

Oral Health and HIV

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LEARNING OBJECTIVES

- By the end of this session, participants will be able to:
 - Review basic pathophysiology of HIV disease
 - Explain how HIV has transitioned to a chronic disease model
 - Recognize HIV manifestations of the mouth
 - Define key issues related to care of HIV patients
 - Discuss how oral health care impacts the care continuum

What is oral health?

- "Oral health"
 - is multi-faceted and includes the ability to speak, smile, smell, taste, touch, chew, swallow and convey a range of emotions through facial expressions with confidence and without pain, discomfort and disease of the craniofacial complex
 - is a fundamental component of health and physical and mental well-being
 - it exists along a continuum influenced by the values and attitudes of individuals and communities
 - reflects the physiological, social and psychological attributes that are essential to the quality of life
 - is influenced by the individual's changing experiences, perceptions, expectations and ability to adapt to circumstances.

• World Health Organization. WHO definition of oral health. http://www.who.int/dental/oral_health_definition/en/ [cited 2016 February 20].



HIV and AIDS estimates: Cambodia (2015)

- Number of people living with HIV
 - 74 000 [67 000 - 82 000]
- Adults aged 15 to 49 prevalence rate
 - 0.6% [0.6% - 0.7%]
- Adults aged 15 and over living with HIV
 - 70 000 [64 000 - 78 000]
- Estimated number of adults living with HIV receiving antiretroviral treatment (ART) (2015)
 - 51,088
- Women aged 15 and over living with HIV
 - 37 000 [34 000 - 41 000]
- Children aged 0 to 14 living with HIV
 - N/A
- Deaths due to AIDS
 - 2000 [1500 - 3300]
- Orphans due to AIDS aged 0 to 17
 - N/A



Cambodia's AIDS epidemic

- As in many other countries in the region, Cambodia's AIDS epidemic is concentrated in key populations at higher risk of HIV, which includes entertainment workers, gay men and other men who have sex with men, transgender people and people who inject drugs.
- In 2015, Cambodia was one of 193 United Nations member states to adopt the Sustainable Development Goals (SDG) and commit to ending the AIDS epidemic as a public-health threat by 2030.



As part of her job with the SMARTgirl programme, Rath Chan Molika informs entertainment workers about how to protect themselves from HIV and other sexually transmitted infections and unintended pregnancy. Phnom Penh, Cambodia, 29 April 2015. Credit: UNAIDS

BRINGING HIV TESTING TO COMMUNITIES IN CAMBODIA

- 22-year-old Rath Chan Molika recently quit her job as an entertainment worker and is now an outreach worker and counsellor with the SMARTgirl programme. She explained why the women working in the karaoke parlour feared public health clinics. "First of all, it's because they're scared to go alone," she says. "Secondly, they're afraid of the needle and blood."
- There were an estimated 34 000 entertainment workers in Cambodia in 2015, meeting clients in hotels, karaoke parlours, beer gardens, casinos and massage parlours. Unprotected sexual relations with male customers can place some women at higher risk of HIV.
- "Some go out with customers without using a condom correctly and consistently. And sometimes they use drugs together, sharing needles and syringes, which increases their risk of HIV," said Ms Molika.
- As part of her job with the SMARTgirl programme, she informs entertainment workers about how to protect themselves from HIV and other sexually transmitted infections and unintended pregnancy. While HIV peer counselling in entertainment establishments has been conducted for a few years, Ms Molika is participating in a highly innovative HIV testing programme

BRINGING HIV TESTING TO COMMUNITIES IN CAMBODIA

- It is nine o'clock in the evening and the night is just beginning in one popular area of Phnom Penh, Cambodia. One multistorey building offers a range of entertainment options: diners enjoy a meal on the ground floor, the bars in the middle level vibrate with popular songs and on the top floor is a hotel.
- However, in one corner, next to several karaoke rooms, a serious conversation is taking place. It seems out of context amid the high-pitched laughter, strobe lights, brightly dressed women and male customers. Five entertainment workers are sitting on a sofa talking about why they don't get tested for HIV.
- One woman said, "I don't know where to go."
- A co-worker agreed and added, "I aren't go. I am too afraid."

Pathophysiology

- September, 1982
 - the CDC used the term 'AIDS' (acquired immune deficiency syndrome) for the first time, describing it as a disease at least moderately predictive of a defect in cell mediated immunity, occurring in a person with no known case for diminished resistance to that disease.*
- April 1984
 - the National Cancer Institute announced they had found the cause of AIDS, the retrovirus HTLV-III.

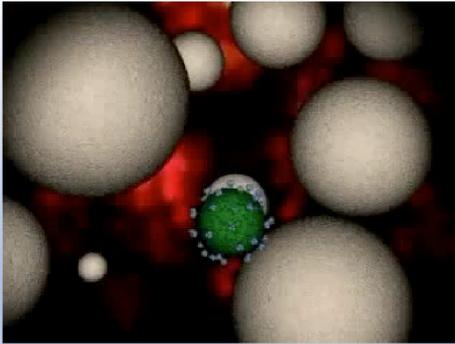
*Centers for Disease Control (CDC) "Current Trends Update on Acquired Immune Deficiency Syndrome (AIDS) - United States" MMWR 31(17):507-508

Retrovirus

- A virus, whose RNA codes for DNA, which is then inserted into some part of the host's DNA. This virus comes with its own special enzyme, called reverse transcriptase, which facilitates this insertion

What is a CD4 Cell?

