



CONTINUING EDUCATION

# HIV and Oral Healthcare

NEW JERSEY December 2011  
**AIDS**Line

Cheryl R. Stolarski, DMD

Release Date: December 1, 2011 • Expiration Date: November 30, 2013 • Course Code: 14HC01  
Nursing Credit for this activity will be provided through November 30, 2013.



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# HIV and Oral Healthcare

Release date: December 1, 2011 • Expiration date: November 30, 2013 • Code: 14HC02-DE01 • Nursing credit for this activity will be provided through November 30, 2013.

## SPONSOR:

Sponsored by UMDNJ–Center for Continuing and Outreach Education, Division of AIDS Education.

## GRANTOR ACKNOWLEDGEMENT:

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## STATEMENT OF NEED:

Oral diseases associated with HIV infection include oral candidiasis and Kaposi’s sarcoma, which are indicators included in the diagnostic definition of AIDS, and oral cancer. These conditions have become less common since the advent of HAART in 1996. However, HIV/AIDS patients with uncontrolled viral loads, indicating immunocompromise, continue to present to both dentists and other healthcare professionals with ulceration of the oral cavity and other, often-painful, symptoms. These patients may not be in routine dental care, and all healthcare providers seeing HIV patients should be able to identify oral manifestations and provide emergency care as well as facilitating access to dental providers for necessary treatment. Oral disease is indicative of systemic inflammatory processes which may exacerbate chronic infections including HIV and hepatitis.

The USDHSS-HRSA-HIV/AIDS Bureau has added routine oral screening to the quality benchmarks of HIV care that should be provided to all individuals with HIV/AIDS. They note that “when the oral cavity is compromised by the presence of pain or discomfort, maintaining adherence to complicated antiretroviral therapy regimens becomes more difficult.”

## TARGET AUDIENCE:

This free knowledge-based activity is designed for physicians, nurses, pharmacists, social workers, dentists, dental hygienists and other health care professionals in New Jersey who are involved in the care of persons with HIV/AIDS and/or hepatitis.

## METHOD OF PARTICIPATION:

Participants should read the learning objectives, review the activity in its entirety, and then complete the self-assessment test which consists of a series of multiple-choice questions. Upon completing this activity as designed and achieving a passing score of 70% or more on the self-assessment test; participants will receive a letter of credit and the test answer key four (4) weeks after receipt of the self-assessment test, registration, and evaluation materials; or may complete the activity online at [www.umdni.edu/ccoe](http://www.umdni.edu/ccoe). Estimated time to complete this activity as designed is 1.32 hours for nurses, and 1.0 hours for physicians, pharmacists, dentists and dental hygienists.

## LEARNING OBJECTIVES:

Following completion of this activity, participants should be able to:

1. Identify the impact of oral disease on systemic health of HIV/AIDS patients, and symptoms of disease including oral lesions.
2. Implement oral health screening, as part of the overall healthcare plan.
3. Distinguish and differentiate the need for emergency dental care due to acute infection, pathology or pain. Prescribe analgesics and antibiotics when appropriate and facilitate access to a dental provider for follow up treatment.

## FACULTY:

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**Mahnaz Fatahzadeh, BSc, DMD, MSD, Dip ABOM**, is Associate Professor, Department of Diagnostic Science, Division of Oral Medicine, New Jersey Dental School, UMDNJ.

## ACCREDITATION STATEMENTS:

### CME

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UMDNJ–Center for Continuing and Outreach Education designates this Enduring material for a maximum of 1 *AMA PRA Category 1 Credit(s)*<sup>™</sup>. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

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Provider approved by the California Board of Registered Nursing, Provider Number CEP 13780.

This course is awarded 1.32 contact hours (60 minute CH).

Approved provider status refers only to continuing education activities and does not imply ANCC COA or NJSNA endorsement of any commercial products.

### CDE

**Dentists:** The New York State Dental Foundation is approved by NYSDA and the New York State Education Department as an approved provider for dental continuing education in conjunction with the New York State Department of Health–AIDS Institute.

## CDE

**Dental Hygienists:** The Dental Hygienists’ Association of the State of New York, Inc., an accredited approver by the New York State Department of Education, has approved the NY/NJ AETC’s continuing education learning activities for dental hygienists.

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**Field test:** This activity was pilot-tested for time required for participation by Kinshasa Morton, MD; Shobha Swaminathan, MD; Joji Cheriyan, MD; Mary C. Krug, MSN, APN; Renee Powell, BS, RN; Kara Winslow, BSN, RN; Polly Jen, PharmD; John Faragon, PharmD, AAHIVE; and George Rusuluj, PharmD.

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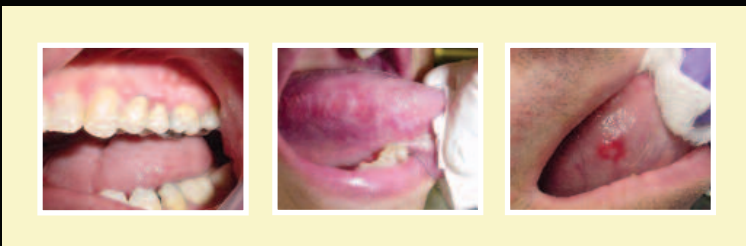
# HIV and Oral Healthcare

Cheryl R. Stolarski, DMD

## Learning Objectives:

Following completion of this activity, participants should be able to:

- 1. IDENTIFY** the impact of oral disease on systemic health of HIV/AIDS patients, and symptoms of disease including oral lesions.
- 2. IMPLEMENT** oral health screening, as a part of the overall healthcare plan.
- 3. DISTINGUISH AND DIFFERENTIATE** the need for emergency dental care due to acute infection, pathology or pain. Prescribe analgesics and antibiotics when appropriate and facilitate access to a dental provider for follow up treatment.



*Patients with HIV disease have unique oral conditions associated with HIV disease and the associated decline in the immune system which effects systemic health.*

Current strategies to engage primary care providers in oral care include: oral health education, risk assessment and appropriate referrals to dental providers. In most cases, it is the primary care provider who has the first medical contact with a patient after receiving the initial diagnosis of HIV.

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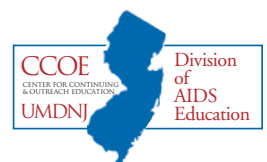
Cases provided by Mahnaz Fatahzadeh, BSc, DMD, MSD, Dip ABOM, Associate Professor, NJ Dental School, UMDNJ.

Sponsor: UMDNJ-Center for Continuing & Outreach Education-Division of AIDS Education.

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# HIV and Oral Healthcare

**Primary Care Provider Strategies Include:  
Education + Risk Assessment + Referrals to Dental Providers**

## Introduction

**Oral Disease can be found in most populations and through all stages of life. Many times oral disease is a result of lack of care and basic prevention. It has been well documented that oral health and systemic health can affect one another in both oral and systemic presentations.**

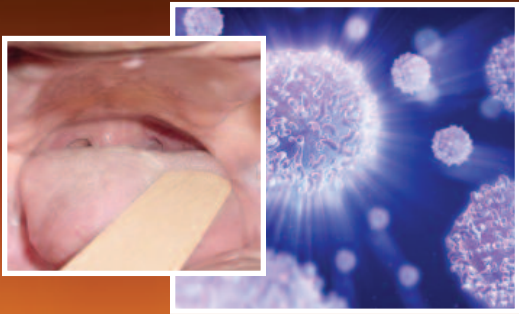
In 2000, then Surgeon General David Satcher issued the first **Surgeon General's Report on Oral Health**. It focused on the relationship between oral health and general health. "A poorly functioning dentition can adversely effect the quality of life, complicate the management of medical conditions, and create or exacerbate nutritional and psychosocial problems."<sup>1</sup> The World Health Organization, since 1948, has used an expanded definition of health to mean "a complete state of physical, mental, and social well-being, and not just the absence of infirmity."<sup>2</sup> It follows that oral health is essential to that well-being.

