pharynx, enlarged tonsils, tonsillar exudates, a strawberry tongue (right), and enlarged tender anterior cervical lymph nodes. She did not have a skin rash, peeling of skin, conjunctival congestion, oral ulcers, or splenomegaly.

What is the differential?

What is your clinical diagnosis?

What is your treatment plan?

What are your follow-up recommendations?

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PEDIATRIC CASE STUDY #4

A 5-year-old girl presented with a 2-week history of fever and rash. Peeling of the skin of her fingers and toes had been noted over the past 2 days.

On physical examination, the girl's temperature was 38.9°C. She was tired but interactive. An erythematous tongue with prominent papillae and desquamation of the hands and feet were noted.

What is the differential?

What is your clinical diagnosis?

What is your treatment plan?

What are your follow-up recommendations?

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PEDIATRIC CASE STUDY #5

Chief Complaint

5 yo male Tim brought to clinic by parent, complaining of fever of 103 x 2 days, headache, muscle aches, sore throat and blisters on palms and soles of feet.

Prenatal: No problems.

L&D: NSVD, Apgar 9,10

Infancy: Breastfed until 12 months. Normal growth and development.

Current Health Status: Tim has no other health problems. He is in the 50% for height and weight.

Immunization: UTD

Medications: None

Family History: Only child, lives with both parents.

Physical Exam: Alert, oriented, 5yo old male.

HEENOT – Eyes: Erythematous watery conjunctiva. Ears, nose and dentition normal. Throat: multiple erythematous blisters in pharynx.

Abdomen – soft, nontender

MS – multiple erythematous blisters on palms and soles

Neuro – nl

What is your differential?

What tests will you order?

What is your diagnosis?

What treatment will you prescribe?

Where else should parents expect to see more lesions?

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AUTISM SPECTRUM DISORDER CASE STUDY

Chief Complaint

Marco is a 5-year-old male diagnosed with autism spectrum disorder at age 2. Marco is non-verbal but communicates non-verbally in a limited way with his parents and teachers. For the past three days, he has been refusing to eat. He has always been very particular about food (only eats white or light-colored foods), but will not even eat foods that he has always enjoyed. His parents are worried that he has not eaten solid food in over 48 hours. He has only been drinking juice and children's protein shakes.

Medications: Risperdal (2mg) for irritability and behavioral outbursts

Family History: Only child, lives with both parents. No family history of food intolerance or GI problems.

Physical Exam: Alert, irritable, thin

HEENOT Exam: winces during oral exam; brown spots on several upper and lower front teeth; redness and swelling along left lower lateral gum line

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DENTAL ANXIETY CASE STUDY

Max is an 8 year-old male patient presenting to the dental clinic today for prophylaxis and fluoride varnish. His mother states that he will not brush his teeth or allow anyone to assist him in brushing them.

His medical history is significant for the following:

- Autism Spectrum Disorder
- ADHD
- ADD
- VSD repaired at age 2.5 years of age

Max is initially apprehensive about sitting in the dental chair. He is given an iPad to watch his favorite anime cartoon. After a couple of minutes, he begins to sit calmly in the dental chair. The dentist uses tell-show-do (TSD) techniques and positive reinforcement to proceed with her exam. The patient responds well, continuing to remain calm and cooperative. However, when slow speed suction is used during prophylactic treatment, he suddenly becomes uncooperative shaking his head, kicking his legs, and screaming loudly. TSD techniques are again used to help gain his cooperation. However, upon hearing the suction start he grabs the dental assistant's hands and begins to dig his nails into her. He refuses to let go. Treatment is immediately stopped. The patient lets go of the dental assistant's hands after his mother offers him a piece of candy.

What behavioral treatment plan do you propose?

What preventive behaviors do you recommend?

What alternative oral hygiene and dental care strategies would you suggest?

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[Click here to access the ACE.P Unfolding Case for Mia Jones](#)

ADOLESCENT HPV INFECTION CASE STUDY

Chief Complaint

16 year old female Lisa presents to clinic complaining of hoarseness of voice, sores in mouth

Current Health Status: Lisa has no other health problems.

Immunization: Childhood immunizations UTD, has not had any immunizations since age 6.

Medications: None

Sexual History: Two partners over past year, intermittent condom use.

Family History: Only child, lives with both parents.

Physical Exam: Alert, oriented, 16 yo old female

HEENOT – Eyes, Ears, nose and dentition normal. Scattered papillomas on tongue and pharynx.

Abdomen – soft, nontender

MS – nl

Gyn – No visible lesions – cervical studies pending

Neuro – nl

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OHNEP Adolescent HPV: Promoting Vaccine Confidence Case Study

HPV is well-known for being the most common sexually transmitted infection in the US, spread through direct sexual contact with genitals and through the mouth by oral sex. Oral HPV is responsible for about 70% of oropharyngeal cancer cases in the U.S., affecting both men and women. Teens who are sexually active are at high risk for HPV and at risk for developing oropharyngeal cancer if an oral HPV infection persists. Education and awareness of the long-term impact of oral HPV is relatively unknown to the general public. Many health practitioners, including physicians, nurse practitioners, midwives, nurses, physician assistants, dentists, pharmacists, and more, are well-positioned to educate their patients on HPV transmission and how to prevent it.

The Gardasil vaccine targets 9 main cancer-causing strains of HPV, and is one of the most effective tools in HPV prevention. ***It is the first FDA-approved cancer prevention vaccine.*** Health providers can administer the vaccine to children young as 9 years old, and catch-up is available for teens and adults up to age 45. Clinicians are usually the first line of defense to educate children and their parents on HPV and oral cancer. Providers may experience vaccine hesitancy on the part of parents of teens whether or not they are sexually active. It is important for all health professionals – nurse practitioners, nurses, dentists, and others – to be well-informed about HPV and be able to address concerns about the Gardasil vaccine.

You are a provider in the primary care clinic.

Eleven-year-old Andrew comes in for his annual sports check-up. He does well in school and has no health problems. He reports that he plays basketball and baseball, does not engage in risky drug behavior, and is not sexually active.

Andrew's father is with him at the appointment, and you recommend administration of the Gardasil vaccine due to his age. Andrew's father is skeptical – Andrew is not sexually active and his father thinks he is not at risk because he is male. You address his concerns and provide information about the vaccine.

Provider: Have you heard about the Gardasil vaccine?

Andrew's Father: No, I haven't.

Provider: The Gardasil vaccine protects against all forms of HPV infection in men and women, and can prevent HPV-associated warts and cancers. Since Andrew is now eleven, I recommend he receive this vaccine.

Andrew's Father: He isn't sexually active.

Provider: The vaccine is a preventive measure and is best administered before teens become sexually active.

Andrew's Father: I also heard that HPV does not occur in boys as often and really only for girls.

Provider: The vaccine prevents all forms of HPV-related cancers, including oral cancers which are most common among men.

Andrew's Father: I don't want him getting an unnecessary vaccine that could make him sick.

Provider: The vaccine is incredibly safe with minor side effects. It is also currently the only long-term cancer prevention vaccine available. Here are some resources for you to review together about HPV and the Gardasil vaccine – why doesn't each of you review these resources? Perhaps you will want to discuss them together. Of course, if you have any questions, please feel free to contact me. If you decide to pursue getting the vaccine before your next visit, please contact the office for an appointment. Otherwise, I will see you, Andrew, at your next sports checkup.

