SOUTH FLORIDA
SE AIDS EDUCATION & TRAINING CENTER

HIV and Oral Health in the Era of Antiretroviral Therapy

NSU NOVA SOUTHEASTERN UNIVERSITY

Southeast AIDS Education & Training Center

SOUTH FLORIDA
SE AIDS EDUCATION & TRAINING CENTER

Mark Schweizer, DDS MPH
Director of Development and Special Projects
Nova Southeastern University College of Dental Medicine
Dental Director South Florida Southeast AIDS Education and Training Center

NSU NOVA SOUTHEASTERN UNIVERSITY

Southeast AIDS Education & Training Center

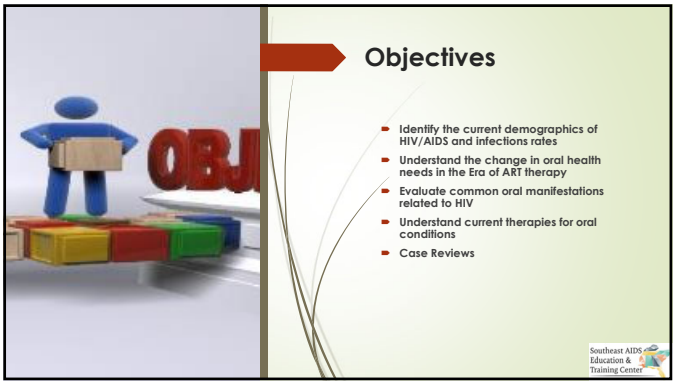
Disclosures

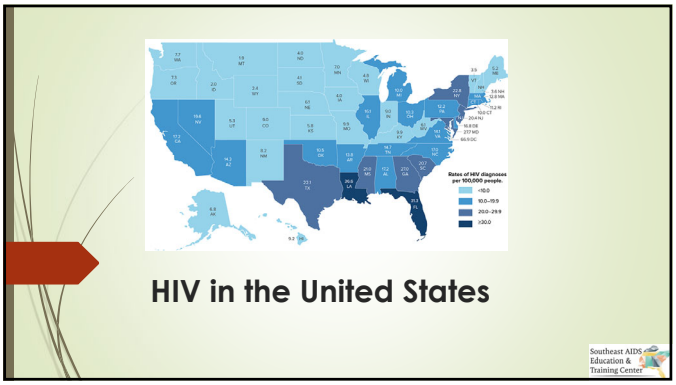
The activity planners and speakers do not have any financial relationships with commercial entities to disclose.

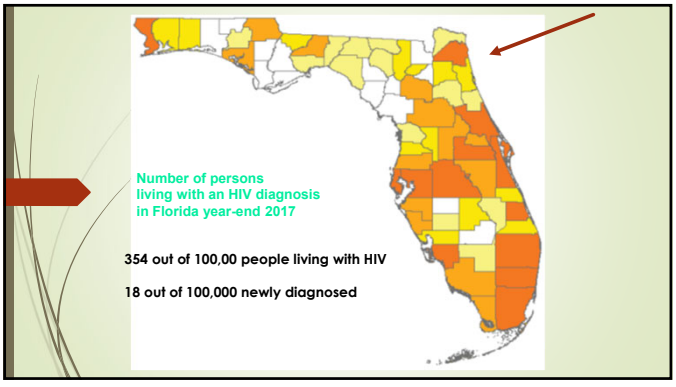
The speakers will not discuss any off-label use or investigational product during the program.

