



# Oral Health and HIV

# Presenter & Acknowledgements

- Mark Schweizer, DDS, MPH
- No financial relationships with commercial entities to disclose
- This slide set has been peer-reviewed to ensure that there are no conflicts of interest represented in the presentation



# HIV Continuum of Care

## HIV CARE CONTINUUM:

THE SERIES OF STEPS A PERSON WITH HIV TAKES FROM INITIAL DIAGNOSIS THROUGH THEIR SUCCESSFUL TREATMENT WITH HIV MEDICATION



# Learning Objectives

By the end of this module, the learner will be able to:

- Discuss the occurrence of and risk factors for oral lesions in patients living with HIV (PLWH)
- Understand the relationship between oral health and overall health and disease control
- Understand the causative factors for increase in common oral manifestations
- Demonstrate how to perform an intraoral and extraoral examination
- Describe the trend in oral manifestations in the era of antiretroviral therapy (ART)
- Diagnose oral manifestation present in the era of ART
- Discuss therapies available to treat common oral manifestations

# Session 2: Oral Health and HIV 101

# Oral Health and HIV

- 32-46% of PLWHA will have at least one major HIV-related oral health problem
- 58-68% PLWHA do not receive regular health care
- Barriers PLWHA face in receiving oral health care include lack of insurance, limited incomes, lack of providers, stigma, and limited awareness
- Poor oral health can impede food intake and nutrition, leading to poor absorption of HIV medications and leaving PLWHA susceptible to progression of their disease



# Relationship between Oral Health and General Health

- There is an interrelationship between oral infection, inflammation and systemic health
- It has been estimated that more than 100 systemic diseases and upward of 500 medications have oral manifestations, which are typically more prevalent in the older population
- Studies done many years ago have shown that patients with a history of myocardial infarction or cerebrovascular attacks have worse oral health than control individuals
- Annually, cardiovascular disease accounts for approximately 32-50% of deaths in the United States and 29-31% worldwide and may be one of the best-studied relationships between oral health and systemic health response

# Relationship between Oral Health and General Health

- Elevated blood cholesterol, hypertension, diabetes, and smoking are the traditionally discussed risk factors for cardiovascular disease. Growing bodies of evidence indicate that chronic inflammation, metastatic infection, and vascular injury from endotoxins are possible oral cavity–based etiologies of cardiovascular diseases. Patients with periodontal disease and poor oral hygiene suffer from frequent and severe gingival inflammation and frequent bacteremia, both of which activate the host inflammatory.
- Diabetes is a disease of disrupted glycemic control resulting from a lack of insulin production (type 1) or systemic insulin resistance (type 2). The relationship between diabetes and periodontitis is truly bidirectional, as it is well proven that hyperglycemia negatively impacts oral health and severe periodontitis can negatively impact glycemic control.