**Oral health is a vital component of comprehensive patient care.**<sup>3,4</sup> Access to oral health care for all people living with HIV/AIDS (PLWHA) is often cited as one of the greatest areas of unmet need.<sup>5,6,7</sup> Patients with HIV disease have unique oral conditions associated with HIV disease and the associated decline in the immune system which effects systemic health. Recently HRSA has prioritized a plan to engage primary care providers in HIV oral health care. Examples of HRSA's plan include the development of the Community Based Dental Partnership program (CBDPP), which supports the linkage of dental schools and their communities. This has resulted in the formation of twelve dental partnerships in eleven states, in which dental students and residents visit and provide care in community-based medical clinics.<sup>4</sup> This type of

interdisciplinary approach allows for the integration of oral health care into overall health care service.<sup>5</sup> AIDS Education and Training Centers (AETC's) also play an important educational role by providing oral health training to primary care providers. Quality indicators for these programs include site visits, data reports, and client feedback.<sup>8,9</sup>

**Current strategies to engage primary care providers in oral care include: oral health education, risk assessment and appropriate referrals to dental providers.** In most cases, it is the primary care provider who has the first medical contact with a patient after receiving the initial diagnosis of HIV. The medical provider will be the one to complete a thorough examination and refer patients for further treatment. The recognition and management of oral manifestations, and timely referral to the dentist, should begin with the initial history and physical. Systemic health and oral health should not be thought of independently. A medical provider examining the oral cavity must also focus on teeth and other hard/soft tissues of the mouth. This approach emphasizes the importance of good oral health and facilitates access to oral care. The medical provider should also determine if further dental treatment is urgent or routine. In many cases the medical provider will be able to identify oral health emergencies, make appropriate referrals, and offer pain relief when necessary.

**Access to oral health care for all people living with HIV/AIDS is often cited as one of the greatest areas of unmet need.**<sup>5,6,7</sup>



**The recognition and management of oral manifestations, and timely referral to the dentist, should begin with the initial history and physical. Systemic health and oral health should not be thought of independently.**

**Many patients living with HIV disease are taking HAART medications.** With the use of these medications, there has been a decrease in the occurrence of many oral lesions. HAART therapy has enabled patients living with HIV to live more productive and healthy lives. It has also reduced the prevalence of oral lesions associated with HIV disease. Although the incidence of many oral lesions has been dramatically reduced due to ARV treatment, their presence can be a marker of disease progression and even be the initial sign of HIV infection.

**Living longer also means that HIV+ patients are developing medical conditions associated with aging.** A weakened immune system may also play a role in the vulnerability of developing systemic disease. One example of this is cancer. The American Cancer Society reports that “the likelihood of developing oral cancer increases with age, especially after age 35.”<sup>10</sup> Case 1 describes a 45-year-old HIV+ patient diagnosed with Stage III Squamous Cell Carcinoma. This patient had not visited his dentist in five years. If this case was not referred to a dentist for biopsy, the patient’s prognosis would have been very different.

**Other diseases associated with living longer include periodontal disease, medication-induced xerostomia (dry mouth) and increased caries.**

**This article will focus on some of the factors that link oral health and systemic health.** It describes the role of a medical provider in supporting oral health care for their patients. This includes performing an oral exam to screen for periodontal disease, oral dryness, caries, oral cancer, and the need for urgent care and referral.

While there is no substitution for a patient being seen by a dentist, the medical provider should provide oral health education, including an intraoral and extraoral screening as part of the overall exam.



**Living longer also means that HIV+ patients are developing medical conditions associated with aging.**

**Recently HRSA has prioritized a plan to engage primary care providers in HIV oral health care. Examples of HRSA’s plan include the development of the Community Based Dental Partnership program (CBDPP), which supports the linkage of dental schools and their communities.**

**The medical provider should perform an oral exam to screen for periodontal disease, oral cancer... urgent care/referral needs.**

# HIV and Oral Healthcare

## Performing the Intra/Extra Oral Exam



**This exam is similar to an oral cancer screening and should take 2 to 5 minutes to complete. The medical provider will need gloves, a tongue blade or disposable mouth mirror, a light source for the intra-oral exam and a piece of 2X2 gauze. This exam should be preceded by subjective questions regarding oral health. Some examples are included on page 7. All findings should be documented and appropriate (urgent or routine) referrals made.**

### Extra-oral Exam

Bilateral palpation and Inspection of the following structures should be included:

- Palpate and visually inspect the head and neck region for any asymmetries, tenderness or swelling.
- Palpate the patient's tempromandibular joint and facial musculature.
- Palpate the patient's lymph nodes starting from the submandibular area extending down the cervical chain along the sternocleidomastoid muscle into the clavicular area for any swellings, tenderness or abnormalities.

### Intra-oral Exam

Use a light source (ex.penlight) to look inside the oral cavity. Be sure to wrap a piece of gauze around the tongue when examining the tongue. Gloves, a tongue blade or disposable mouth mirror should also be used. **\*\*Note:** If the patient wears a removable denture, it must be removed so that the oral tissue can be examined.

- Examine the lips including the commissures (corners of the mouth) by sliding a finger over the inner and outer surface.
- Check the palate, buccal mucosa, (inside of the cheek) gingival and sublingual area (under the tongue) for discolorations and/or ulceration.
- Examine the tongue by gently wrapping gauze around it and have the patient extend their tongue forward. Check the dorsal, ventral, lateral borders including the posterior border of the tongue.
- Examine the soft palate.
- Examine the teeth and periodontal structures for obvious signs of swelling, decay and/or infection.

For performing the oral exam, the medical provider will need gloves, a tongue blade or disposable mouth mirror, a light source for the intra-oral exam and a piece of 2x2 gauze.

**\*\*\* For more detailed instruction and step-by-step tutorials, please visit the following websites:**

- **Head, Neck and Oral Cancer Examination.** Association of American Medical Colleges. 40 minute video. Requires free registration with AAMC, at [www.aamc.org](http://www.aamc.org). video is at: [http://services.aamc.org/30/mededportal/servlet/s/segment/mededportal/find\\_resources/browse/?subid=7768](http://services.aamc.org/30/mededportal/servlet/s/segment/mededportal/find_resources/browse/?subid=7768)
- **Oral Health Training for Nursing Professionals.** AIDS Education and Training Centers National Resource Center. 12 minute video presentation of external and intraoral exam. [http://www.aidsetc.org/mpeg/archive/oral\\_health\\_03.mpg](http://www.aidsetc.org/mpeg/archive/oral_health_03.mpg)

The oral exam should be preceded by a Subjective Risk Assessment.