HPV Vaccine Resources for Teens, Parents and Providers:

[Oral Health and HPV](#)

[La salud bucal y el virus del papiloma humano](#)

[Safe and Sound: The HPV Vaccine](#)

[The Need for the Needle: Building Vaccine Confidence](#)

[HPV: Don't Wait. Vaccinate!](#)

[Ways to protect teeth and prevent decay in school-age kids and teens](#)

[CDC HPV Educational Materials & HPV Vaccine Recommendations](#)

[White Paper: Human Papilloma Virus \(HPV\) and Oropharyngeal Cancer](#)

[Cancer Prevention Through HPV Vaccination: An Action Guide for Dental Health Care Providers](#)

[National HPV Vaccination Roundtable Resource Library](#)

[Preventive Dental Visits for Children and Adolescents Are Important!](#)

[Las visitas odontológicas preventivas para niños y adolescentes son importantes](#)

[Oral Cancer Foundation: HPV Vaccination](#)

[Working with Non-Traditional Partners for Adolescent Oral Health: The Human Papillomavirus \(HPV\) Initiative](#)

OHNEP ADULT CASE STUDY #1

Presenting complaint: 61-year-old male with painful oral lesions and recent weight loss

Setting: Referral from Dentist to Nurse Practitioner in Primary care office for a Consult

History of present complaint: Patient describes a gradual onset of a severe sore throat and mouth pain over the past three months. Patient first attributed symptoms to an upper respiratory infection but symptoms worsened and now patient is unable to swallow solids or tolerate most beverages due to oral pain. Patient's son reports a noticeable weight loss. Patient denies fever, cough, night sweats, fatigue, lymphadenopathy, abdominal pain, diarrhea, bloody stool, rash.

Past medical history: Stage 1 hypertension well controlled on hydrochlorothiazide 12.5 mg daily.

Family medical history: Unknown

Social history: Patient recently emigrated from the Ukraine. Lives with adult son.

Physical examination findings: Patient appears older than stated age. He is thin, sitting in chair and appears uncomfortable. He is afebrile, normotensive, heart rate and respiratory rate within normal limits. Intraoral examination revealed multiple oropharyngeal ulcerations of varying sizes on the palatal and buccal mucosa. Oral mucosa base is erythematous and swollen. Two rounded, crusted blisters were noted on patient's upper back.

Diagnosis: Chronic oral ulcerations of unknown etiology. Differentials: (1) Pemphigus vulgaris (PV); (2) Herpes simplex virus; (3) Oral lichen planus; (4) Oral candidiasis; (5) Oral aphthae.

Management plan: Refer patient to oral medicine specialist. Patient is scheduled for a cytologic smear to be performed by oral medicine, followed by a gingival biopsy for a direct immunofluorescence test and routine histopathology. Due to extensive oral ulcerations an oral biopsy is not possible. Recommend testing for circulating autoantibodies against the antigens desmogleins 1 and/or 3 in the epidermis. (Positive test result supports, but does not confirm, diagnosis of PV). Positive enzyme-linked immunosorbent assay (ELISA) for PV antibodies and cytologic smear with acantholytic cells.

Refer patient to Dermatologist. Patient is found to have a small truncal lesion consistent with PV. Order baseline laboratory tests. Assess for signs of infection, anemia, liver and kidney disease. Monitor for steroid-induced symptoms of elevated blood glucose levels, steroid-induced psychosis, weight gain. Patient is started on prednisone 80mg daily with azathioprine 50mg daily for next 14 days.

Refer patient to gastroenterologist for colonoscopy to rule out gastrointestinal malignancy. Patient refuses test.

Refer patient to otolaryngologist for nasal endoscopy. Lesions are found to extend from oral cavity into esophagus.

Communication issues: Patient does not speak English. Interpreter services required.

DISCUSSION

Using the 4 IPEC Competencies (2016) related to:

1. Working with individuals of other professions to maintain a climate of mutual respect and shared values (Values/Ethics for Interprofessional Practice);
2. Using the knowledge of one's own role and those of other professions to appropriately assess and address the health care needs of patients and to promote and advance the health of populations (Roles/Responsibilities);
3. Communicating with patients, families, communities, and professionals in health and other fields in a responsive and responsible manner that supports a team approach to the promotion and maintenance of health and the prevention and treatment of disease (Interprofessional Communication);
4. Applying relationship-building values and the principles of team dynamics to perform effectively in different team roles to plan, deliver and evaluate patient/population-centered care and population health programs and policies that are safe, timely, efficient, effective, and equitable (Teams and Teamwork).

Please collaborate as a team to develop a management plan for the above patient.

- Oral-Systemic Risk Assessment
 - Identify the oral-systemic assessment findings (Hx and PE HEENOT)
 - What does the history and physical tell us about this patient?
 - What additional data do you need to collect (eg. labs, diet and exercise, etc)?
 - Identify oral-systemic risk factors
- Differential Diagnosis(es)
 - Identify the tentative diagnoses for the oral health problems
 - Identify the tentative diagnoses for the systemic health problems
 - Discuss the important oral-systemic connections
- Develop a management plan for the oral-systemic conditions affecting this patient, including:
 - Preventive interventions that include screening and behavior change counseling fundamental to patient-centered care
 - Anticipatory guidance
 - Oral health maintenance
 - Collaboration and referral with Dentist, Dermatologist, and Otolaryngologist

Questions to Guide Your Interprofessional Collaboration

- Roles and Responsibilities
 - What is the scope of the role and responsibilities of each of the providers on your team today?
- Collaboration
 - How can the Nurse Practitioner, Dentist and Physicians collaborate to promote this patient's health?
 - How does the team communicate with the family?

- Team Building & Communication
 - What do you think are the most effective strategies to help a Nurse Practitioner, Physicians, and Dentist function as a community-based team involving multiple professions and specialties?
 - What are the most effective ways for the IP team to communicate?
- Referrals
 - What providers does this patient need to see? When? How often? What are the follow up actions for each team member so that there is a coordinated management plan?

OHNEP ADULT CASE STUDY #2

HX: The patient presents to his primary care provider complaining of a 6-month history of fatigue, increased thirst, frequent urination, blurry vision, pain when chewing, and sore bleeding gums associated with brushing. The patient also noticed that his front bottom teeth wiggle more than usual, causing anxiety about losing his teeth. The patient reports not having seen a primary care provider in 3 years and a dentist in 5 years because the family dentist retired and he does not have health insurance.

PMH: Patient denies any past medical history

PSH: Appendectomy at age 12

ROS: Denies fevers, mouth sores, ear pain or throat discomfort. Denies chest pain or shortness of breath.

FH: Father and paternal grandfather were diagnosed with T2D in their 50s. Patient's father has HTN and dyslipidemia and receives hemodialysis 3 times a week. Patient's mother has HTN and Alzheimer's disease. Both parents reside in a nursing home. Patient is an only child. Pt. has 2 adult children who are healthy and do not live at home. Patient is widowed, his spouse died of cancer 2 years ago.

Social history: Lost insurance when he changed job three years ago. Pt. was employed as a part-time office manager when he lost his job due to COVID shutdown. Pt. has not been to a primary care provider since losing job and health insurance. Pt. denies smoking, alcohol consumption, or illicit drug use and is an active member of his church congregation.

DISCUSSION

Using the 4 IPEC Competencies (2016) related to:

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4. Applying relationship-building values and the principles of team dynamics to perform effectively in different team roles to plan, deliver and evaluate patient/population-centered care and population health programs and policies that are safe, timely, efficient, effective, and equitable (Teams and Teamwork).