- CD4 (**cluster of differentiation 4**) is a glycoprotein found on the surface of immune cells
 - T helper cells
 - Monocytes
 - Macrophages
 - Dendritic cells
- HIV primarily affects CD4 T cells
- Respond to viral, fungal, parasitic infections
- The CD4 count of an uninfected adult/adolescent who is generally in good health ranges from 500 cells/mm³ to 1,600 cells/mm³.
- A very low CD4 count (less than 200 cells/mm³) is one of the ways to determine whether a person living with HIV has progressed to stage 3 infection (AIDS).

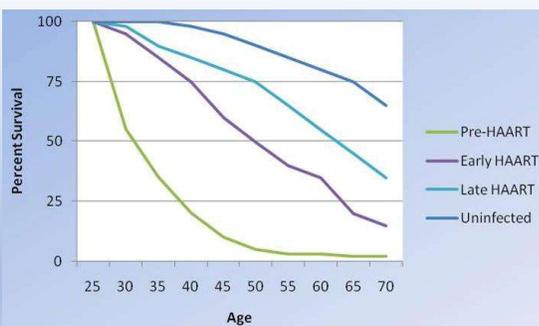
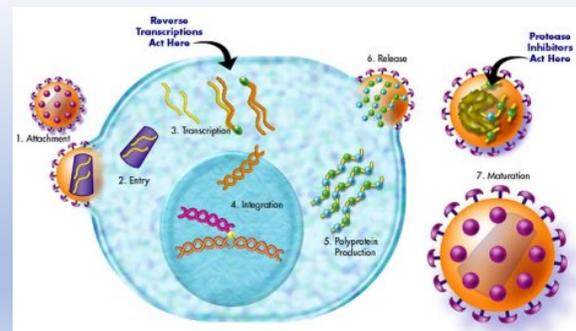


Classes of Anti HIV Medications

- Nucleoside reverse transcriptase inhibitors (NRTIs)
 - interrupt the HIV replication cycle via competitive inhibition of HIV reverse transcriptase and termination of the DNA chain
- Non-nucleoside reverse transcriptase inhibitors (NNRTIs)
- Protease inhibitors (PIs)
 - function as competitive inhibitors that directly bind to HIV protease and prevent subsequent cleavage of polypeptides.
 - Prevents maturation of virus particles

Classes of Anti HIV Medications

- Integrase inhibitors (INSTIs)
 - Inhibit attachment of proviral DNA to host-cell chromosomes
- Fusion inhibitors (FIs)
 - act extracellularly to prevent the fusion of HIV to the CD4 or other target cell.
- Chemokine receptor antagonists (CCR5 antagonists)
 - Similar mechanism as fusion inhibitors
- Each class targets a different step in the viral life cycle as the virus infects a CD4⁺ T lymphocyte or other target cell.



Treating the HIV+ Patient: Why is this still a thing?

- Prior to 1987, AIDS was a fatal disease
- 1987: AZT (zidovudine) approved
- June 1995, the first protease inhibitor approved
 - beginning a new era of highly active antiretroviral treatment (HAART)
- In 1996, a 20-year-old patient with HIV -- and enrolled in a large care organization -- could expect an additional 19 years of life on average,
- By the end of 2011, that had risen to 53 years as treatment for HIV improved

HAART: Long term issues

- Twofold increase in the relative risk of myocardial infarction
- Increased prevalence of osteoporosis
- Renal Disease
- Lipodystrophy
- **XEROSTOMIA**
- Insulin resistance
- Dyslipidemia
- Myopathy
- Neuropathy

Dental Care In the Era of HAART

- Check labs
 - CD4 Count
 - Viral Load
 - CBC/diff
 - CMP
 - Liver Function
- Update every six months
 - Ensures continuity of care
- Social History
 - Tobacco
 - Alcohol
 - Housing
 - Employment

Clinical Decision Making

- People with CD4 count below 200
- Considered to have AIDS
 - Multitude of Oral Manifestations
 - Consider possible complications of surgery, laser treatment
 - Eg: candidiasis, HPV
 - Can and should receive routine preventative, restorative treatment
 - If extractions are indicated in the presence of candida:
 - Clotrimazole Troches:
 - Systemic Antifungals
 - Make certain patient is receiving medical care and taking meds
 - Consider preventative strategies for caries control



TABLE 1
Staging of HIV Using CD4 Count and Percentage^{1,4}

CD4 CELLS/ μ L, ABSOLUTE COUNT	CD4 %	STAGING FOR ADULTS
> 600	32-50	Normal
< 500	< 29	Initial immune suppression
< 400		Oral lesions may appear
200-400	14-28	Increased severity and number of opportunistic infections and oral lesions
< 200	< 14	AIDS, severe immune suppression