## Subjective Risk Assessment

A medical provider can include oral health questions in a subjective risk assessment, such as the following:



- Do you visit a dentist regularly? If so, when was the last time?
- Do you have any pain or swelling in your mouth, head or neck?
- Have you noticed any changes like lumps or bumps in your mouth, head or neck?
- Do you have any pain or difficulty in chewing or swallowing your food?
- Does your mouth feel dry?
- Do you have any irritation under your dentures?

Integrating oral health assessment into routine medical assessment greatly enhances the identification of oral health problems, and patient education regarding oral health and access to care.

All findings should be documented and appropriate referrals made.



**URGENT  
or  
ROUTINE**

## Urgent versus Routine Care and Referral to a Dentist

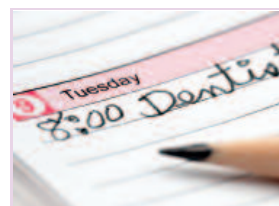


Dental emergencies are extremely painful. In some cases a medical provider can provide relief by prescribing pain medication and/or antibiotics. Analgesics that can be prescribed vary from ibuprofen or naproxen to narcotics such as hydrocodone, codeine or in extreme cases oxycodone. Patients who are on protease inhibitors that inhibit CYP2D6 may not achieve adequate analgesia on these agents and may need morphine or hydromorphone. Antibiotics that are prescribed are usually penicillin or clindamycin (if the patient is allergic). However, this kind of palliative care needs to be followed up by a dentist.

If the patient has pain, abscess, broken teeth, or sustained pain to hot or cold then the patient should be seen by a dentist within 24 hours. This would be considered **Urgent Care**. If the patient cannot be seen at a dental office within 24 hours, then they should be referred to a hospital with a dentist on staff.

All patients should be questioned about the last time they visited their dentist. If there is no sign of infection or pain, the patient should be instructed to visit their dentist for **Routine Care**, which includes an oral exam, and cleaning the teeth. Routine Care is generally recommended every 6 months. If the patient does not have a dentist, then the medical provider or their staff can help to facilitate an appointment with a dentist.

In either case the importance of maintaining one's oral health should be emphasized by the medical provider.



**All patients should be questioned about the last time they visited their dentist.**

# HIV and Oral Healthcare

## Xerostomia



**The most common adverse effect of many medications is Xerostomia (dry mouth).**

**Xerostomia is defined as a subjective complaint or feeling of dry mouth.** Dry mouth occurs when there is a change in the amount of saliva felt in the mouth. This change can be a side effect of prescription or over-the-counter medications, smoking, alcohol consumption, radiation to the head and neck, and dehydration. HIV medications that can cause xerostomia include protease inhibitors and Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs).



**Image of HIV-associated salivary gland enlargement.**

**In 2% to 10% of HIV-positive patients, salivary glands are affected (see case study 2).** This is characterized by two clinical presentations, major salivary gland enlargement and xerostomia. Salivary gland disease typically presents as bilateral enlargement of the parotid glands, due to either the development of lymphoepithelial cysts or a lymphocytic infiltrate within the parenchyma of the gland.<sup>12,13,14</sup> Examination of the oral cavity and careful review of the patient's history can be useful in diagnosing xerostomia. Sialometry can be used to measure saliva flow. The average salivary flow rate for unstimulated saliva is 0.3 to 0.4 milliliters per minute. Values less than 0.1 mL/minute are considered xerostomic.

**HIV medications that can cause xerostomia include protease inhibitors and Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs).<sup>11,12</sup>**

### Signs and Symptoms of Xerostomia

Symptoms of xerostomia may be experienced without a decrease in salivary gland output. Oral soreness or a "burning mouth" is frequently associated with xerostomia. Patients will complain of a constant sore throat, burning sensation, difficulty speaking and swallowing, hoarseness and/or dry nasal passages. Patients often complain of a change of taste (dysgeusia), a painful tongue (glossodynia) and increased need to drink especially at night.

### Complications associated with Xerostomia

Sometimes patients may not be aware that their mouth is dry until some of the complications associated with dry mouth arise. The condition is certainly not life threatening but its effects can negatively impact a patient's quality of life. Swallowing and digestion can be difficult without adequate saliva. Removable dentures are uncomfortable to wear due to the lack of saliva which helps to create better adhesion. Halitosis, gum disease, candidiasis, chapped lips and tooth loss are also associated.

### Function of Saliva

Saliva contains water, proteins and electrolytes which lubricate the mouth and protect mucous membranes. It also functions as an antimicrobial and pH buffer in the mouth. Xerostomia decreases the pH of the mouth and leads to the development of plaque and dental caries.

### Management/Treatment of Xerostomia

Palliative treatment is the general rule for the relief of symptoms. If the xerostomia is caused by medication the medical provider can sometimes prescribe alternate therapy. Taking the medication at a different time of day may also be helpful. There are many over-the-counter products and prescription saliva substitutes that can be used to alleviate symptoms. These include, (non-alcohol containing) mouth rinses, lubricants, aerosols, chewing gum and toothpastes.

## Xerostomia (Dry Mouth)<sup>15</sup>

### Why knowledge of Xerostomia is important:

- Xerostomia is a common finding in adults and can be a side effect of over the counter and prescription medication, smoking, alcohol consumption, caffeine and dehydration.
- Salivary glands are affected in 2% to 10% of HIV seropositive patients.
- Xerostomia increases the incidence of bacterial plaque, gingival bleeding and candidal organisms.
- Xerostomia related oral pathologies can be prevented and/or treated.

### How can a medical provider recognize Xerostomia (Dry Mouth)?

- Xerostomia is the subjective feeling or perception of oral dryness.
- Xerostomia occurs either because of hypo salivation, a reduction in the quantity of saliva produced (objective), or as a qualitative change (subjective).
- Measurement of the salivary flow rate may help to distinguish between subjective xerostomia and objective hypo salivation.
- The average unstimulated whole salivary flow rate is 0.3 to 0.4 milliliters per minute.
- An unstimulated rate of 0.1 mL/minute or less indicates hyposalivation.

### Clinical signs and symptoms of Xerostomia:

- Mucosal burning, soreness and ulceration.
- Glossodynia (painful or burning feeling of the tongue).
- Atrophic (erythematous) Candidiasis.
- Smooth bald red tongue.
- Halitosis (bad breath).
- Gingivitis.
- Ropey Saliva.
- Visible dryness, cracked lips, angular cheilitis.

### Quality of life concerns of a patient with Xerostomia:

- Difficulty eating
- Saliva aids in the chewing, swallowing, and digesting of food that may result in a compromised nutritional status.
- Changes in food and fluid selection.
- Dysgeusia (bitter or metallic taste) and halitosis.
- Rampant tooth decay (cavities) at the gingival margin (gumline) and/or the occlusal plane (biting surface).
- Poorly fitting dentures.
- Saliva creates the vacuum seal that is critical for the retention, adhesion, and comfort of removable dentures.
- Denture associated discomfort, ulceration, stomatitis.

### What are the treatments Primary Care Providers can recommend to the patient with Xerostomia?

- If there is a decrease in the salivary flow rate sialagogues (drugs that stimulate saliva flow) may be indicated.
- If the glands exhibit adequate salivary flow, and the patient exhibits oral dryness then palliative care is indicated.
- Recommend lubricating agents in the form of OTC gels or mouthwashes or RX salivary substitutes, that may relieve the symptoms of xerostomia. Sugarless gum and lozenges also help increase salivary output.
- Prescribe antifungal medication if candidiasis is present.
- Prescribe mouth rinses and toothpastes with increased percentage of fluoride to prevent tooth decay.