Please collaborate as a team to develop a management plan for the above patient.

- Oral-Systemic Risk Assessment
 - Identify the oral-systemic assessment findings (Hx and PE HEENOT)
 - What does the history and physical tell us about this patient?

- What additional data do you need to collect (eg. labs, diet and exercise, etc)?
- Identify oral-systemic risk factors
- Differential Diagnosis(es)
 - Identify the tentative diagnoses for the oral health problems
 - Identify the tentative diagnoses for the systemic health problems
 - Discuss the important oral-systemic connections
- Develop a management plan for the oral-systemic conditions affecting this patient, including:
 - Preventive interventions that include screening and behavior change counseling that are fundamental to patient-centered care
 - Anticipatory guidance
 - Oral health maintenance
 - Social determinants of health
 - Collaboration and referral

Questions to Guide Your Interprofessional Collaboration

- Roles and Responsibilities
 - What is the scope of the role and responsibilities of each of the providers on your team today?
- Collaboration
 - How can the Nurse Practitioner, Dentist, Physician, Pharmacist, and Social Worker collaborate to promote this patient's health?
- Team Building & Communication
 - What do you think are the most effective strategies to help a Nurse Practitioner, Physician, Dentist, Pharmacist, and Social Worker function as a community-based primary care team?
 - What are the most effective ways for the IP team to communicate?
- Referrals and Follow up
 - How do the social determinants of health influence which referrals need to be made for this patient?
 - What providers does this patient need to see? When? How often?
 - What are the follow up actions for each team member to maximize coordinated care for this patient?

CARDIOVASCULAR DISEASE CASE STUDY

Chief Complaint

The patient, age 50, presents at an urgent care center complaining of a 6-month history of headaches, fatigue, blurry vision, pain when chewing, and sore bleeding gums associated with brushing. In the past week the patient also noticed that his front bottom teeth wiggle more than usual, causing anxiety about losing his teeth. The patient reports not having seen a primary care provider in 3 years and a dentist in 5 years because the family dentist retired and he does not have health insurance.

PMH: Patient reports being diagnosed with “high blood pressure” about 7 years ago, but denies any other past medical history. He stopped taking his blood pressure pills when he lost his insurance.

PSH: Tonsillectomy at age 5 for chronic URIs

ROS: Denies fevers, mouth sores, ear pain or throat discomfort. Denies chest pain or shortness of breath. Patient acknowledges being overweight and states that “it is part of getting older”

FH: Father and paternal grandfather were diagnosed with HTN in their 50s. Patient’s father has HTN and dyslipidemia and receives hemodialysis 3 times a week. Patient’s mother has HTN and Alzheimer’s disease. Both parents reside in a nursing home. Patient has two siblings who live in distant states. Pt. has 2 young adult children, age 23 and 21, who are healthy and do not live at home. Patient is divorced for 2 years; his ex-spouse lives locally and works as a Teacher Aide in an elementary school.

Social history: Lost health insurance when he lost his job as an auto mechanic three years ago during COVID. Pt. has not been able to find employment with health benefits. He has just about exhausted his savings. He has not been to a primary care provider since losing job and health insurance and has not taken medication for his hypertension since losing his health insurance. Pt. denies smoking, alcohol consumption, or illicit drug use.

Oral-Systemic Risk Assessment

- Identify the oral-systemic assessment findings (Hx and PE HEENOT)
- What does the history and physical tell us about this patient?
- What additional data do you need to collect (eg. labs, diet and exercise, etc)?
- Identify oral-systemic risk factors

Differential Diagnosis(es)

- Identify the tentative diagnoses for the oral health problems
- Identify the tentative diagnoses for the systemic health problems
- Discuss the important oral-systemic connections

Develop a management plan for the oral-systemic conditions affecting this patient, including:

- Preventive interventions that include screening and behavior change counseling that are fundamental to patient-centered care
- Anticipatory guidance

- Oral health maintenance
- Social determinants of health
- Collaboration and referral

Questions to Guide Your Interprofessional Collaboration

Roles and Responsibilities: What is the scope of the role and responsibilities of each of the providers on your team today?

Collaboration: How can the Nurse Practitioner, Dentist, Physician, Pharmacist, and Social Worker collaborate to promote this patient's health?

Team Building & Communication:

- What do you think are the most effective strategies to help a Nurse Practitioner, Physician, Dentist, Pharmacist, and Social Worker function as a community-based primary care team?
- What are the most effective ways for the IP team to communicate?

Referrals and Follow-up:

- How do the social determinants of health influence which referrals need to be made for this patient?
- What providers does this patient need to see? When? How often?
- What are the follow up actions for each team member to maximize coordinated care for this patient?

ONCOLOGY CASE STUDY #1

Chief Complaint

John, age 50, is in remission for Acute Myelocytic Leukemia. He was diagnosed 3 years ago and has had chemotherapy, radiation, and a stem cell transplant. He has been putting off his needed follow-up dental work due to cost and stating that “it is unaffordable and I have no dental insurance”. He reports chronic mouth pain that is affecting his quality of life. His insurance covered his expensive medical treatment, but does not cover dental. His cancer “cure” is impacted by poor quality of life related to his poor oral health.

Medications: Tylenol for mouth pain t.i.d.

Family History: No family history of cancer. Lives with wife and 2 high school age children; works as an accountant for a small family-owned business

Physical Exam: Alert, thin, reports difficulty eating b/c of pain on chewing, sleep disturbance, and fatigue. Patient reports, “This is the first time anybody has looked in my mouth”

HEENOT Exam: Winces during oral exam; cracked teeth, brown spots on several upper and lower front teeth; redness and swelling along left lower lateral gum line

DISCUSSION

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 - Identify the tentative diagnoses for the oral health problems
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- Discuss the important oral-systemic connections
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 - What are the most effective ways for the IP team to communicate?
- Referrals and Follow-up
 - What providers does this patient need to see? When? How often?
 - What are the appropriate follow-up actions for each member of the primary care team?

ONCOLOGY CASE STUDY #2

Chief Complaint

Anne Marie, age 65, is being treated for Non-Hodgkin's Lymphoma. She began her chemotherapy treatment 2 weeks ago. On Day 13 following the beginning of chemotherapy, she is brought to the Emergency Room by her husband, with fever of 103 F, chills and feeling faint. She is admitted to the hospital, started on empiric antibiotics (Vancomycin, Ceftazadime) and 48 hours later strep viridans is identified from the blood culture. When completing the history and physical, including a HEENOT exam, the NP observes that evidence of white coating of her tongue, red inflamed and bleeding gums.

Medications: R-CHOP, administered in 3-week cycles

Family History: No family history of cancer. Lives with husband; 2 adult children live in the same city.

Physical Exam: Alert, thin, reports difficulty eating b/c of pain on chewing, has chills, feels weak and faint; BP 96/50, Respirations=28 and Temperature 103F

HEENOT Exam: Winces during oral exam; white coating on tongue, redness and swelling along front gum line. Blood oozing from gums.

DISCUSSION

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- Referrals and Follow-up
 - What providers does this patient need to see? When? How often?
 - What are the appropriate follow-up actions for each member of the primary care team?

OHNEP 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
- 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 recommend 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.

- **eResource:** Download and review the [Bright Futures: Oral Health Pocket Guide \(3rd ed.\)](#)
- Refer to pages 30-37
- What recommendations do you give Ms. Jones about cleaning Eliza's mouth?