TABLE 2
Oral Manifestations Related to CD4 Cell Count⁵

CD4 COUNT/ μ L	ORAL MANIFESTATIONS
400	Atrophic candidiasis
300	Oral hairy leukoplakia
200	Pseudomembranous candidiasis
100	Necrotizing ulcerative gingivitis/periodontitis, hypertrophic candidiasis, Kaposi's sarcoma, cytomegalovirus

CD4 Count 200-400

- Can be pre AIDS or an immune system on the mend
- Treatment modifications
- Some common lesions
 - Hairy Leukoplakia
 - Acute pseudomembranous candidiasis
 - Diffuse herpes simplex gingivostomatitis
 - Gingivitis/periodontitis
 - Acute non specific ulcers
 - Diffuse varicella-zoster lesions

Antibiotic Prophylaxis

- Only necessary if there is neutropenia
 - Neutrophils are the arm of the immune system that protects against bacteremia
 - Not affected by HIV
- Indications for antibiotic prophylaxis are no different from indications for people who are HIV negative.

Clinical Management Goals

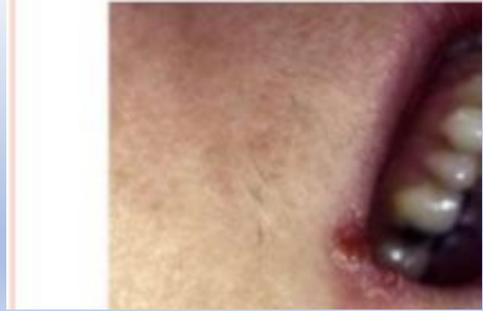
- Individuals with normal CD4 count
 - Comprehensive dentistry indicated
- Management is a function of co-morbidities
- Still need to keep labs up to date and take a careful medical history at each visit to note changes
- As with all chronically ill patients, goal should be management of oral disease
- "Drill and Fill" mentality is old school
- Disease management: fluoride supplements, frequency of recall

Lesions Strongly Associated with HIV Infection

- Candidiasis: pseudomembranous, erythematous
- Oral Hairy Leukoplakia
- Non-hodgkins lymphoma
- Kaposi's sarcoma
- Periodontal disease
 - Necrotizing ulcerative gingivitis/periodontitis
- Linear gingival erythema



FIGURE 5: ERYTHEMATOUS C



NEOPLASTIC LESIONS

- Kaposi's Sarcoma
- LYMPHOMA

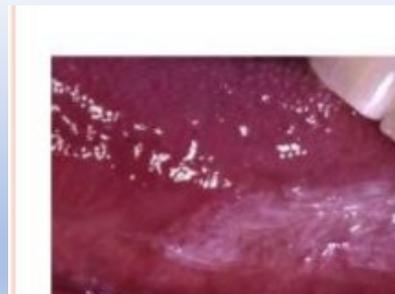


Oral Kaposi Sarcoma



Viral lesions

- Herpes Simplex
- Herpes Zoster
- Human Papillomavirus Lesions
- Cytomegalovirus
- Hairy Leukoplakia and Epstein-B





BACTERIAL LESIONS

- Periodontal Disease
- MYCOBACTERIUM AVIUM-INTRA

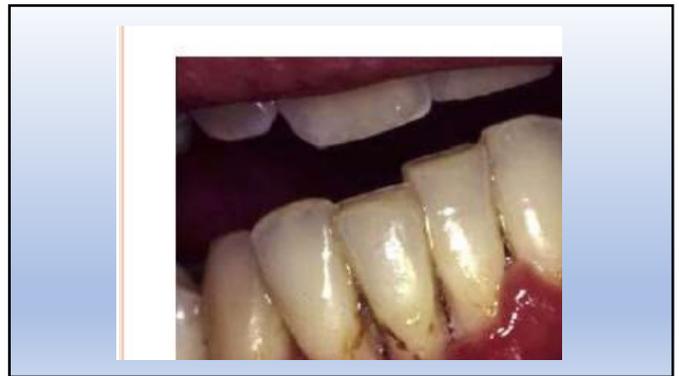


Figure 1. Cervical caries occurring in association with xerostomia.

OTHER ORAL LESIONS ASSOCIATED WITH HIV DISEASE

- Oral Ulceration
- Idiopathic Thrombocytopenic P
- Salivary Gland Disease and Xerostomia



Why Does oral health matter?

- Periodontal Disease and Oral Health
 - direct, two way relationship
- Cardiovascular Disease
- Autoimmune Diseases
- Pregnancy outcomes

Xerostomia

- Any condition in which your mouth is unusually dry.
 - the result of a decrease in saliva
- Medication induced xerostomia
 - The list of medications is over 500 long
 - includes anti-depressants
 - anxiolytics
 - anti hypertension medications
 - anti retrovirals; especially protease inhibitors
- Condition is very uncomfortable and leads to caries, tooth loss and diminished quality of life.
- Needs inter professional management

The care continuum and oral health

- Role of the dentist
- Role of chronic oral inflammation in overall health
- No evidence that VL is affected by oral condition.

Thank you