### What is the level of urgency to get this patient to a dentist?

Patients must be referred to a dentist if they present with:

- Severe tooth related pain.
- Abscess, pus, acute infection.
- Sustained pain to cold, hot or sweet in a tooth with visible decay.
- Broken teeth.

# HIV and Oral Healthcare

## Periodontal Disease



**For the last several years researchers have focused on the link between periodontal disease and chronic inflammatory conditions such as diabetes, respiratory disease cardiovascular disease and Alzheimer’s disease.**

A recent study by Sharma and Shamsuddin published in the January 2011 Journal of Periodontology suggests a possible link between periodontal disease and upper respiratory diseases.<sup>16</sup> Periodontal bacteria have often been thought to play a role in many of the possible connections between oral health and overall health. This study emphasizes that chronic inflammation caused by periodontal pathogens in the mouth may also play a role in the progression of systemic disease. Effective treatment of periodontal inflammation may have systemic effects in management of other chronic inflammatory conditions. While the presence of bacteria is essential to inflammation and disease it is also important to remember that other factors are also involved. Other risk factors for periodontal disease include smoking, pregnancy or other hormonal changes in women, genetics, diabetes, medications and HIV.

Periodontal disease is also related to age and generally begins when people are in their 30’s or 40’s. Teenagers can develop gingivitis which is a milder form of gum disease. When gingivitis occurs in adults and it is left untreated it can progress to periodontal disease which is a more severe form of gum disease affecting the supporting structures of the teeth leading to tooth loss. Both gingivitis and periodontal disease are caused by “plaque” or bacteria that accumulate at the gum line of the teeth causing chronic inflammation. The milder form of gingivitis is usually reversible by increased oral hygiene efforts (brushing and flossing) and professional cleaning by a dentist or dental hygienist. In both cases early treatment can help prevent tooth loss.

Periodontal diseases unique to the immunocompromised patient are Necrotizing Ulcerative Periodontitis (NUP) (Figure1) and Linear Gingival Erythema (LGE) (Figure 2).

NUP is characterized by the rapid destruction of bone that can lead to tooth loss in a matter of months. Patients will complain of severe pain, often referred to as “deep jaw pain.” Extensive soft tissue necrosis, bleeding, loosening of the teeth and fetid mouth odor are also associated symptoms. The presence of NUP is indicative of severe immunosuppression.

LGE is a form of gingivitis characterized by a distinct red band (2-3 mm in width) along the gingival margin. In some cases it presents as small petechial-like patches on the gingiva. It presents most frequently in anterior teeth but it can extend to the posterior teeth, in some case bleeding and discomfort occur.<sup>3</sup> If left untreated, LGE can progress to NUP over time. The American Academy of Periodontology classifies LGE as fungal in origin, although antifungals are typically not used to treat LGE. Plaque is minimal in patients presenting with LGE.

**Periodontal disease is a chronic inflammation process involving specific bacteria affecting the tissue and bone supporting the teeth. There are several forms of periodontal disease that are unique to the immunocompromised patient.**

**FIGURE 1**



**Necrotizing Ulcerative Periodontitis (NUP)**

**FIGURE 2**



**Linear Gingival Erythema (LGE)**

## Periodontal Disease

**Treating inflammation may not only help manage periodontal diseases but may also help with the management of other chronic inflammatory conditions.**

### Complications Associated with NUP and LGE



**Pain management and nutrition are crucial for patients with NUP.** Since this patient is severely immunosuppressed, other systemic opportunistic infections need to be ruled out.<sup>3</sup> This patient might also require nutritional supplements as the pain can interfere with proper diet. Referral to a dentist for both LGE and NUP is urgent.

### Management/Treatment of NUP and LGE



**Managing NUP includes pain control.** The medical provider can prescribe analgesics for pain and Chlorhexidine gluconate 0.12% as a mouth rinse before referral to a dentist. Dental treatment for both LGE and NUP are similar. Both stress the importance of meticulous oral hygiene. Treatment for NUP includes extraction of infected teeth. Local debridement of infected areas and scaling and root planning of the teeth are included. Infected areas are irrigated with providine iodine 10% or chlorhexidine gluconate 0.12%. Daily rinses with antimicrobials and systemic antibiotics (Metronidazole) are also recommended. Periodontal maintenance is also indicated generally every three months once the infection is controlled.



This section is adapted from Steve Abel, DDS, NY/NJ AETC, with permission.  
 For further information on periodontal disease:

American Academy of Periodontics. [www.perio.org](http://www.perio.org) • [www.dentalcare.com/en-AU/products/promotion\\_sa.jsp](http://www.dentalcare.com/en-AU/products/promotion_sa.jsp)

## Signs and Symptoms of NUP and LGE

### NUP (Figure 1)

- Rapid bone loss.
- Severe deep seated jaw pain.
- Fetid mouth odor.
- Indicative of severe immunosuppression.
- Soft tissue necrosis (loss of interdental papilla).

### LGE (Figure 2)

- No bone loss.
- May have some bleeding and discomfort.
- May not have halitosis.
- Indicative of advanced immunosuppression.
- Red banding occurs at the gingival margin.

# HIV and Oral Healthcare

## SUMMARY

Engaging the medical provider in HIV oral care promotes the importance of good oral health as a part of overall health. With proper training medical providers could screen for oral disease, distinguish between routine and urgent care, be familiar with the relationship of oral and systemic health, and provide temporary relief from oral infection and pain.

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The New York/ New Jersey AIDS Education and Training Center (NY/ NJ AETC) Oral Health Regional Resource Center, based at the New York State Department of Health AIDS Institute contributed to this article as a collaboration with the UMDNJ-CCOE Division of AIDS Education and NJDHSS-DHSTS. NY/NJ AETC training slide sets used by permission. Urgent versus Routine Care Section, by A. Ross Kerr, DDS; and Periodontal Disease, by Steve Abel, DDS.

## Case 1: Oral Cancer

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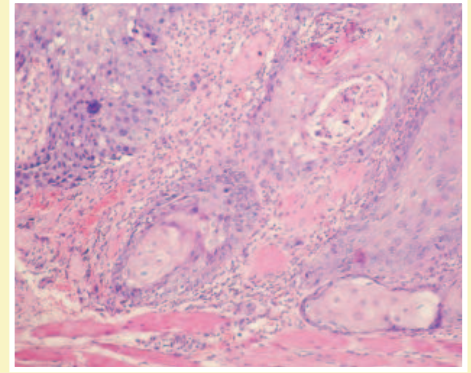
**A 45-year-old African-American male was referred for evaluation of an asymptomatic mass on the floor of the mouth (FOM) noted during oral screening by his internist.**

**FIGURE 3**



**Oral Squamous cell carcinoma in the floor of the mouth.**

**FIGURE 4**



**Histology photomicrograph of squamous cell carcinoma in the biopsy specimen.**

He reported the mass was interfering with full-sitting of his denture, causing difficulty with mastication and poor nutritional intake over the past few months. The patient's last dental visit was five years ago when he had received his complete upper and lower dentures. He had failed to present for oral health examination and denture maintenance thereafter. The patient's past medical history was significant for HIV infection, hepatitis C and infective endocarditis. He was not taking any medications, and was monitored by a hepatologist for hepatitis C and by his internist for HIV, which was stable as documented by a recent CD4 count of 590. He had a 30-pack-year history of tobacco smoking and a 3-year history of IVDU. He denied current drug use.