# Relationship between Oral Health and General Health

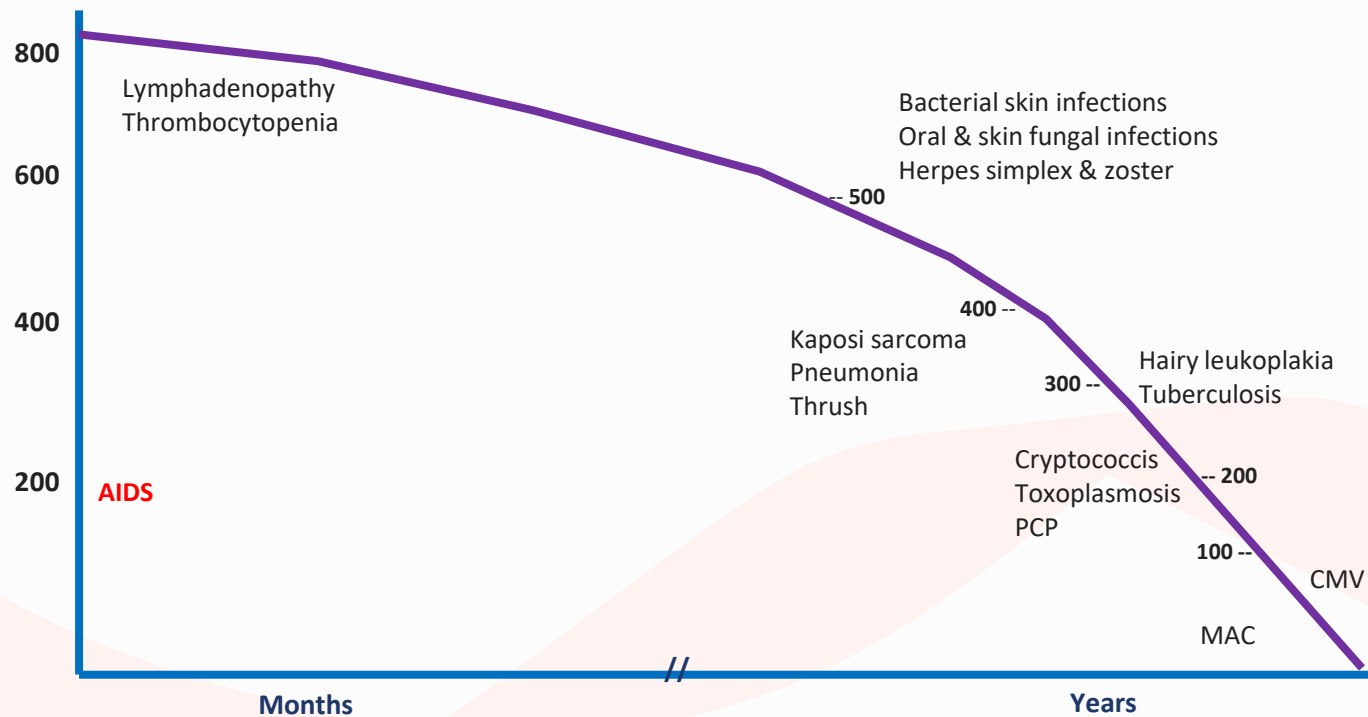
- 50% of women would address an oral issue while pregnant. There is some good evidence that oral conditions can negatively impact pregnancy (increasing the incidence of preeclampsia, low birth weight, stillbirth, and spontaneous abortions).
- Preterm, low–birth-weight infants are probably the best studied obstetric complication of periodontal disease; the presence of periodontal disease in the mother results in a 7.5 times greater risk of this complication.
- Periodontal disease and other conditions that result in poor oral health are common in patients with chronic kidney disease. These oral conditions can lead to systemic inflammation, infection, protein wasting, and the development of atherosclerotic lesions, all of which worsen morbidity and mortality in chronic kidney disease patients.

# Risk Factors for Oral Health Lesions

- Moderate and severe degrees of immunodeficiency and detectable viral loads were risk factors for the onset of oral lesions, irrespective of the use of ART
- A mild immunologic impairment (CD4+ 350 to 500 cells/mm<sup>3</sup>) was sufficient to increase the risk of developing Hairy Leukoplakia nearly 11-fold and shows that immunologic deficiency could be considered to be an independently associated risk factor for the onset of these lesions
- A detectable VL (> 50 copies/mm<sup>3</sup>) was a risk factor for Oral Candidiasis compared with undetectable circulating HIV-RNA. When this association is investigated together with CD4+ counts and use of ART in detectable VL did not augment the susceptibility of developing this fungal infection

# Correlation of Opportunistic Infections with CD4 Count

CD4+ Cell Count  
(cells/mm<sup>3</sup>)



# Risk Factors for Oral Health Lesions

- The components of cigarette smoke may induce chronic inflammation on the oral mucosae, cause damage to the innate immunity mechanisms against pathogens and inhibit cell growth by apoptosis mechanisms. These effects of smoking reduce the production of salivary enzymes and immunoglobulins and affect the production of lymphocytes, resulting in an imbalance of the oral microflora. These modifications probably encourage EBV infectivity, promoting the occurrence of Oral Hairy Leukoplakia.
- Smoking and alcohol consumption contributed to a high susceptibility to the development of these affections in the evaluated subjects.