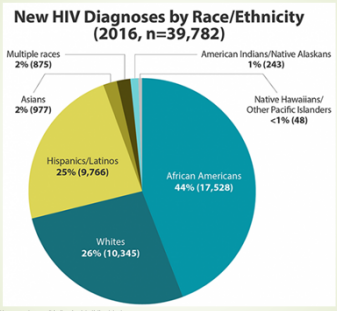
This slide set has been peer-reviewed to ensure that there are no conflicts of interest represented in the presentation

Southeast AIDS Education & Training Center

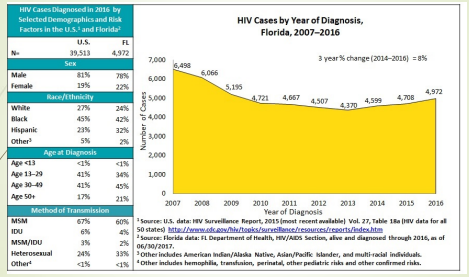

OBJ
Objectives
Identify the current demographics of HIV/AIDS and infections rates
Understand the change in oral health needs in the Era of ART therapy
Evaluate common oral manifestations related to HIV
Understand current therapies for oral conditions
Case Reviews
Southeast AIDS Education & Training Center


HIV in the United States
Southeast AIDS Education & Training Center


Number of persons living with an HIV diagnosis in Florida year-end 2017
354 out of 100,00 people living with HIV
18 out of 100,000 newly diagnosed



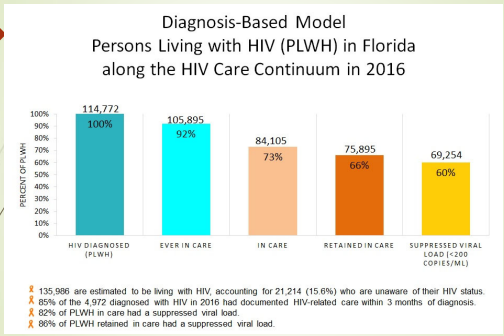
https://www.cdc.gov/hiv/basics/statistics.html



HIV Cases Diagnosed in 2016 by Selected Demographics and Risk Factors in the U.S.[1] and Florida[2]	U.S.	FL
N=	39,513	4,972
Sex		
Male	81%	78%
Female	19%	22%
Race/Ethnicity		
White	27%	24%
Black	45%	42%
Hispanic	23%	32%
Other[3]	5%	2%
Age at Diagnosis		
Age <13	<1%	<1%
Age 13–29	41%	34%
Age 30–49	41%	45%
Age 50+	17%	21%
Method of Transmission		
MSM	67%	60%
IDU	6%	4%
MSM/IDU	3%	2%
Heterosexual	24%	33%
Other[4]	<1%	<1%

[1] Source: U.S. data: HIV Surveillance Report, 2015 (most recent available) Vol. 27, Table 18a (HIV data for all 50 states) http://www.cdc.gov/hiv/topics/surveillance/resources/reports/index.htm
[2] Source: Florida data: FL Department of Health, HIV/AIDS Section, alive and diagnosed through 2016, as of 06/30/2017.
[3] Other includes American Indian/Alaska Native, Asian/Pacific Islander, and multi-racial individuals.
[4] Other includes hemophilia, transfusion, perinatal, other pediatric risks and other confirmed risks.

http://www.floridahealth.gov/diseases-and-conditions/aids/surveillance/index.html



- 135,986 are estimated to be living with HIV, accounting for 21,214 (15.6%) who are unaware of their HIV status.
- 85% of the 4,972 diagnosed with HIV in 2016 had documented HIV-related care within 3 months of diagnosis.
- 82% of PLWH in care had a suppressed viral load.
- 86% of PLWH retained in care had a suppressed viral load.

LAB TESTS FOR HIV STATUS	NORMAL RANGE [1]	TREATMENT CONSIDERATION	MEDICAL SIGNIFICANCE	DENTAL SIGNIFICANCE	CRITICAL VALUES RECCOMENDED MEDICAL CONSULTATION
HIV VIRAL LOAD # of HIV RNA copies per ml of blood	Can be <20copies/mL on commercially available tests Uncontrolled HIV up to 750,000	If > 20 copies/mL Should be under copies/mL If over 6 months on ART	Indicates rate of HIV progression and ART response	Predictor of oral manifestation including Candidiasis Xerostomia, Recurrent Caries, cancer, etc.	If > 20 copies per mL after 6 months of ART
CD4 HELPER T CELL COUNT T-lymphocytes/mm³ (absolute T-cell count) [2]	500-1500 ART recommended for all HIV infected patients regardless of CD4 cell count	<200 = AIDS Defining	Indicates immune status & determines therapy irrespective of total Lymphocyte	In general, HIV disease is progressing if the CD4 count is going down.	IF < 200 after 6 months of ART
ANC (Absolute Neutrophil Count) NEUTROPHIL % X WBC COUNT	1500 to 8000	- 500 requires premedication	Susceptibility to infection	Susceptibility to infection	< 2,500/mm³