Infant

The next time you see Eliza, she is 8 months old and has 2 teeth. Is this normal for her age? What do you look for during the infant's HEENOT exam? She has white spots along the gum line.

- **eResource:** Download and install [Smiles for Life \(SFL\) app](#) on your mobile phone
- In the SFL app, select **Diagnostic Modules** and then select **Child Tooth Lesions**
 - Follow the app and answer all questions
- Select the **Caries Risk Assessment Tool**
 - Answer all questions
 - Submit and View Results in the app
 - What is Eliza's Caries Risk Level?
 - Name three suggested interventions for this level of Caries Risk Assessment
- Select **Photo Gallery**
 - Find a photo that matches the appearance of the child's teeth
- **eResource:** Download and review the [Bright Futures: Oral Health Pocket Guide \(3rd ed.\)](#)
 - Refer to pages 30-37 & 84

Toddler

Ms. Jones also has her 3-year-old Leo, with her at Eliza's visit. You notice that the Leo has dark brown spots on his teeth and is sipping a bottle with soda in it.

- **eResource:** Download and install [Smiles for Life \(SFL\) app](#) on your mobile phone

- In the SFL app, select **Diagnostic Modules** and then select **Child Tooth Lesions**
 - Follow the app and answer all questions
- Select the **Caries Risk Assessment Tool**
 - Answer all questions
- Submit and View Results in the app
 - What is Leo's Caries Risk Level?
 - Name three suggested interventions for this level of Caries Risk Assessment
- Select **Photo Gallery**
 - Find a photo that matches the appearance of the child's teeth
- *eResource*: Download the [Brush DJ app](#) on your mobile phone
 - Choose a song to demonstrate toothbrushing with a 3 year-old
- *eResource*: Download and review the [Bright Futures: Oral Health Pocket Guide \(3rd ed.\)](#)
 - Refer to pages 40-49
- Read the blog [Bullying: Nothing to Smile About](#)

School-Age

Ms. Jones returns with her 6-year-old son, Malek, for his school physical. During your HEENOT exam you notice that Malek has upper and lower central incisors are grey translucent teeth. He is also thin and pale and has a history of intermittent abdominal pain, constipation, vomiting.

- *eResource*: Download and install [Smiles for Life \(SFL\) app](#) on your mobile phone
- In the SFL app, select **Photo Gallery** and then select **Developmental Defects of Enamel**
 - Find the photo of **Hypoplastic Type**
- Read the blog [Your Mouth Could Be Warning You That You Have Celiac Disease](#)
- Read the article [Oral Manifestations of Celiac Disease](#)
 - What are three oral health recommendations you suggest for a child with Celiac Disease?

You are the RN on call for Pediatric triage.

Ms. Jones calls and says that Sarah, her 10-year-old daughter, was kicked in the mouth during soccer and her front tooth was knocked out. What do you tell Ms. Jones to do?

- **eResource:** Download and install [Smiles for Life \(SFL\) app](#) on your mobile phone
- In the SFL app, select **Diagnostic Modules** and then select **Oral Emergencies/Trauma**
 - Follow the app and answer all questions
- Read the article [Dental Avulsions: Review and Recommendations](#)
 - What would you instruct Ms. Jones to do with an avulsed permanent tooth at **the time of the accident**?

You are the RN in the Emergency Department.

Ms. Jones arrives at the ED with Sarah, her 10-year-old daughter, with the avulsed tooth in a jar of milk.

- **eResource:** Download and install [Smiles for Life \(SFL\) app](#) on your mobile phone
- In the SFL app, select **Diagnostic Modules** and then select **Oral Emergencies/Trauma**
 - Follow the app and answer all questions
 - What is recommended for initial treatment by clinicians for an avulsed permanent tooth?
 - What anticipatory guidance to promote oral health safety is appropriate for this family?
 - Identify three priority nursing actions.
- **eResource:** Download and review the [Bright Futures: Oral Health Pocket Guide \(3rd ed.\)](#)
 - Refer to pages 54-61
- Read the article [Dental Avulsions: Review and Recommendations](#)

You are the RN in the Adolescent Clinic.

16-year-old Janet Jones, the eldest of 5 siblings, comes for her sports physical. You notice she has lost 10 lbs. since last year's PE. During your HEENOT exam, you notice her anterior teeth appear to have dental enamel erosion.

- **eResource:** Download and install [Smiles for Life \(SFL\) app](#) on your mobile phone
- In the SFL app, select **Diagnostic Modules** and then select **Adult Tooth Lesions**
 - Follow the app and answer all questions

- What is a probable cause of the enamel erosion in her anterior teeth?
- Find a photo of the anterior dental erosion
- What are the priority assessment and intervention strategies for you to initiate as an RN?
- **eResource:** Download and review the [Bright Futures: Oral Health Pocket Guide \(3rd ed.\)](#)
 - Refer to pages 62-70

You are the RN in the Adult Diabetic Clinic.

Ms. Jones' husband, Joe, comes in for his quarterly primary care check-up. He has T2D. What is "the 6th complication of diabetes"?

- Read the article [Oral Health: An Untapped Resource in Managing Glycemic Control in Diabetes and Promoting Overall Health](#)
- What are three of the recommended questions to ask to assess periodontal health?
- What are two of the signs of Gingivitis or periodontitis?
- What are three of the Teaching Tips suggested in the oral health guidelines for medical providers?
- What are two of the oral health recommendations for diabetic patients?

You are the RN in the Cardiac Clinic.

Ms. Jones' father, Carl, comes to the cardiac clinic for his 6-month check-up. He has hypertension, atrial fibrillation and hypercholesteremia. He has had a cardiac stent placed last year. Today he reports tooth pain. During your HEENOT exam you notice his lower left lateral incisor has decay with gum swelling. He is on Warfarin, Metropolol, and Atorvastatin.

- **eResource:** Review [Smiles for Life Geriatric Oral Health Module](#)
- Launch the Geriatric Oral Health Module and select the **Medical-Dental Integration** section
 - Review **Managing Anticoagulation and Antibiotic Prophylaxis** sub-sections
 - Which professional do you refer him to?
 - You are concerned about both his anticoagulation status and his need for antibiotic prophylaxis.
 - What is the recommended INR for a tooth extraction? Does he need antibiotic prophylaxis?

Which of the following patients require bacterial endocarditis antibiotic prophylaxis prior to a dental procedure?

- A. A 26-year-old woman with mitral valve prolapse undergoing routine teeth cleaning with no anticipated bleeding.
- B. A 64-year-old man with a prosthetic mitral valve who is undergoing a tooth extraction.
- C. A 16-year-old boy with a ventricular septal defect completely repaired in infancy who requires extraction of an impacted wisdom tooth.
- D. A 32-year-old man who had bacterial endocarditis 5 years ago who is undergoing orthodontic appliance adjustment.

You are the RN in the Breast Cancer Clinic.

Ms. Jones' mother, Beth, comes in for renewal of her breast cancer maintenance therapy, Rx Aromatase inhibitor (AI). What information do you give this patient on AI on bone and oral health?

Read the following articles:

- [Integrating Oral Health Throughout Cancer Care](#)
- [Oral health-related complications of breast cancer treatment: Assessing dental hygienists' knowledge and professional practice](#)

You are the RN in the Osteoporosis Clinic.

Beth has developed osteoporosis from the AI. She will need to begin Bisphosphonates.