# Dental Recommendations for Treating HIV/AIDS Patients

- The magnitude of the viral load is not an indicator to withhold dental treatment for the patient. High viral loads may be present in a patient with early asymptomatic disease, while low viral loads can be seen in very advanced patients on suppressive antiviral therapy. Knowledge of these markers can tell the dentist the general health of the patient and the risk of progression
- All health professionals can play an important part in reminding patients of the need for regular follow up and monitoring of these markers. It is recommended that the CD4 and viral load determinants be done every six months to one year.

# Risk of HIV Transmission to a Health Professional

- The average risk of HIV infection after a needle stick or cut exposure to HIV-infected blood is 0.3% (i.e., three-tenths of one percent, or about 1 in 300). Stated another way, 99.7% of needle stick/cut exposures do not lead to infection.
- The risk after exposure of the eye, nose, or mouth to HIV-infected blood is estimated to be, on average, 0.1% (1 in 1,000).
- The risk after exposure of non-intact skin to HIV-infected blood is estimated to be less than 0.1%. A small amount of blood on intact skin probably poses no risk at all. There have been no documented cases of HIV transmission due to an exposure involving a small amount of blood on intact skin (a few drops of blood on skin for a short period of time).
- The last reported case of HIV infection to a dental professional without another risk factor was 1998.

# Antibiotic Prophylaxis

- There are no data supporting the need for routine antibiotic coverage to prevent bacteremia or septicemia arising from dental procedures
- Prophylactic antibiotics should not be prescribed routinely for the dental visit when the HIV infection is well controlled



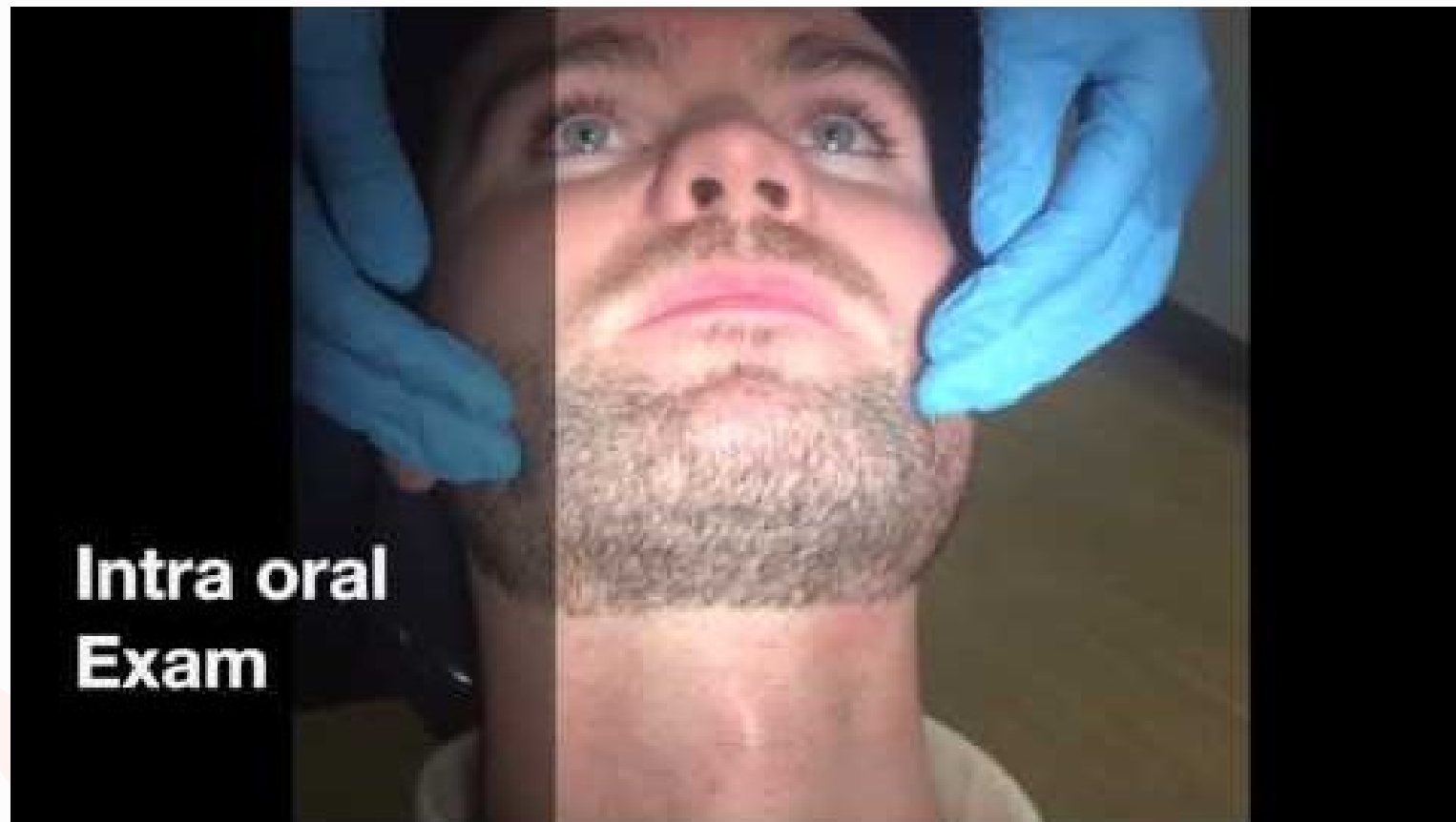
# Antibiotic Prophylaxis is Indicated:

- If a patient with a neutrophil count below 500 cells/mm<sup>3</sup> requires procedures likely to cause bleeding and bacteremia and is not already taking antibiotics for prophylaxis against opportunistic infections
- Consult Pt's physician regarding the need for antibiotic prophylaxis for dental procedures





# How to perform an intraoral extraoral exam



# Oral Manifestations of HIV

## In the Era of ART

### Decreasing:

- Candidiasis
- Necrotizing Gingivitis
- Kaposi's Sarcoma
- Oral Hairy Leukoplakia

### Increasing:

- Dental Decay/Periodontal Disease
- Oral HPV

# Dental Decay (Caries)

Factors that increase dental decay:

- Xerostomia is moderate to severe in 30-40% living with HIV/AIDS
- Xerostomia is caused by many medications used to treat HIV and comorbidities related to both HIV and aging
- In addition, the HIV virus affects the salivary glands, can lead to salivary gland deformities and damages that also decrease salivary flow
- Diet
- Substance Abuse
- Increased Life Expectancy



# Salivary Gland Disease and Xerostomia

- Salivary gland disease associated with HIV infection (HIV-SGD) can present as xerostomia with or without salivary gland enlargement (parotid gland)
- HIV-infected patients may also experience dry mouth in association with taking certain medications that can hinder salivary secretion, such as antidepressants, antihistamines, and anti anxiety drugs



# Salivary Gland Disease and Xerostomia

- Parotid Gland Enlargement : reported to occur in 1-10% of HIV infected patients it is usually secondary to the development of benign lympho-epithelial cysts
- Benign Lympho-epithelial Cysts : A rare manifestation of HIV disease characterized by bilateral parotid swelling



# What can we do?

- OTC products (.05% NaF) ACT, Fluoroguard
- Prescription Fluoride Products Neutral Sodium Fluoride administered by brushing or custom fluoride trays
- Salivary stimulants such as sugarless gum or sugarless candies may provide relief
- Candies that are acidic should be avoided as frequent use may lead to loss of tooth enamel
- Increase intake of water
- Salagen 5mg/Take 1 to 2 tablets 3 to 4 times per day. Maximum dosage 10mg 3 times per day.