Premedication for Neutropenia in HIV Patients

Antibiotic prophylaxis in neutropenic patients reduces mortality, febrile episodes, and bacterial infections

Antibiotic coverage, prior to procedures likely to cause bleeding and bacteremia, is recommended for the immunocompromised HIV-infected patient when the neutrophil count drops below 500 cells/mm3 (neutropenia). Patients at this advanced stage of disease may already be taking antibiotics to prevent opportunistic infection, therefore, additional medications may not always be required. However, when antibiotic coverage is indicated, regimens similar to those for the prevention of bacterial endocarditis are considered effective.

http://www.uptodate.com/contents/hematologic-manifestations-of-hiv-infection-neutropenia

Resources for checking interactions

- http://www.hiv-druginteractions.org/
  - HIV iChart app available
- DHHS Adult HIV Guidelines, Tables 17-20 [www.aidsinfo.nih.gov]
  - https://aidsinfo.nih.gov/guidelines/html/1/adult-and-adolescent-arv-guidelines/367/overview

Oral Health and HIV

- 90% of PLWHA have a chronic oral condition
- 32-46 percent of PLWHA will have at least one major HIV-related oral health problem.
- 58-68 percent 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.[4]
- HIV medications have side effects such as dry mouth, which predisposes PLWHA to dental decay, periodontal disease, and fungal infections.

http://hab.hrsa.gov/abouthab/files/oral_health_fact_sheet.pdf
Accessed March 28,2016

Southeast AIDS Education & Training Center

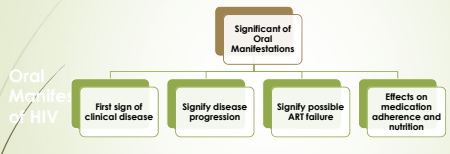
Oral Manifestations of HIV

Significance of Oral Manifestations

- First sign of clinical disease
- Signify disease progression
- Signify possible ART failure
- Effects on medication adherence and nutrition

Southeast AIDS Education & Training Center

Oral Manifestations of HIV



Oral Manifestations of HIV

In the Era of ART

Oral Manifestations of HIV

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

Increasing:
- Dental Decay/Periodontal Disease
- Oral HPV

Southeast AIDS Education & Training Center

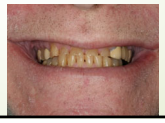
XEROSTOMIA

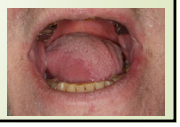
There are multiple causes of xerostomia;
- **Anticholinergic effects of many medications**
- **Alcohol and drug abuse**
- **Damaging head and neck radiation**
- **Comorbidities from HIV/AIDS such as cardiac disease, diabetes, and mental health disorders which occurs in PLWHA. As a result, many of the medications especially the antidepressants, anxiolytics, diuretics, and antihistamines being taken for these comorbidities**

There are still differing studies of the xerostomic effects of antiretroviral medications used to treat HIV.

Xerostomia is the subjective complaint of oral dryness. This must be distinguished from salivary gland dysfunction which is an objective disease characterized by reduced salivary flow. Studies have shown that 40% or more of PLWHA experience major xerostomia during their disease. Studies of PLWHA with xerostomia show a frequently negative effect on their quality of life.

Symptoms of xerostomia include cracked peeled atrophic lips, glossitis, and pale dry buccal mucosa. Xerostomia can lead to dysphagia, oral pain of unknown origin, dental caries, oral infections, periodontal disease, angular cheilitis associated with candidiasis and can affect the health-related quality of life. These features of xerostomia can lead to the inability of the patient to take necessary medications, and can influence intake of proper nutrients, leading to malnutrition and a decline in overall health.