- Read the article [Oral health-related complications of breast cancer treatment: Assessing dental hygienists' knowledge and professional practice](#)
- How are bisphosphonates related to bone loss and oral health?
- What are the recommendations to prevent any oral health complications of this treatment?

You are the RN in the Adult Primary Care Clinic.

Ms. Jones' uncle, Tom, comes in complaining of a painful lesion in his mouth for the past 3 weeks. During your HEENOT exam you notice a lesion on the right lateral side of his tongue.

- **eResource:** Download and install [Smiles for Life \(SFL\) app](#) on your mobile phone

- In the SFL app, select **Diagnostic Modules** and then select **Adult Mucosal Lesions**
 - Follow the app and answer all questions
 - What questions do you want to ask Tom?
 - Which provider should see Tom next?

You are the RN in the Oncology Clinic.

Tom comes for a consult at the Head and Neck Oncology clinic after a positive biopsy (squamous cell) of his mouth lesion. After seeing the H&E surgeon he is scheduled for a radical neck surgery in 2 weeks followed by radiation therapy in 6 weeks. What do you need to tell him regarding his oral health?

- *eResource*: Download [The National Institute of Dental and Craniofacial Research Oncology Pocket Guide to Oral Health](#)
 - Discuss three teaching points from this guide to use in your care plan
- Read the blog [Oral Cancer Emerging Risk Factors](#)
 - What do you recommend to Tom prior to, during and after Head and Neck Radiation Therapy?

You are the RN in the Radiation Therapy unit.

Tom comes to begin week 3 of radiation therapy, complaining of dry mouth, sores in his mouth, and difficulty swallowing. During your HEENOT exam, you determine that he has mucositis.

- Read [MASCC/ISOO Clinical Practice Guidelines](#)
 - What are three teaching tips for the prevention and treatment of mucositis?
 - What would you recommend for Tom?
 - What mouthwash is NOT recommended according to the guidelines?

You are the RN in the Psych Clinic.

Tom is referred for depression resulting from his oral cancer diagnosis. He is evaluated and given a Rx for an antidepressant medication. Antidepressants frequently cause xerostomia.

- Go to the [Oral Cancer Foundation](#) website for many valuable resources.

Which of the following statements concerning xerostomia, or dry mouth, is not true?

- A. Xerostomia is caused by a decrease in the production of saliva.
- B. Xerostomia can cause a burning sensation, change in taste, and difficulty swallowing.
- C. Medications can contribute to xerostomia.
- D. Xerostomia can increase the development of caries.
- E. Xerostomia is rarely a problem for patients wearing complete dentures.

You are an RN on the Palliative Care Team.

It is 5 months since Tom has completed his treatment. He is referred to the Palliative care team. During your HEENOT exam, you notice a thick white coating on Tom's tongue.

- Read the article [Maintaining Oral Health in Palliative Care Patients](#)
- What are the most common topical agents for the treatment of candidiasis in palliative care?
- What preventive measures can you recommend to Tom and his family to improve his oral health and prevent problems?
- Read the article [Oral health is an important issue in end-of-life cancer care](#)

You are the RN in the Adult Medical ICU.

Ms. Jones grandfather is admitted to the MICU for COVID-19 pneumonia and is on ventilator.

- *eResource*: Review [Smiles for Life Geriatric Oral Health Module](#)
- Develop an Oral Health Care Plan
- Read the following articles:
 - [Mouth care to reduce ventilator-associated pneumonia](#)
 - [Denture wearing during sleep doubles the risk of pneumonia in the very elderly](#)
 - [Interprofessional Education: Oral Health and Mechanically Ventilated Critically Ill Adults](#)
 - [Oral care reduces incidence of ventilator-associated pneumonia in ICU populations](#)

You are the RN in the Long-Term Care Facility.

Ms. Jones' grandmother lives in the long-term care facility. She has Parkinson's Disease and Alzheimer's Disease.

- *eResource*: Review [Smiles for Life Geriatric Oral Health Module](#)

- Review Case #2 Alzheimer's Dementia
- Review the [Parkinson's Disease Oral Health Module: Interprofessional Coordination of Care](#)
 - Discuss your goals for educating the PCAs on her oral care for long-term care residents

OHNEP COVID-19: Promoting Vaccine Confidence #1 Case Study

- ◇ **Sam age 68** is a single, white, obese male with poorly controlled Type 2 Diabetes. He has been diagnosed with periodontal disease but has not been treated for this. He is on SSI and Medicare/Medicaid with no dental benefit. He is here for his diabetic appointment. As his nurse practitioner, you recommend he get the COVID-19 vaccine. He tells you he does not want to get the vaccine.

The WHO has declared vaccine hesitancy a major threat to global health. Vaccine hesitancy is being fueled by social media.

***Read:** Dror, A.A., Eisenbach, N., Taiber, S. Morozov, N.G., Mizrachi, M., Zigran, A., ... & Sela, E. (2020) Vaccine hesitancy: the next challenge in the fight against COVID-19. *European Journal of Epidemiology*, 35, 775–779 (2020). doi: 10.1007/s10654-020-00671-y.*

***Read:** Puri, N., Coomes, E.A., Haghbayan, H., & Gunaratne, J. (2020) Social media and vaccine hesitancy: new updates for the era of COVID-19 and globalized infectious diseases. *Human Vaccines & Immunotherapeutics*, 16(11), 2586-2593. doi: 10.1080/21645515.2020.1780846.*

◇ **How do you address his vaccine hesitancy?**

Find out what makes the patient feel this way:

Nurse or Nurse Practitioner (RN/NP): I'm so glad you're here for your diabetic check-up. We just got the COVID-19 vaccine and I can give it to you today.

Sam: I don't want that!

RN/NP: Can you tell me what makes you feel that way?

Sam: It is all a conspiracy from China to implant the virus in everyone. It's the 5G that's spreading the virus and that's in the vaccine now too.

RN/NP: Where did you find this information?

Sam: It's all over my Twitter account. Haven't you seen it? It's everywhere.

RN/NP: There is a lot of inaccurate information being spread on social media. I can look at it with you to see.

Healthcare providers are among the most trusted information sources.

◇ **Correct this misinformation.**

Sam: Why would I take something which would make me sick?

RN/NP: The vaccine does not contain the virus. It only has a protein which will help your body to make an antibody to fight the infection if you are exposed to the virus. It will not give you the virus.

Coincident with the rapid developments of COVID-19 vaccines globally, concerns about the safety of such a vaccine could contribute to vaccine hesitancy.

◇ **Is the vaccine safe?**

Sam: The vaccine was made so fast, it can't be safe.

RN/NP: Although development moved rapidly, you can be assured that there is excellent safety data on both vaccines. Because of the pandemic, massive amounts of money were invested for vaccine development, and recruitment for clinical trials resulted in unprecedented large numbers of volunteers which allowed it to proceed efficiently. The vaccine has some side effects which are usually very mild and include fatigue and muscle aches. Some people may experience a fever. Usually this is over in a day or so.

◇ **Discuss the population benefit.**

RN/NP: The vaccine does not give you COVID-19, although you may have some reaction. This is much better than getting the disease. It is also much better than spreading the disease to vulnerable people like your elderly mother, or neighbors.

Those who accept flu vaccine are more likely to accept COVID vaccine.

The most significant positive predictor for acceptance of a potential COVID-19 vaccine is *current* influenza vaccination.

◇ **Ask about the influenza vaccine.**

RN/NP: Have you received the flu vaccine this year?

Sam: No, I never take the flu vaccine. I am strong.

Why does he *need* to get the vaccine?