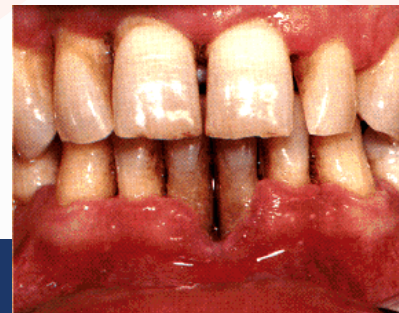
# Meth Mouth and HIV/AIDS

- Studies show a higher prevalence of methamphetamine use among MSM than among the general population. For example, in a study of urban, young MSM (aged 15-22 years), 20% of the participants reported having used methamphetamine during the past 6 months.



# Periodontal Disease

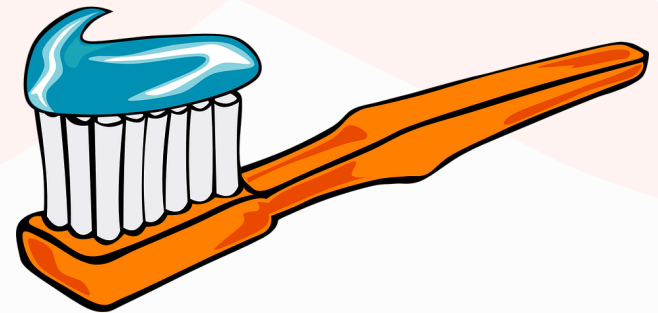
- Lack of oral hygiene determined by plaque formation and reduced CD4-counts with pronounced periodontal inflammation is a risk factor for periodontal disease
- There is an increase in periodontal inflammation markers in patients with HIV
- Increased prevalence of oral lesions and periodontal diseases in HIV-infected patients on antiretroviral therapy
- Overall high prevalence of manifestations underlines the importance of oral examination for the general practitioner and visits by oral specialists should become a routine procedure in HIV-patients care





# What can we do?

- Amoxicillin 250mg 3x/day with Metronidazole 250mg 3X/day x 5-7days
- Antimicrobial rinses (0.12% Chlorhexidine) 15cc 2xday x 14days
- Concurrent Antifungal maybe necessary
- Referral for immediate dental care
- Stress oral home care for clients and routine dental care

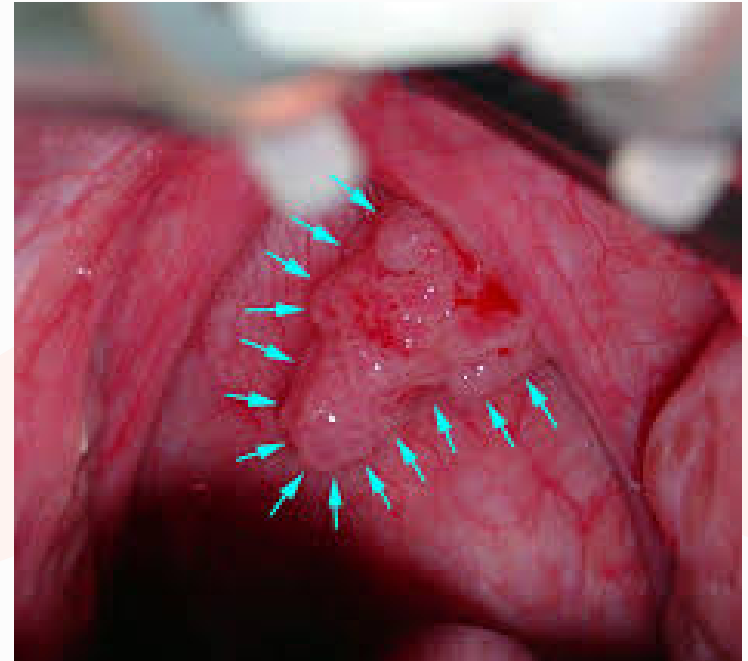
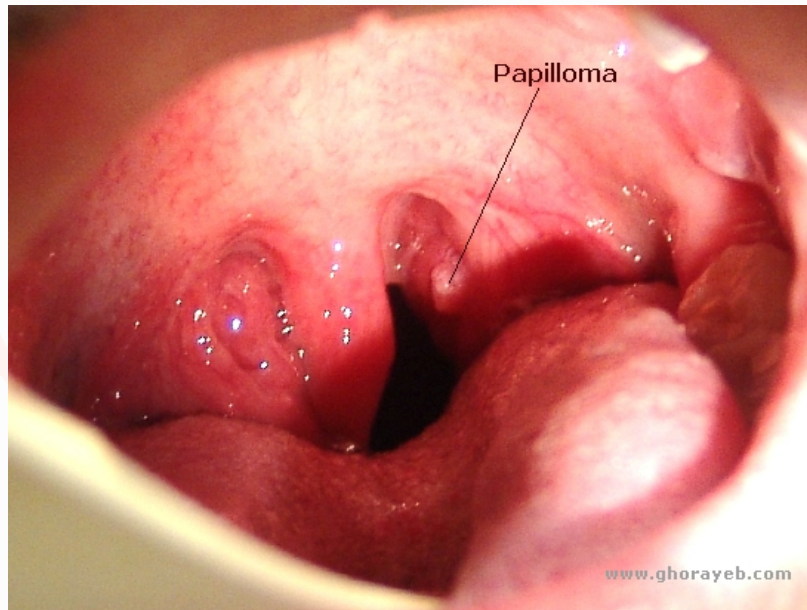