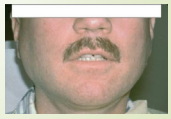




More significant in the era of ART is the increase in prevalence of salivary gland disease. Salivary gland disease can arise in 4% to 10% of adults and children with HIV.

HIV salivary gland disease (HIV-SGD) is a distinct disorder characterized by persistent major salivary gland swelling and xerostomia. Most commonly affected is one or both parotid glands sometimes which will occur without xerostomia. In some cases, salivary gland enlargement may be the first clinical manifestation of HIV infection, but more often a sign of late HIV infection.

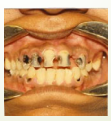
The exact pathophysiology of HIV-SD, origins include lymphoepithelial lesions, cysts, intraglandular lymph nodes, and an inflammatory infiltrate similar to what is often observed in Sjogren's, syndrome however with distinct histopathologic and serological differences. In the infiltrate, there are persistent circulating CD8+lymphocytosis and diffuse visceral CD8+ lymphocytic infiltration.



Dental Decay

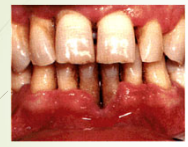
Factors that Increase Dental Decay

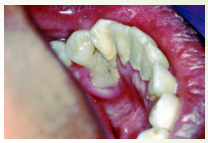
- Xerostomia
- Xerostomia is cause by many medications use to treat HIV and comorbidities related to both HIV and aging
- In addition the HIV virus effects the salivary glands can lead to salivary gland deformities and damages that also decrease salivary flow.
- Diet
- Substance Abuse
- Increased Life Expectancy

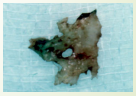


Southeast AIDS Education & Training Center

Periodontal Disease







Links between Periodontal Disease an other disease states/Diabetes/Heart Disease/Strokes

Southeast AIDS Education & Training Center

Periodontal Disease in the Era of ART

Shift of prevalence towards periodontal diseases.

Lack of oral hygiene determined by plaque formation and reduced CD4-counts with pronounced periodontal inflammation can be seen as risk factors 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.

Knipil A[1], Schaaben A, Oette M, Wettstein M, Herfordt A, Häussinger D. Eur J Med Res. 2005 Oct 18;10(10):448-53. Accessed December 12, 2015.

Southeast AIDS Education & Training Center

What can we do?

Periodontal Disease

- Amoxicillin 250mg 3 x/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

Oral Manifestations of HIV

Human Papilloma Virus

- About 7% of Americans have oral HPV. That's far fewer than the number who have the genital version, which is the most common sexually transmitted disease in the U.S.
- Every day in the US, about 12,000 people ages 15 to 24 are infected with HPV. Approximately 26 million Americans on any given day have an oral HPV infection. Of those approximately 2600 are HPV16 the strain that can lead to oral cancer.
- The vast majority of individuals will clear the virus naturally through their own immune response, and never know that they were exposed or had it.

http://oralcancerfoundation.org/hpv/hpv-oral-cancer-facts.php

Southeast AIDS Education & Training Center

Human Papilloma Virus

More than 40 types of HPV can infect people, but only a few cause cancer. One of the types that causes most cervical cancers, called HPV16, is also linked with most HPV-related head and neck cancers.

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/µL).

Oral warts may be refractory to therapy.

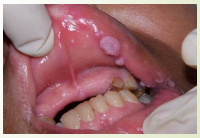
The frequency of oral warts may increase, at least temporarily, in patients treated with antiretroviral therapy.

http://oralcancerfoundation.org/hpv/hpv-oral-cancer-facts.php

Southeast AIDS Education & Training Center

Human Papilloma Virus

- Possible spread through Oral Sex and French Kissing



http://saude-joni.blogspot.com/2012/02/hpv-oral.ht

Southeast AIDS Education & Training Center

HPV vaccine is recommended for routine vaccination at age 11to 12 years

Recommends vaccination for females aged 13 through 26 and males aged 13 through 21 years not vaccinated previously

Vaccination is also recommended through age 26 years for men who have sex with men and for immunocompromised persons (included those with HIV infection) if not vaccinated.

www.cdc.gov/mmwr/preview/mmwrhtml/mm6411a3.htm

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
- The dentist 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 three-six months.