Research found that a person's own health care provider is the most trusted source for information on the COVID-19 vaccine.

◇ **Explain the importance of getting the vaccine.**

RN/NP: Sam, this is a very serious disease and it has killed many strong people, but it is especially dangerous for anyone with diabetes and for anyone who is overweight. These 2 conditions make it harder for you to fight this disease. Many people who have these problems are still getting very sick and many die from COVID. Many people who get COVID have effects that last a long time, like heart or lung problems. I can help you get an appointment, or you can text 438-829 and enter your zip code to see where you can get an appointment nearby.

What is your management plan for Sam?

OHNEP COVID-19: Promoting Vaccine Confidence #2

Case Study

◇ **Marjorie** is a 92-year-old black woman getting her hair done at her local beauty parlor. Her hairdresser receives a call from the church secretary asking if there is anyone there who would like a vaccine on Sunday at church.

In order to get vaccine information to BIPOC groups, collaboration with trusted messengers, such as faith-based and community leaders, will help to tailor and share culturally relevant messages and materials with diverse communities. Ensuring access to vaccine through using community gathering places such as churches and beauty parlors, will enable access which will meet the community needs.

Read: Centers for Disease Control and Prevention (CDC). Vaccinate with Confidence: CDC's Strategy to Reinforce Confidence in COVID-19 Vaccines. Updated December 6, 2020. Accessed March 23, 2021. At: <https://www.cdc.gov/vaccines/covid-19/downloads/how-build-hcp-confidence-covid-19-vaccines-508.pdf>.

◇ **The hairdresser Laticia asks Marjorie if she would like to get the vaccine.**

Marjorie: No, not me.

Laticia: Why not?

◇ **You can help by listening without judgement and identifying the root of their concerns.**

Marjorie: They are just trying to experiment on us black folks again.

Laticia: What do you mean?

◇ **Try not to sound judgmental and ask questions that help you understand their concerns.**

Marjorie: When I was a girl, my uncle was a sharecropper in Tuskegee, and he was told he was getting free health care from the government. It was a lie, he had syphilis and they never told him, and they never treated him for it and he died.

- ◇ **Once you understand their concern, ask if you can provide some information, and tell them where you get information you trust.**

Laticia: Yes, I have heard of that. It was terrible. My niece who is in college told me that because it was such an unethical study, it caused many new laws to be written so that this would never happen again. She told me there are lots of rules and laws and people who oversee this now, so it can't happen.

- ◇ **Is the vaccine safe?**

Marjorie: They made the vaccines so fast, they can't be safe

Laticia: Because this is a world-wide pandemic, lots of money was spent in finding a vaccine as soon as possible and lots of people volunteered to help by being in the studies.

Marjorie: How do you know they are safe?

Laticia: Many thousands of people participated in the studies and now millions of people have taken the vaccine. There are very few problems. The vaccine has some side effects which are usually very mild and include tiredness and muscle aches. Some people may experience a fever. Usually this only lasts a day or so. All of the vaccines prevent people from getting seriously ill or becoming hospitalized with COVID.

- ◇ **Helping them find their own reason to get vaccinated can steer the conversation from “why not” to the important reasons that matter to them—their “why.”**

Laticia: Have you seen your great-grandchildren?

Marjorie: No, not in a year

Laticia: **The sooner you get vaccinated, the sooner we can get back to normal.**

Marjorie: What do you mean?

Laticia: After you get your shots (either 2 for Pfizer and Moderna or 1 of Johnson & Johnson) you have to wait 2 weeks and then you are fully vaccinated. You can then be inside without masks with other fully vaccinated people like your friends, or with low-risk unvaccinated people like your great-grandchildren. You will still have to wear your mask and socially distance when you are in public or with unvaccinated high-risk people.

Marjorie: I do miss my grandchildren. I will think about it.

Laticia: Give me a call when you are ready. I will help you get an appointment. You can text 438-829 and put in your zip code or in Spanish text 822-862 (VACUNA) and enter your zip code to see where you can get an appointment nearby.

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.*

Read: Marchini, L. & Ettinger, R.L. (2020). COVID-19 Pandemics and Oral Health Care for Older Adults. *Special Care in Dentistry*, 40(3), 329-331. doi: 10.1111/scd.12465.

The day after the family dinner, **Laurette** noticed she could not taste or smell anything and went for a COVID-19 test.

◇ **Day 1 - You are on the team in the COVID TESTING CENTER.**

Laurette age 42 teaches 5th grade in a public school and has been working remotely for a year. She is waiting to get an appointment for her first COVID-19 vaccine dose. You give Laurette a rapid and PCR test. Her COVID-19 rapid test was positive, and her PCR test results 3 days later was also positive.

Read: Ren, Y.F., Rasubala, L., Malmstrom, H., & E. Eliav. (2020). Dental Care and Oral Health under the Clouds of COVID-19. *JDR Clinical and Translational Research*, 5(3), 202-210. doi: 10.1177/2380084420924385.

What do you tell Laurette about the loss of taste and smell?

1. What percent of patients experience loss of taste/smell?
2. Is this an early or late sign?
3. Why would this be considered a COVID-19 alert?
4. Why is the tongue a considered a possible site of initial infection?
5. What type of cells exist on the tongue?

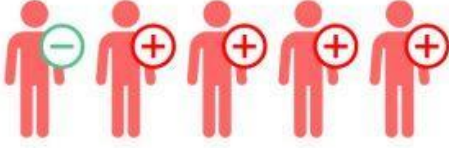
Review the CDC Guidelines (2021) for asymptomatic and symptomatic patients:

<https://www.cdc.gov/mmwr/volumes/69/wr/mm695152a3.htm>

What do you tell Laurette about the rapid test?

6. How soon are the rapid test results available?
7. How accurate are the rapid test results?
8. When is the PCR test necessary?

COVID-19 rapid tests are inexpensive and fast but sometimes give incorrect results*



1 in 5 patients with symptoms and confirmed COVID-19 received a negative rapid antigen test result

People with **symptoms** and a **negative rapid test** should

- Get a confirmation (RT-PCR) test
- Wear a mask
- Stay home in a separate room

* 1,098 paired nasal swabs collected at 2 universities in Wisconsin, September 28–October 9, were tested using Sofia SARS Antigen FIA and compared to RT-PCR/viral culture results.

CDC.GOV bit.ly/MMWR123120 MMWR

Grandma Collins and Carla are *fully vaccinated*.

What do you tell Grandma Collins and Carla?

9. What should they do if they continue to have no symptoms?
10. What should they do if they develop symptoms?
11. Do they have to quarantine?

◇ **Day 4 - You are on the team in the DIABETIC CLINIC.**

Joe age 68 is single, on disability, obese, and has hypertension and poorly controlled Type 2 Diabetes. He is reluctant to get the COVID-19 vaccine. He had been diagnosed with periodontal disease but has not been treated for this. He is on SSI and Medicare/Medicaid with no dental benefit.

Read: Bao, L., Zhang, C., Dong, J., Zhao, L., Li, Y., & Sun, J. (2020). Oral Microbiome and SARS-CoV-2: Beware of Lung Co-infection. *Frontiers in Microbiology*, 11, 1840. doi: 10.3389/fmicb.2020.01840.