On extraoral examination, there was cervical lymphadenopathy, but no salivary gland enlargement or facial lesions. Intraorally, mucosa was pink and moist. There was mild pooling of saliva on the floor of mouth and no tongue coating. Close examination revealed a spherical mass of about 2 cm in diameter with pink and white texture on the floor of his mouth (Figure 3). It was indurated but not tender on palpation. The patient reported it developed gradually,

and did not recall obvious oral trauma. It was not clear if the poor fit of the patient's oral prosthesis was the result rather than the etiology of oral growth. Differential diagnosis included a reactive lesion such as traumatic fibroma as well as oral malignancy. The latter was certainly a concern as the patient was a chronic and heavy smoker.

In view of prior history of infective endocarditis, patient was premedicated with 2g amoxicillin prior to the invasive oral procedure and an incisional biopsy was performed under local anesthesia to determine the nature of the oral mass. Histopathological evaluation revealed a segment of oral mucosa which is replaced by nests and islands of neoplastic stratified squamous epithelium in a fibrous stroma containing infiltrates of chronic inflammatory cells. The tumor islands invaded skeletal muscle and showed nuclear enlargement, hyperchromatism and keratin production. (Figure 4). These features were consistent with invasive, moderately differentiated squamous cell carcinoma (SCC). The patient was informed of the diagnosis, and referred to a head and neck surgeon for management. Diagnostic work up revealed FOM stage III SCC with cervical node involvement and

no distant metastasis. Patient underwent surgical resection of tumor, radical neck dissection of the metastatic lymph nodes and adjuvant radiotherapy. Although free of malignant disease following completion of therapy, he had difficulty performing normal oral functions and received nutritional intake through a gastric tube for months while healing. He was also educated about the risk factors for oral cancer and the potential for development of second primaries, and recurrence of treated oral malignancy with continued use of tobacco. He was referred to tobacco cessation service. Two years later, oral tissues were healed enough to tolerate a modified oral prosthesis; however, the altered oral anatomy due to surgery seriously impacted the stability and support of the oral prosthesis, and the patient's overall quality of life.

**Case 1: Oral Cancer**

**FIGURE 5**



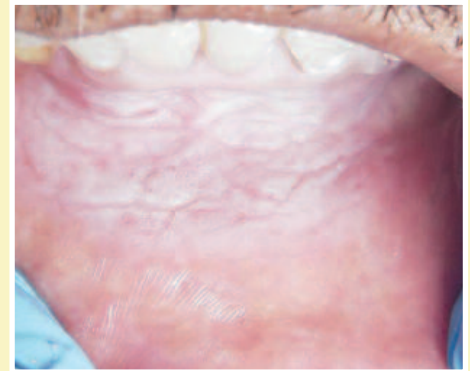
Leukoplakia affecting left anterior buccal mucosa.

**FIGURE 6**



Leukoplakia on left retromolar pad area.

**FIGURE 7**



Leukoplakia with focal areas of erythema on lower anterior vestibular mucosa.

**Learning Issue:**

Examination of the oral cavity is an integral component of primary care. It provides a valuable opportunity to assess dental and oral health, to identify symptomatic lesions which may interfere with oral function, to detect asymptomatic lesions with malignant potential, to identify detrimental effects of substance abuse on oral tissues, and to detect oral manifestations of systemic disease and medical therapy. The American Cancer Society estimates that nearly 39,400 individuals will be diagnosed with oropharyngeal cancer in 2011, for 7,900 of whom the disease will prove fatal. High risk sites for oral cancer include the floor of the mouth, the posterolateral and ventral tongue as well as soft palatal complex. Significant racial disparities among adults with oral cancer have been noted, with black males having a higher incidence, more advanced stage of disease at diagnosis and worse survival rates compared to whites.

Although multifactorial in etiology, the main risk factors are abuse of tobacco and alcohol. Oral cancer also affects men more than women. Substance abusers from low socioeconomic groups with poor access

to oral health suffer particularly poor prognosis, as disease is often discovered late, leading to mortality or greater morbidity due to aggressive therapy. Nevertheless, oral cancer also affects individuals who do not smoke or drink. In fact, a rise in the incidence of oral cancer among younger adults without the typical risk factors has been noted in recent years. A role for oral human papillomavirus (HPV) infection as a risk factor for a subset of these patients has been suggested. Therefore, all patients, irrespective of their social history, should undergo periodic screening for oral cancer. Primary care providers have the potential to positively impact the morbidity and survival outcome associated with oral cancer through patient education, regular oral surveillance as well as early detection of pre-malignant and cancerous lesions.

A thorough examination of the oral cavity involves both visual inspection and palpation, and can be accomplished in about five minutes. To perform the procedure properly, the clinician requires adequate lighting, a disposable mouth mirror or tongue blade and a 2x2 gauze. The patient should remove

any oral prosthesis to allow examination of the oral tissues underneath. Also, it is advisable to develop a routine for the examination to avoid leaving any anatomical area unexamined. The anatomical regions to be examined include lip vermillion, upper and lower labial mucosa, right and left buccal mucosa, the floor of the mouth, ventral and dorsal tongue surfaces, right and left lateral borders of the tongue, hard and soft palatal mucosa, facial and lingual gingivae. In addition, the posterior oral cavity should be visually inspected and the floor of the mouth bimanually palpated. Any alteration in the color (leukoplakia, erythroplakia, erythro-leukoplakia, abnormal pigmentations) or texture (thickening, mucosal overgrowth, submucosal lumps, induration) of oral mucosa noted during the examination should be documented, followed to ensure resolution and if the abnormality persists, referred for further evaluation including biopsy (Figures 5-10).

Case 1: Oral Cancer

FIGURE 8



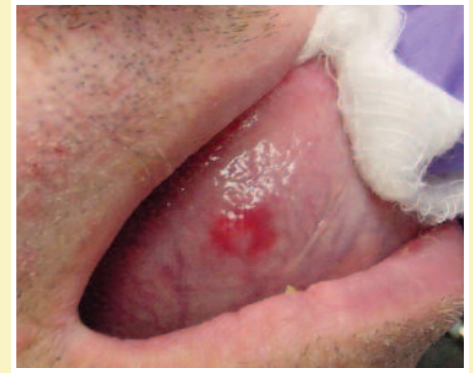
Erythro-leukoplakia affecting maxillary left posterior attached gingiva.

FIGURE 9



Erythro-leukoplakia affecting right ventro-lateral border of tongue.

FIGURE 10



Erythroplakia affecting right ventral tongue.