Southeast AIDS Education & Training Center

Oral Manifestations of HIV

Oral candidiasis and oral hairy leukoplakia appear to be the first and the second most common oral opportunistic infections associated with HIV.

S **Sethi**, DN Kiran, G Popli, A Malhotra, A Bansal... - 2016 - recentscientific.com

Southeast AIDS Education & Training Center

Oropharyngeal Candidiasis (OPC)

The most common HIV related oral lesion is Candidiasis, predominantly due to infection by Candida albicans.

Non albicans species such as C. glabrata, C. tropicalis, C. krusei and C. kefyr have been reported in 1% to 20% of HIV infected patients.

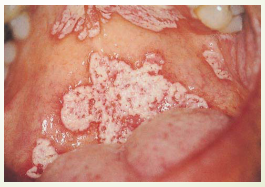
It is often the initial manifestation of symptomatic infection with HIV, and may simply imply concurrent esophageal candidiasis, which is an AIDS indicator lesion, or also be a predictor of the likelihood of other opportunistic infections.

Baccaglini L, Atkinson JC, Patton LL, Glick M, Ficarra G, Perterson DE. Management of oral lesions in HIV positive patients. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2007;103(suppl1):s50.e1

Southeast AIDS Education & Training Center

Oropharyngeal Candidiasis (OPC)

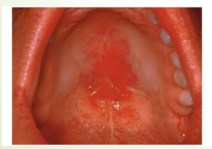
Pseudomembranous candidiasis: Acknowledged as the most common variant, it presents as creamy, white, curd like plaques on the oral mucosa or tongue which can be wiped away, leaving a red erythematous surface. Patients may complain of soreness or burning in the mouth



Southeast AIDS Education & Training Center

Oropharyngeal Candidiasis (OPC)

Erythematous candidiasis: It presents as a red, flat, subtle lesion on the dorsum of tongue. A kissing lesion occurs when the lesion present on the tongue has a matching counterpart on the hard or soft palate where it comes in contact. The lesion is often symptomatic, with burning mouth sensations.



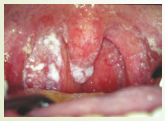
https://images.search.yahoo.com/yhs/search?p=erthematous+candidiasis&fr=yhs-mozilla-003&hspart=mozilla&hsimp=yhs-

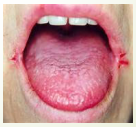
Southeast AIDS Education & Training Center

Oropharyngeal Candidiasis (OPC)

Hypertrophic Candidiasis: Thick white plaques that cannot be readily removed may indicate the presence of hyperplastic candidiasis. This may occur concurrently with oral hairy leukoplakia.

Angular Cheilitis: It presents as cracking, fissuring, ulceration or erythema of the corners of the mouth, and may occur with or without the presence of erythematous or pseudomembranous candidiasis. It tends to persist for long periods of time without treatment.





hhttps://images.search.yahoo.com/yhs/search;_ylt=A0LEVvvNCO1YGyoAzTwnnIQ?p=angular+cheilitis+candidiasis

Southeast AIDS Education & Training Center

Oropharyngeal Candidiasis (OPC) Treatment

Early treatment of oral candidiasis is warranted not only because of the discomfort caused by the lesions, but also because the foci may act as reservoirs of organisms for local spread of disease.

It takes longer to eradicate candidiasis in HIV infected population, and relapse rates are high.

High fungal counts and smoking appear to increase the tendency for poor response.

Use of topical agents for treatment of OPC is recommended as initial therapy, more so owing to concerns of drug interactions between systemic antifungals and antiretroviral therapy.