Read: Coke, C.J., Davison, B., Fields, N., Fletcher, J., Rollings, J., Roberson, L., ... & Gangula, P.R. (2021). SARS-CoV-2 Infection and Oral Health: Therapeutic Opportunities and Challenges. *Journal of Clinical Medicine*, 10, 156. <https://doi.org/10.3390/jcm10010156>

Read: [COVID-19: Vaccine Hesitancy Case Study #1](#)

Read: Haber, J., Hartnett E., Hallas D., Dorsen, C., Lange-Kessler J., Lloyd, M., ... & Wholihan D. (2015). Putting the mouth back in the head: HEENT to HEENOT. *American Journal of Public Health*, 105(3), 437-441. doi: 10.2105/AJPH.2014.302495.

What do you tell Joe about COVID-19, diabetes, hypertension and obesity, and their relationship to oral health?

12. What co-morbidities are associated with more severe COVID-19?
13. Why do researchers believe that patients with diabetes are more likely to experience severe symptoms and complications than patients without diabetes due to COVID-19 infection?
14. What do researchers believe as to why patients with hypertension are at increased risk?
15. What do researchers believe as to why obesity is related to increased risk?
16. Why is it important to use the HEENOT approach with Joe?

◇ **Day 5 - You are on the team in the PRIMARY CARE CLINIC.**

Mike age 44 is married to Laurette and is an EMT. He is a smoker. He had COVID-19 back in April in the beginning of the pandemic. He is continually tired, has no strength and is considered “a COVID long hauler”. He wears a mask 12 hours a day at work and has developed bad breath, receding gums, and dry mouth. He has halitosis and cheilitis, and recently one of his front teeth fell out without any bleeding.

Read: *Caring for Your Teeth During COVID-19. Oral Health Nursing Education and Practice (OHNEP).* At: https://nursing.nyu.edu/sites/default/files/inline-files/Caring-For-Your-Teeth-Update-2021_0.pdf

Read: *Express Dentist. Special Report: The Real Dangers of Mask Mouth.* Retrieved from: <https://expressdentist.com/mask-mouth/>

Watch: *Medscape. (2020). Long-hauler COVID Clinics Are Open, Skepticism Lingers.* At:

https://www.medscape.com/viewarticle/938121?src=mkc_covid_update_201008_mscpedit_&uac=254868PX&impID=2609924&faf=1#vp_2

Watch: *PBS News Hour. (2021). Medical Community Scrambles to Understand COVID-19 “Long Haulers”.* At: <https://www.pbs.org/newshour/show/medical-community-scrambles-to-understand-covid-19-long-haulers>

Read: Sinjari, B., D'Ardes, D., Santilli, M., Rexhepi, I., D'Addazio, G., Di Carlo, P., ... & Cipollone, F. (2020). SARS-CoV-2 and Oral Manifestation: An Observational, Human Study. *Journal of Clinical Medicine*, 9, 3218. doi:10.3390/jcm9103218.

What do you tell Mike about “long effects of COVID-19”, smoking and their relationship to oral health?

17. What co-morbidities are associated with more severe COVID-19?
18. What is the possible cause of lost teeth in COVID-19?
19. Should Mike get the COVID-19 vaccine?

What do you tell Mike about the importance of caring for his teeth during COVID-19?

20. What is the relationship between halitosis and COVID-19?
21. What are the symptoms of Mask Mouth?
22. What are the recommendations for Mask Mouth?
23. Why is it important to use the HEENOT approach with Mike?

◇ **Day 6 - You are on the team in the PEDIATRIC CLINIC.**

Tanisha age 13 attends hybrid school and has braces, and was unable to see the dentist for adjustments for 4 months. She was able to have teledentistry appointments. She had a broken wire which caused pain and was instructed to apply orthodontic wax. Her braces removal is now delayed for 4 months and won't be off in time for her graduation next year which was the plan.

Read: Sharan, J., Chanu, N.I., Jena, A.K., Arunachalam, S., & Choudhary, P.K. (2020). COVID-19 – Orthodontic Care During and After the Pandemic: A Narrative Review. *Journal of Indian Orthodontic Society*, 54(4), 352-365. doi: 10.1177/0301574220964634.

Read: *Special Care for Your Braces During COVID-19. Oral Health Nursing Education and Practice (OHNEP). At:*

<https://nursing.nyu.edu/sites/default/files/inline-files/Special-Care-Braces-COVID.pdf>

What do you tell Tanisha about the importance of caring for her teeth during COVID-19?

24. How should she care for her teeth with braces during COVID-19?

- 25. Why is important to give special attention to mouth care when wearing masks?
- 26. Why is it important to use the HEENOT approach with Tanisha?

Troy age 5 attends preschool. He wears a mask all day but is allowed to remove it for snack, lunch and outdoor playtime.

What do you tell Troy’s parents about the importance of caring for his teeth during COVID-19?

- 27. What do you tell Troy and parents about brushing teeth?
- 28. What do you advise for fluoride varnish (FV)?
- 29. What do you advise for mask wearing?

OHNEP COVID-19: OrAll in the Family

Answer Sheet

1. About 50% of all COVID-19 patients report loss of taste and smell.
2. It occurs in the early stages of the disease, before fever and other symptoms, and is persistent.
3. Since loss of taste and smell occur early in COVID-19, this sign should serve as an alert to get tested for COVID-19.
4. Although the underlying mechanism is unclear, the loss of taste and smell has led to the hypothesis that the oral cavity, particularly the tongue, might be the site of initial infection and is persistent.
5. The tongue is the taste organ where 96% of oral ACE2 positive cells reside. Hand to mouth contact could be the route of infection.

6. The rapid test is an antigen test and gives results in 15 minutes.
7. The results are less accurate. In symptomatic patients, the results are 80% accurate, but in asymptomatic patients, results are only about 40% accurate.
8. Because of the inaccuracy of the rapid test, it must be confirmed with the more accurate PCR test.

9. If you continue to have no symptoms, stay home and isolate for 10 days.
10. If you develop symptoms, you must isolate from others for at least 10 days since symptoms first appeared **and at least** 24 hours with no fever without fever-reducing medication **and until** other symptoms of COVID-19 are improving.
11. Due to recent exposure, you must quarantine until PCR test results are back.

12. COVID-19 infection is more serious in patients with co-morbidities such as diabetes, obesity and hypertension.
13. Hyperglycemia facilitates the virus entry into the cells since ACE2 and virus both need glucose for their function.
14. Researchers believe that patients with hypertension may be at increased risk due to the ACE inhibitor medications used to treat their hypertension.
15. Obesity promotes chronic inflammation.

16. It is important to use HEENOT for oral health history and exam to assess oral health and provide oral hygiene information and referral for a teledentistry appointment. Use tip sheet: “Caring for Your Teeth During COVID-19” (pages 39-40)

17. Smokers are at higher risk of developing severe COVID-19 outcomes and death.

18. Researchers suggest that the vascular problems associated with COVID-19 may cause a lack of blood supply to the teeth and they fall out without any bleeding.

19. Yes, you should be vaccinated even if you already had COVID-19. Experts do not yet know how long you are protected from getting sick again after recovering from COVID-19.

20. COVID-19 infection is highly prevalent in subjects with halitosis. The studies suggest that SARS-CoV-2 affects the upper side of the tongue epithelial cells. The proposed alteration is due to the high expression of ACE 2 receptors in the dorsal part of the tongue and around the oral mucosa. Evidence suggests that the mouth is a powerful source of SARS-CoV-2 infection and transmission.

21. Mask Mouth is related to bad breath, receding gums, dry mouth, halitosis and chelitis. Mask wearing decreases oral intake resulting in dehydration which can cause all of the above.