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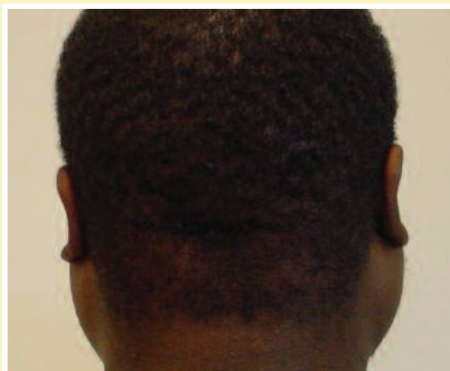
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**Case 2: HIV-associated salivary gland disease & Xerostomia**

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 New Jersey Dental School,  
 UMDNJ**

**A 45-year-old African-American male was referred for evaluation of xerostomia and oral burning to patient's internist during his oral screening.**

**FIGURE 11**



**Parotitis - Rear of Head**

**FIGURE 12**



**Parotitis - Side of Head**

The patient stated that his oral dryness had progressively worsened and interfered with eating, mastication and swallowing. He admitted to drinking several cans of soda throughout the day to alleviate oral dryness and to help with oral lubrication at mealtimes. His teeth were also extremely temperature-sensitive on intake of foods and fluids. His last dental visit was over five years ago when he had several unrestorable teeth extracted. He admitted not brushing on a regular basis and complained of halitosis causing him embarrassment in social situations.

His past medical history was significant for HIV infection, Hepatitis C and type 2 diabetes. His medications included efavirenz/emtricitabine/tenofovir disoproxil fumarate and glyburide. He was not receiving treatment for Hepatitis C. He had a 20 pack-year history of tobacco smoking and was a former alcoholic but had stopped drinking 5 years ago. His risk factor for HIV and Hepatitis C was IVDU which he had stopped years ago. On review of systems, he denied skin or ocular dryness and rheumatologic disorders. Review of blood work within the past

three months revealed CD4 cell count = 300 cell/mm<sup>3</sup>, viral load = 500 copies/mm<sup>3</sup>, ANC = 5,000 cells/mm<sup>3</sup>, plt = 130,000 cells/mm<sup>3</sup>, HBA1C = 8.2%.

On extraoral examination, there was bilateral facial swelling affecting the parotid region (Figures 11 & 12). Swelling was palpable and non-tender. There were no lymphadenopathy or facial lesions. Intraorally, the patient's oral hygiene was very poor and an offensive odor emanated from his mouth. Removable white plaques resembling food debris, tissue slough or fungal infection were also present throughout the oral cavity (Figure 13). Oral mucosa was dry and a tongue depressor applied to the soft tissue adhered upon attempts to lift it away. There was minimal salivary pooling on the floor of the mouth. Digital palpation of parotids and submandibular glands yielded minimal discharge from Stenson's and Wharton's ductal orifices. Expressed saliva was clear, viscous and free of pus or blood. Sialometry revealed resting secretion of less than 0.1 ml/min and stimulated secretion = 0.6 ml/min, both of which were consistent with hyposalivation. Examination of dentition revealed general-

ized plaque and gingival inflammation, tobacco staining, cervical decalcification and multiple broken, carious teeth. There were no periodontal pockets but there was generalized bleeding on probing.

Differential diagnosis of bilateral parotid swellings included parotitis secondary to HIV or hepatitis C, diabetic sialadenosis, sarcoidosis, Sjögren's syndrome and Warthin's tumors, for all of which except the latter xerostomia could be a common complaint. The patient's HIV medications could also have contributed to oral dryness although a temporal relation between the start of his medications and onset xerostomia was absent. He was referred to an otolaryngologist for diagnostic evaluation of his salivary gland enlargement. A tongue blade was used to sample removable white plaques and prepare a smear on a glass slide. Microscopic examination of the specimen revealed presence of numerous fungal hyphae in the cytologic smear (Figure 14) and confirmed diagnosis of oral candidiasis possibly caused by a combination of systemic and local factors such as HIV-parotitis, diabetes and oral dryness.

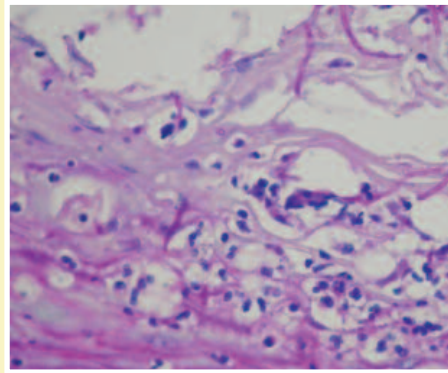
**Case 2: HIV-associated salivary gland disease & Xerostomia**

**FIGURE 13**



**Intraoral white plaques**

**FIGURE 14**



**Fungal hyphae**

The patient was prescribed a two week course of nystatin oral solution 100,000 units/ml to swish in the mouth for two minutes and then swallow three times daily to address oral candidiasis. He was also advised to sip water throughout the day and particularly during mealtimes, and use over the counter moisturizing gel or artificial saliva spray to palliate oral dryness and help with mastication and swallowing. In addition, the patient was advised to reduce intake of tea, coffee and alcohol to avoid dehydration of oral mucosa, and to use a humidifier in his bedroom to alleviate his symptoms while sleeping. Dental treatment plan included debridement and dental prophylaxis, extraction of non-restorable teeth, application of desensitizing agents and multiple restorations to be executed over the upcoming dental visits. He was educated about the increased risk of dental caries with hyposalivation and significance of preventive measures to maintain his remaining teeth caries free. An alcohol-free antimicrobial mouthrinse was prescribed for daily use to reduce bacterial load and assist with

oral hygiene. Custom made oral trays were fabricated and patient was instructed on regular use of topical fluoride gel within these oral trays at bed time.

During the follow-up visit, the patient reported alleviation of oral burning within the first week of using the antifungal oral solution. He had found the recommended oral moisturizing agents beneficial in lubricating his mouth and facilitating oral functions. On examination, oral mucosa was still dry but oral hygiene, gingival inflammation and halitosis had improved and fungal infection had resolved. The result of work up by the patient's otolaryngologist confirmed HIV-associated salivary gland disease as the etiology of his parotid swelling and ultimately his oral dryness. The patient reported his symptoms were manageable with recommended measures. He declined a trial course of a pharmacologic sialogogue, such as pilocarpine, bethanechol, or cevimeline, which would stimulate salivary output and provide further palliation.

*The International Antiviral Society-USA in collaboration with the AETC National Resource Center presents:*

**LIVE WEBINAR**

**Oral Health Exams in the Primary Care Setting**

Tuesday, December 13, 2011, 2:00-3:30 pm

**Moderator:**

Mahyar Mofidi, DMD, PhD, Chief Dental Officer HRSA, HIV/AIDS Bureau

**Presenter:**

Jeffery D. Hill, DMD, Associate Professor University of Alabama - Birmingham

**Panelist:**

Susan Richardson, MN, MPH, CFNP, Clinical Instructor Southeast AIDS Training and Education Center (SEATEC)

**Nicholas Van Wagoner, MD, PhD;**

Assistant Professor, University of Alabama

**COURSE OVERVIEW**

**Assessment of Needs:**

The health and economic burden of oral disease on the underserved and disadvantaged is well documented. For people living with HIV in particular, oral disease is a major cause of morbidity. Oral disease affects 40% to 50% of HIV patients, and there are more than 30 oral manifestations of HIV disease. Primary care practitioners who care for people living with HIV play a crucial role in addressing the oral health needs of their patients.