Oral manifestations of HIV infection and their management. I. More common lesions. Oral Surg Oral Med Oral Pathol 1991;71:158

Southeast AIDS Education & Training Center

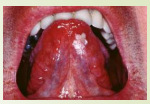
Oropharyngeal Candidiasis (OPC) Treatment

Topical antifungal agents include nystatin, clotrimazole, amphotericin B which can be delivered as oral suspensions, troches or tablets. Systemic therapy with ketoconazole, fluconazole, or itraconazole is indicated in recurrent cases.

Recommend 200mg once daily oral dose of Nizoral (ketoconazole) for resolution of oral signs and symptoms. Although fluconazole is an effective mucosal antifungal drug, candidal recurrence and resistance to fluconazole appear to be an emerging problem.

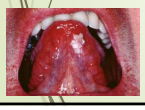
Silverman S, Gallo JW, McKnight ML, Mayer P, deSanz S, Tan MM. Clinical Characteristics and management responses in 85 HIV infected patients with oral candidiasis. Oral Surg Oral Med Oral Pathol Oral RadiolEndod 1996;82:402

Southeast AIDS Education & Training Center



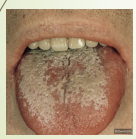
Oral Hairy Leukoplakia

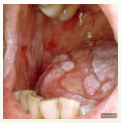
Hairy leukoplakia (also known as oral hairy leukoplakia,[1]or HIV-associated hairy leukoplakia), is a white patch on the side of the tongue with a corrugated or hairy appearance. It is caused by Epstein-Barr virus (EBV) and occurs usually in persons who are immunocompromised especially those with HIV/AIDS). This white lesion cannot be scraped off. The lesion itself is benign and does not require any treatment, although its appearance may have diagnostic and prognostic implications for the underlying condition.

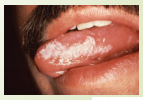


http://diseasespictures.com/oral-hairy-leukoplakia
Walling DM 2003 (PMID 12964120) Moura MD 2010 (PMID 20813564

Treatment is not necessary since the lesion is benign, however the person may have esthetic concerns about the appearance. The condition often resolves rapidly with high dose acyclovir or desiclovir but recurs once this therapy is stopped, or as the underlying immunocompromised condition worsens. Topical use of podophyllum resin or retinoid as also been reported to produce temporary remission. Antiretroviral drugs such as zidovudine may be effective in producing a significant regression of OHL. Recurrence of the lesion may also signify that ART is becoming ineffective.

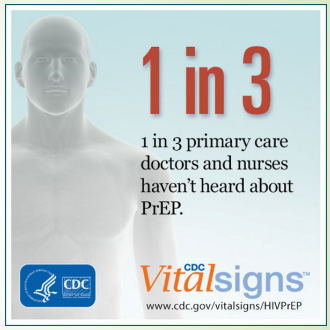






Southeast AIDS Education & Training Center

Pre-Exposure Prophylaxis (PrEP) for HIV Prevention



Southeast AIDS Education & Training Center

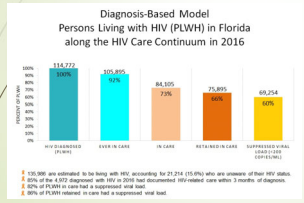
Pre-Exposure Prophylaxis (PrEP) for HIV Prevention

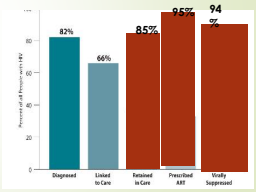
- Use of antiretroviral meds by *uninfected* patients to **prevent HIV infection**
- Used before and during periods of risk
- Tenofovir disoproxil fumarate (DF)/emtricitabine is the only ARV FDA approved for PrEP
  - Both are NRTIs

CDC, USPHS. Preexposure prophylaxis for the prevention of HIV infection in the United States – 2014: A clinical practice guideline. Available at: http://www.cdc.gov/hiv/pdf/PrEPguidelines2014.pdf

Southeast AIDS Education & Training Center

Number and Percentage of Persons Diagnosed and Living with HIV (PLWH) Engaged in Selected Stages of the Continuum of HIV Care Florida Oral Health Care





We are available for clinical consultations and trainings