22. He needs to take regular breaks, good oral hygiene, and make sure mask is clean – wash or change every day.

23. It is important to use the HEENOT approach with Mike because he is experiencing tooth loss and needs to prevent further tooth loss. Given the risks to health that tobacco use causes, WHO recommends quitting tobacco use.

24. Use tip sheet: “Caring for Your Braces During COVID-19” (page 41)

25. Many teens are skipping brushing their teeth because they feel it is not necessary since they are wearing a mask and no one will smell their breath.

26. It is important to use HEENOT for oral health history and exam to assess oral health and provide oral hygiene information. Assure patient that return to dentist is safe.

27. It is important for Troy to use fluoride toothpaste and brush twice a day for 2 minutes. He should use a pea-size amount of toothpaste and his parents should supervise his teeth brushing and assist until he is 6 or 7 years old. Use tip sheet: “Healthy Habits for Happy Smiles” (pages 42-43)

28. He should continue to receive FV every 6 months either at the PCP or dentist. It is safe to go back to the dentist.

29. Mask breaks are important. Masks should be cleaned and changed every day.

Caring for Your Teeth During COVID-19

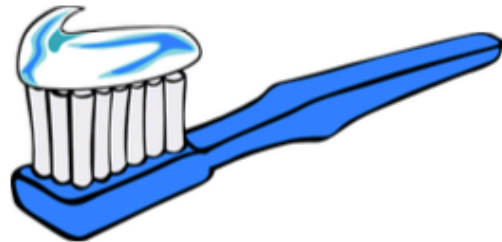
Oral health is directly linked to your overall health. Bacteria thrive in the mouth as it is a perfect environment for them to grow and can cause tooth decay and periodontal disease. Bacteria can enter the bloodstream and contribute to health problems in other parts of the body.

Dental offices across the U.S. have reopened. It is safe to make an appointment for your regular dental cleaning and check-up. With or without a dental visit, it is important to maintain an at-home oral hygiene regimen to prevent oral health problems.

Tools of the Trade

Toothbrush

Use a toothbrush with soft bristles.
Replace toothbrush or electric toothbrush head every *3 months*.
Do not share toothbrushes and other mouth care tools.



Toothpaste

Avoid toothpastes with harmful chemicals, namely *sodium lauryl sulfate (SLS)* and artificial colors and sweeteners.

Floss

Use floss to remove bacteria below the gum line and sides of *all* teeth – do not neglect teeth and gums at the back of mouth.
To promote gum health, you can also try a gum massaging tool to increase blood flow to gum tissue



Tips for Teeth, Tongue and Gums



Consistency is key. Brush teeth first thing in the morning and before you go to bed at night.

Brush your tongue – it houses most of the harmful bacteria in your mouth.



Rinse with a warm saltwater mixture to reduce mouth bacteria, soothe gums and reduce tooth sensitivity.

Avoid hard, sticky foods. It is important to be careful with your teeth when seeing the dentist is not an option.



When should I call my dentist?

Dental offices are open and eager to welcome you back for preventive, restorative and emergency oral health care.

Many dentists are still available over the phone or have adopted telehealth practices to virtually communicate with patients. Your dentist can assess your problem and determine if you need to visit the office.



Sources:

Cipollina, J.E. (2020, April 1). Oral Health Home Habits for Healthy and Happy Smiles. *All 4 Oral Health*. <https://all4oralhealth.wordpress.com/2020/04/01/oral-health-home-habits-for-healthy-and-happy-smiles/>
 PR Newswire. (2020, April 28). Oral Health Expert Dale Audrey, R.D.H., of Oral Fitness Inc. Advises People on How to Care for Their Teeth When They Cannot See a Dentist. *PR Newswire*. <https://www.prnewswire.com/news-releases/oral-health-expert-dale-audrey-rdh-of-oral-fitness-inc-advises-people-on-how-to-care-for-their-teeth-when-they-cannot-see-a-dentist-301048591.html>.
 Fleischman, T. (2020, April 29). 7 tips to keep up your dental hygiene during stay-at-home orders | Expert Opinion. *The Inquirer*. <https://www.inquirer.com/health/expert-opinions/dental-hygiene-at-home-coronavirus-quarantine-keep-teeth-healthy-20200429.html>.

Special Care for Your Braces During COVID-19

Common Issues with Orthodontic Appliances

Orthodontic offices have reopened, but it may not be possible for you to make an appointment if you have an issue with your braces. Our care tips provide safe methods for caring for your braces until you are able to visit your orthodontist.

! My brackets are causing sores on my lips and cheeks.



Place a small amount of orthodontic wax over the offending bracket or broken wire. It is recommended that you avoid oily and spicy foods until the sores are healed.

! I keep getting food stuck in my brackets and it is causing irritation on my lips and cheeks.



With braces and other orthodontic appliances, it is especially important to maintain proper oral care. Use an interdental brush or Waterpik® to dislodge food stuck in brackets. Do not use sharp objects to dislodge food.

! One of my wires is poking out of my bracket.



Place a small amount of orthodontic wax over the offending bracket or broken wire. Do not attempt to cut or adjust the wire.

! My retainer broke.



If your retainer or other removable orthodontic appliance breaks, do not continue using. Keep the piece in water until next orthodontic visit.

Source: Sharan, J., Chanu, N.I., Jena, A.K., Arunachalam, S., & Choudhary, P.K. (2020). COVID-19 – Orthodontic Care During and After the Pandemic: A Narrative Review . Journal of Indian Orthodontic Society, 54(4), 352-365. doi: 10.1177/0301574220964634.

Healthy Habits for Happy Smiles



Brushing Your Child's Teeth

Brushing is one of the main ways you can keep your child's teeth healthy. You should brush your child's teeth with fluoride toothpaste twice each day to help prevent tooth decay (cavities). Begin brushing as soon as your child's first tooth begins to show.



School readiness begins with health!



Tips for brushing your child's teeth:

- Brush your child's teeth after breakfast and before bed.
- Use a child-sized toothbrush with soft bristles and fluoride toothpaste.
 - For children under age 3, use a small smear of fluoride toothpaste.
 - For children ages 3 to 6, use fluoride toothpaste the size of a pea.
- Young children like to do things by themselves. It's good to let children brush their teeth while an adult watches. But children under age 7 or 8 cannot brush their teeth well yet. An adult needs to brush the child's teeth too.
- Find a position where your child is comfortable and you can see your child's teeth while you brush. For example, sit on the floor with your baby's or young child's head in your lap. Or stand behind your child in front of the mirror.
- Gently brush your child's teeth using small circles. Brush all surfaces of the teeth, including the insides and outsides.
- After brushing, have your child spit out the remaining toothpaste but not rinse. The small amount of toothpaste that stays in your child's mouth is good for the teeth.
- If you are having trouble brushing your child's teeth, use a timer, a counting game, or a song while brushing. You can also ask the staff at your child's dental clinic for help.



Use a smear for children under age 3.



Use a pea-size amount for children ages 3 to 6.

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This handout was prepared by the National Center on Early Childhood Health and Wellness under cooperative agreement #90HC0013 for the U.S. Department of Health and Human Services, Administration for Children and Families, Office of Head Start.

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Photo requiring credit: <http://www.wikihow.com/Clean-Toddler's-Teeth> (front page, top)



DEPARTMENT OF HEALTH AND HUMAN SERVICES
ADMINISTRATION FOR CHILDREN & FAMILIES



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OHNEP COVID-19: Oral Health Resource Kit

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