**Who Should Attend:**

This course is designed for physicians, faculty, administrators, and staff, and Ryan White providers who are actively involved in the medical care of people with HIV/AIDS, specifically those who:

- Have a solid, working knowledge of HIV disease management
- Provide comprehensive or specialty care for patients with HIV/AIDS
- Are currently active in HIV/AIDS research

**Learning Objectives:**

- Describe the impact of oral disease in people with HIV
- Describe strategies for linking patients with HIV to dental care
- Be able to perform oral exams on patients

Pre-registration for the live webinar is required, by Thursday, **December 8, 2011**.

For more information, including the registration link, CME, and technical requirements, and the archived content following the live webinar: The International Antiviral Society: [http://www.iasusa.org/oral\\_webinar/index.html](http://www.iasusa.org/oral_webinar/index.html)

### Case 2: HIV-associated salivary gland disease & Xerostomia

#### **Learning Issue:**

**Xerostomia refers to the subjective complaint of dry mouth which may reflect a true decrease in salivary output or distorted oral perception. Clinical evaluation of xerostomia should include:**

- **A review of the patient's medications/treatments** and inquiring about the start of therapies known to cause dry mouth and onset of xerostomia, (i.e., antidepressants, diuretics, antihistamines, radiotherapy, chemotherapy, protease inhibitors, NNRTIs, etc.). If xerostomia appears related to a specific medication, it may be warranted to ask the physician to consider a substitute with less oral xerostomic side effect or altering the dose or frequency of the offending medication, if possible.
- **A focused review of systems** inquiring about cutaneous, ocular, nasal and vaginal dryness to determine if the problem is of local or systemic nature followed by a referral to a physician for evaluation when indicated.
- **A review of past medical history** is also necessary to exclude systemic conditions with oral manifestation of xerostomia, (i.e., Sjögren's syndrome, diabetes, or sarcoidosis). If dryness appears related to an underlying systemic disease, primary management should be directed at the etiology.
- **Evaluation of major salivary glands** for enlargement, pain and tenderness on palpation, expression of saliva from ductal orifices upon digital palpation and noting the clarity and viscosity of secretions. Salivary output (sialometry) should also be measured objectively to confirm or exclude hyposalivation as the etiology of xerostomia. In clinical practice, whole unstimulated saliva (WUS) representing total discharge from all salivary glands is measured by asking the patient to spit or drool into a collecting cup for 10-15 minutes. Whole stimulated saliva (WSS) is measured in the same manner following a gustatory or masticatory stimulation such as application of lemon juice on the patient's tongue or chewing on paraffin gum for about one minute. Although there is large variability in the normal values reported for UWS or SWS in the literature, WUS <0.1 ml/min and WSS <0.7 ml/min are considered abnormal and consistent with hyposalivation.

## Case 2: HIV-associated salivary gland disease & Xerostomia

### Management Strategies:

In addition to the clinical evaluation outlined on page 18, the dentist has a role in palliation of xerostomia and prevention of oral disease (soft and hard tissue) secondary to xerostomia.

The management strategies for xerostomia are numerous and should be tailored to the patient's needs.

#### Examples include:

- Frequent sips of water throughout the day.

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- Oral moisturizing gels and rinses as needed.

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- Using humidifiers in the sleeping area to help with oral dryness at night.

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- Gustatory or masticatory sialogouges (chewing sugar-free gum or candy).

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- Avoiding alcohol containing mouthrinses which dehydrate oral mucosa.

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- Avoiding strong flavorings which may irritate dry, sensitive oral mucosa.

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- Watching for and treating oral fungal infections, if any.

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- Meticulous oral hygiene.

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- Frequent preventative recalls.

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- Low cariogenic diet (relatively high amounts of protein, calcium and phosphorus, minimal fat and carbohydrate and high concentration of foods with pH greater than 6).

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- Fabrication of custom oral trays for topical application of fluoride at home.

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- Prescribing systemic sialogouges, such as pilocarpine (Salagen®), cevimeline (Evxac®) [if no contraindication].

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Questions refer to the content of the article and the notes that follow. To receive CME/CE/CEU credit: complete exam, registration, and evaluation forms on-line at [www.umdnj.edu/ccoe/aids](http://www.umdnj.edu/ccoe/aids) or fill in the forms on the following pages, and mail or fax to UMDNJ-CCOE (see Registration Form).

- 1. What kind of treatment can a medical provider offer the patient described in case 2 (Xerostomia) to help relieve the feeling of his mouth being dry?**
  - A. Recommend strongly flavored foods to stimulate salivation.
  - B. Recommend that the patient take frequent sips of water, especially during mealtime.
  - C. Tell the patient to drink a lot of caffeinated drinks.
  - D. Recommend that the patient rinse with a mouthwash that contains alcohol.
- 2. Case 1 describes a patient who was referred by a medical provider to a dentist for evaluation of an asymptomatic mass on the floor of the mouth. What are some of the key learning points of this case?**
  - A. Only dentists can recognize abnormal lesions in the mouth.
  - B. The medical provider has the potential to positively impact the survival outcome of a case by performing an oral exam.
  - C. Most oral cancers present on the lips.
  - D. Dentists prefer to remove the whole lesion when they perform a biopsy.
- 3. Which is a high risk site for oral cancer?**
  - A. The floor of the mouth.
  - B. Posterolateral border of the tongue.
  - C. Soft palate.
  - D. All of the above.
- 4. Routine, as opposed to urgent, dental care refers to:**
  - A. All dental emergencies.
  - B. Fillings.
  - C. Brushing and flossing teeth.
  - D. Visiting the dentist at least every 6 months for an exam and cleaning.
- 5. Periodontal disease has been associated with several systemic diseases. What may be one of the reasons for this association?**
  - A. Chronic inflammation of the gums may promote other inflammatory conditions.
  - B. Patients who do not visit their dentists frequently enough are in poorer health.
  - C. Systemic diseases originate in the mouth.
  - D. Periodontal disease cannot be cured.
- 6. A new patient presents to your medical clinic complaining of a toothache that started 2 days ago. You look inside the mouth and see a broken tooth surrounded by swelling in the area that the patient points to. Would this patient require routine or urgent dental care?**
  - A. Routine care, because the source of the swelling is probably the broken tooth.
  - B. Urgent care, so you refer the patient to be seen by a dentist within 24 hours.
  - C. Urgent care, so you refer the patient to be seen by a dentist by the end of the week.
  - D. Routine care, because the patient can eat on the other side of their mouth.



Questions refer to the content of the article and the notes that follow. To receive CME/CE/CEU credit: complete exam, registration, and evaluation forms on-line at [www.umdnj.edu/ccoe/aids](http://www.umdnj.edu/ccoe/aids) or fill in the forms on the following pages, and mail or fax to UMDNJ-CCOE (see Registration Form).