# Human Papilloma Virus

- About one in nine American men is infected with the oral form of human papillomavirus (HPV), according to a new study published in the journal *Annals of Internal Medicine*
- Nationwide, rates for oral HPV infections are 11.5% of men and 3.2% of women: 11 million men, compared with 3.2 million women, the researchers estimated.
- Oropharyngeal squamous cell carcinoma was far more likely to strike men: 12,638 cases diagnosed in men each year, compared with just 3,100 cases in women
- It is the most common of all the HPV-related cancers, and its incidence among men (7.8 per 100,000) now surpasses incidence rates of cervical cancer among women (7.4 per 100,000). Cervical cancer is known to be caused by HPV.

# Human Papilloma Virus

- Men who have had multiple sex partners, men who reported having sex with men, and men with genital HPV infections were found to have the highest rates of oral HPV



# Human Papilloma Virus

- Men who have had multiple sex partners, men who reported having sex with men, and men with genital HPV infections were found to have the highest rates of oral HPV



# Human Papilloma Virus

- Tonsillar HPV infection can cause oropharyngeal cancer
- An increase in the incidence of oropharyngeal cancer has paralleled the increased prevalence of tonsillar HPV infection
- However, the vast majority of people with tonsillar HPV infections do not develop cancer because the subtypes of HPV with which they are infected are not linked to development of cancer. Although millions of Americans have tonsillar HPV, fewer than 15,000 get HPV-positive oropharyngeal cancers annually.
- Many oropharyngeal cancers are not related to HPV infection but rather with tobacco and alcohol use. People with HPV-positive oropharyngeal cancers tend to be younger and are less likely to be smokers and drinkers.

# Human Papilloma Virus

- There is no test that can find early signs of HPV infection of the throat. Some cancerous or precancerous tonsillar HPV lesions may be detected during screening or examination by a dentist or doctor, but most are found by testing in persons who already have signs or symptoms
- To inspect hard-to-see areas of the throat, larynx (voice box), and the base of the tongue, doctors may use instruments called laryngoscopes or pharyngoscopes together with small mirrors
- Perform a biopsy of areas that look suspicious for cancer. A biopsy is a small sample of cells taken with a thin, hollow needle. The cells are then viewed under a microscope to look for signs of cancer. Biopsy samples from throat cancers may be tested for the presence of HPV DNA. The presence of HPV DNA signals a cancer that is more responsive to treatment than one that is HPV-negative

# Human Papilloma Virus

**NEW RECCOMENDATION: The vaccine that prevents the human papillomavirus, HPV, has been approved by the Food and Drug Administration for men and women 27 to 45 years old**