- 
- 7. Which one of the following will help make the intra-oral exam more thorough for a patient wearing dentures?**
- A. Have the patient sit in a chair.
  - B. Tell the patient to leave their dentures in their mouth so that the provider can see how they fit.
  - C. Ask the patient to remove the dentures so that the oral tissues are visible.
  - D. Ask the patient to rinse with water before doing the exam.
- 8. A patient known to your HIV clinic presents for her annual exam. She tells you that she hasn't seen a dentist in 3 years because her teeth are not hurting. What can you do to stress the importance of oral health to this patient?**
- A. Let the patient know that HIV patients should have a dentist perform routine exams at least twice a year.
  - B. Tell her that she should go every 5 years at a minimum.
  - C. Do an oral exam yourself since she does not want to go to the dentist.
  - D. Give the patient a prescription for a mouthwash.
- 9. A patient known to your HIV clinic presents and says "I have pain in my whole mouth and I am beginning to feel that my teeth are getting loose." Upon examination you notice red band-like lines around the teeth and bleeding when you touch the gums with a tongue blade. What can you recommend for the patient until they can be seen by a dentist?**
- A. A prescription for chlorhexidene gluconate mouthrinse.
  - B. Don't eat anything salty or spicy.
  - C. Rinse your mouth with water before you eat.
  - D. Brush your teeth at least 3 times a day.
- 10. A patient known to your HIV clinic presents with halitosis, difficulty in chewing and swallowing their food and many trips to the dentist due to an increase in cavities, a "burning" in the tongue and a constant bad taste in their mouth. What kind of concerns might this patient most likely be describing?**
- A. Periodontitis.
  - B. Toothache.
  - C. Quality of life concerns associated with xerostomia.
  - D. Ordinary minor issues related to poor diet, nothing to be concerned about.



# CONTINUING EDUCATION

# HIV and Oral Health REGISTRATION FORM

### In order to obtain continuing education credit, participants are required to:

- Read the learning objectives, and review the activity, and complete the post-test.
- Complete this registration form and the activity evaluation form on the next page, and record your test answers below.
- Send the registration and evaluation forms to: UMDNJ-Center for Continuing and Outreach Education  
• VIA MAIL: PO Box 1709, Newark, NJ 07101-1709 • VIA FAX: (973) 972-7128  
**Dentists:** please mail or fax your completed registration form with self assessment test answers, and program evaluation form (2 pages) to: Howard E. Lavigne • NYSDOH • 217 S. Salina St. • Syracuse, NY 13202 • Fax: 315-477-8581
- Retain a copy of your test answers. Your answer sheet will be graded and if you achieve a passing score of 70% or more, a credit letter and the test answer key will be mailed to you within four (4) weeks. Individuals who fail to attain a passing score will be notified and offered the opportunity to complete the activity again.



## CCOE

CENTER FOR CONTINUING & OUTREACH EDUCATION

**Online option:** This activity will be posted at [www.umdj.edu/ccoe/aids](http://www.umdj.edu/ccoe/aids) where you may obtain a credit letter upon successful completion of the online post-test and evaluation.

**Please note: CE credit letters and long-term credit retention information will only be issued upon receipt of completed evaluation form.**

<b>SELF-ASSESSMENT TEST</b> <i>Circle the best answer for each question.</i>	1. A B C D	3. A B C D	5. A B C D	7. A B C D	9. A B C D
	2. A B C D	4. A B C D	6. A B C D	8. A B C D	10. A B C D

**- PLEASE PRINT -**

First Name \_\_\_\_\_ M.I. \_\_\_\_\_ Last Name \_\_\_\_\_ Degree \_\_\_\_\_

Daytime Phone # \_\_\_\_\_ Evening Phone # \_\_\_\_\_

Fax # \_\_\_\_\_ E-mail \_\_\_\_\_

Preferred Mailing Address:  Home  Business \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

Affiliation/Specialty \_\_\_\_\_

### Indicate the type of continuing education credit you wish to obtain as a result of your participation in this activity.

- Nurses:** 1.32 CNE Contact Hour(s). Contact Hours Claimed: \_\_\_\_\_
- Physicians:** 1.0 AMA PRA Category 1 Credit(s)<sup>TM</sup>: Credits Claimed: \_\_\_\_\_
- Pharmacists:** 1.0 CPE Contact Hour(s). Contact Hours Claimed: \_\_\_\_\_
- Dentists:** 1.0 CDE credit. Credit Hours Claimed: \_\_\_\_\_
- Dental Hygienists:** 1.0 Continuing Education credits. CE Hours Claimed: \_\_\_\_\_
- General:** Continuing Education Units (CEUs) (up to 0.10) Claimed: \_\_\_\_\_

One credit/contact hour for each hour of participation. Continuing Education Units: one unit per ten hours of participation.  
I attest that I have completed this activity as designed. I will report the number of credits/contact hours claimed during my filing of continuing education credit with professional organizations, licensing boards, or other agencies.

Signature \_\_\_\_\_ Date \_\_\_\_\_

**Release date: December 1, 2011 • Expiration date: Credit for this activity will be provided through November 30, 2013.**  
**Nursing credit for this activity will be provided through November 30, 2013.**  
**A CE credit letter will be mailed to you in approximately 4 weeks.**

**UMDNJ-Center for Continuing & Outreach Education**  
**PO Box 1709 • Newark, New Jersey 07101-1709 • Phone: 973-972-4267 or 1-800-227-4852 • Fax: 973-972-7128**



The planning and execution of useful and educationally sound continuing education activities are guided in large part by input from participants. To assist us in evaluating the effectiveness of this activity and to make recommendations for future educational offerings, please take a few moments to complete this evaluation form. Your response will help ensure that future programs are informative and meet the educational needs of all participants.



**Please note: CE credit letters and long-term credit retention information will only be issued upon receipt of completed evaluation form.**

**PROGRAM OBJECTIVES:** *Having completed this activity, are you better able to:*

	Strongly Agree		Strongly Disagree		
<i>Objective 1:</i> Identify the impact of oral disease on systemic health of HIV/AIDS patients, and symptoms of disease including oral lesions.	5	4	3	2	1
<i>Objective 2:</i> Implement oral health screening, as part of the overall healthcare plan.	5	4	3	2	1
<i>Objective 3:</i> Distinguish and differentiate the need for emergency dental care due to acute infection, pathology or pain. Prescribe analgesics and antibiotics when appropriate and facilitate access to a dental provider for follow up treatment.	5	4	3	2	1

**OVERALL EVALUATION:**

	Strongly Agree		Strongly Disagree		
The information presented increased my awareness/understanding of the subject.	5	4	3	2	1
The information presented will influence how I practice.	5	4	3	2	1
The information presented will help me improve patient care.	5	4	3	2	1
The faculty demonstrated current knowledge of the subject.	5	4	3	2	1
The program was educationally sound and scientifically balanced.	5	4	3	2	1
The program avoided commercial bias or influence.	5	4	3	2	1
The teaching and learning methods were effective.	5	4	3	2	1
The self-assessment was appropriate and helpful.	5	4	3	2	1
Overall, the program met my expectations.	5	4	3	2	1
I would recommend this program to my colleagues.	5	4	3	2	1

**Based on the content of the activity, what will you do differently in the care of your patients? (check one)**

- Implement a change in my practice.
- Do nothing differently as the content was not convincing.
- Seek additional information on this topic.
- Do nothing differently. System barriers prevent change.
- Do nothing differently. Current practice reflects activity recommendations.
- Not applicable. I do not see patients in my current position.

**If you anticipate changing one or more aspects of your practice as a result of your participation in this activity, please provide us with a brief description of how you plan to do so.**

**May we contact you in two months to see how you are progressing on the changes indicated above?**

- Yes. Please provide your email address. \_\_\_\_\_
- No. I do not wish to participate in the follow-up assessment.

**If you are not able to effectively implement what you learned at this activity, please tell us what the system barriers are (e.g., reimbursement issues, managed care rules, formulary decisions, countervailing practice guidelines, etc).**

**Please list any topics that you would like addressed in future educational activities.**