# HPV in Patients with HIV

- Oral warts are caused by human papillomavirus (HPV) and may appear anywhere within the oral cavity or on the lips. They occur more frequently and more extensively in people with HIV infection than in those with normal immune function, especially in patients with advancing immune suppression (CD4 counts of  $<200-300$  cells/ $\mu\text{L}$ ).
- Oral warts may be refractory to therapy
- The frequency of oral warts may increase, at least temporarily, in patients treated with antiretroviral therapy



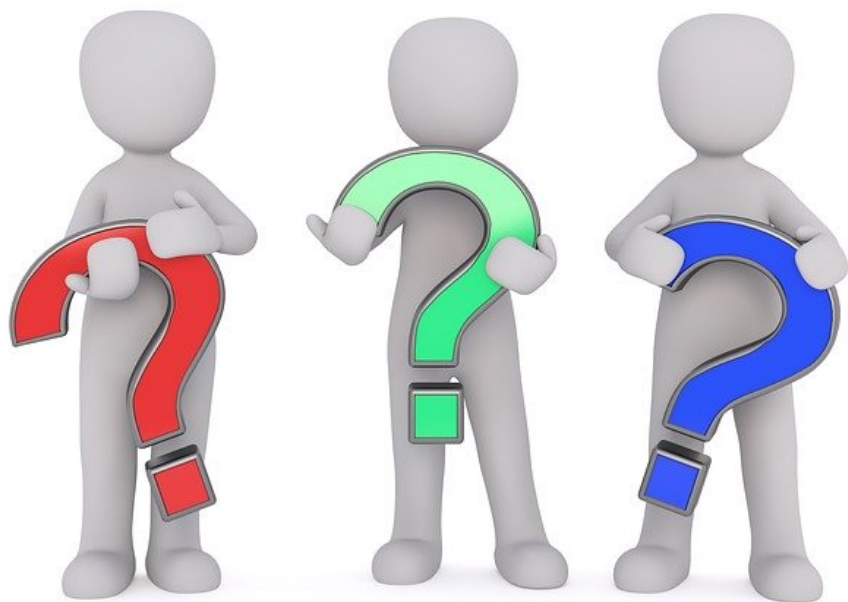


# Key Takeaways

- The link between Oral Health and overall health is well established in the literature
- Moderate and severe degrees of immunodeficiency and detectable viral loads were risk factors for the onset of oral lesions, irrespective of the use of ART
- An intraoral/extraoral exam should be a key part of each patient examination

# References

- Risk factors of HIV-related oral lesions in adults
- MNMR Petruzzi, K Cherubini, FG Salum... - Revista de Saúde ..., 2013 - SciELO Public Health
- Scannapieco FA. Systemic effects of periodontal diseases. Dent Clin North Am. 2005;49(3): 533-550
- Akar H, Akar GC, Carrero JJ, Stenvinkel P, Lindholm B. Systemic consequences of poor oral health in chronic kidney disease patients. Clin J Am Soc Nephrol. 2011;6(1):218-226.
- Joshipura KJ, Rimm EB, Douglass CW, Trichopoulos D, Ascherio A, Willett WC. Poor oral health and coronary heart disease. J Dent Res. 1996;75(9):1631-1636.
- Lamster IB, Lalla E, Borgnakke WS, Taylor GW. The relationship between oral health and diabetes mellitus. J Am Dent Assoc. 2008;139(Suppl 5):19S-24S
- Tabeta K, Yoshie H, Yamazaki K. Current evidence and biological plausibility linking periodontitis to atherosclerotic cardiovascular disease. Jpn Dent Sci Rev. 2014;50(3):55-62. 20. Kuo LC
- Polson AM, Kang T. Associations between periodontal diseases and systemic diseases: a review of the inter-relationships and interactions with diabetes, respiratory diseases, cardiovascular diseases and osteoporosis. Public Health. 2008;122(4):417-433



# THANK YOU

