**AIDS at 28 (1981-2009)**

25+ million dead and counting

**GLOBAL ESTIMATES FOR ADULTS AND CHILDREN 2007**

- People living with HIV/AIDS: 33+ million
  - 25 million in Sub-Saharan Africa
- New HIV infections in 2007: 2.7 million
  - 65% new in Africa are women
- Deaths due to HIV/AIDS in 2007: 2.0 million
- Other diseases synergistic with HIV/AIDS
- >12 million orphans from death of parents

**Over 7,400 New Infections Worldwide per day in 2007**

- More than 95% in low and middle income countries
- About 1,600 in children under 15 years
- Remainder in adults 15 and over of whom:
  - 50+% among women
  - 50% among young people (15-24)
- ~5,500 die per day so HIV continues to grow

**The Global HIV Epidemic**

**Immune System**

- Specific for foreign agents:
  - B-lymphocytes: produces antibodies
  - T-Lymphocytes:
    - T-helper: CD4 receptor
    - T-killer: CD8 receptor
**T-helper (CD4)**

- In healthy individual: 1,000+/mm3 blood
- In patients with HIV: can decline to 0
- Fully activates B-lymphocytes: no T-helper, no antibodies, no humoral immunity for HIV
- Produces IL2 - growth factor for T-killer: no IL2, no T-killer, no cellular immunity for HIV

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**HIV Opportunistic Infections**

- HIV/AIDS usually doesn’t kill directly
  - Suppressed immune system - more vulnerable
  - CDC definition of AIDS includes 26 OIs
    - Includes bacterial, protozoan, fungal, viral, cancers
  - Globally many diseases worsened by AIDS
- Many lesions in oral and head & neck regions
  - Dentists can have important role in recognition and management

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**CDC AIDS Definition (1993) Revised Classification**

- HIV ≠ AIDS
  - HIV + CD4 cell count <200 = AIDS
    - Improved former subjective definition based on "AIDS-defining conditions"

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**Estimated Number of AIDS Cases, Deaths, and Persons Living with AIDS, 1985–2006—United States and Dependent Areas**

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**Awareness of Serostatus in US**

- 26% Number unaware of their HIV infection
- 74% Number of people aware with HIV USA
Oral Manifestations of HIV/AIDS

- Oral lesions common in HIV
  - Fundamental component disease progression
  - Dentists have important role in diseases management
- Often first symptom noticed
  - Initial disease progression in absence of meds
  - Disease progression on failure of meds
- Factors predisposing to oral lesions
  - CD4 <200, viral load >3000, xerostomia, poor oral hygiene, smoking, drug use

Oral Lesions Seen in HIV

- Differentiated as fungal, viral, bacterial, neoplasms, & non-specific presentations
- Common oral lesions also increase
  - Caries due to poor OH, gingival recession, xerostomia
  - Adult perio disease flora similar to non-HIV
  - Rapidly progressing perio different
    - May occur in clean mouth

Fungal – Pseudomembranous Candidiasis

- Creamy white lesion, can be wiped off
  - Can be diagnosed on clinical appearance
- Erythematous form also common
- Decline since use of HAART
  - Still most common soft tissue lesion of HIV
- Often presenting sign of HIV, or med failure and progression to AIDS

Erythematous Candidiasis
Viral Infections

- Oral hairy leukoplakia – Epstein-Barr virus
- Related to HIV progression
- White, corrugated lesion border of tongue
- Asymptomatic, doesn’t need treatment unless harboring Candida
- Often clears with HAART
- Presence with HAART may indicate med failure

Human Papilloma Virus

- HPV causes oral warts
- Cauliflower-like or flat raised surfaces
- Labial mucosa, tongue, gingiva
- Association with development of carcinoma?
- Increase since use of PIs
- Treatment excision/cryotherapy, recurrence frequent

Herpes Simplex Virus

- Recurrent HSV common in HIV
- Can be large, ↑painful, last months
- Typically lips, keratinized
  - Non-keratinized spread seen in HIV
- Treatment acyclovir, valacyclovir, famcyclovir
- IV acyc. in severe, switch to oral with response
Bacterial Infections

- LGE – nearly pathognomonic of HIV
- Linear band of erythema, gingival margin
- Often asymptomatic, in clean mouth
- Does not respond to routine OH
- Treat with betadine, and 2X daily chlorhexidine rinses
- May be assoc. with Candida, biopsy persistent lesions

Necrotizing Ulcerative Periodontitis

- NUP marker for severe immunosupp.
- ↑ pain, loose teeth, spon. bleeding, odor, ulcerated papillae, rapid bone loss
- Aggressive treatment – scaling & debridement, betadine, chlorhex., ↑ home care, frequent followup,
- Systemic antibiotics (gram neg.), pain meds

Opportunistic Neoplasms

- Kaposi’s Sarcoma most common neo in HIV
- Malig. of blood vessels, assoc with HHV-8
- Purplish lesion, doesn’t blanch with pressure
- Biopsy necessary for definitive dx.
- Intraoral 1° in men, rare in HIV+ women
- Treatment by oncologist
- Lesions may regress with HAART
Squamous Cell Carcinoma

- Recent intraoral, lip, and skin SCC in HIV+
- Greenspan (2007) - young (20-44) HIV+ on tongue and tonsillar pillar areas
- Maurer (2007) notes in SSC and BCC
  - Risk factors: increasing age and living longer with the disease, Caucasian ethnicity
  - Tumor initiation not related to low CD4 counts
- SSCs can metastasize, treatment asap is critical

Recurrent Aphthous Ulcers

- Very common – minor, major, herpetiform
- Usually on non-keratinized
  - In HIV also on keratinized
  - Shallow yellow ulcer with raised red border
- Major form common in HIV
- Treat topically with steroid meds
- Very severe cases with systemic prednisolone, thalidomide

Salivary Gland Disease

- Enlarged glands from lymphatic infiltrates
  - Parotids most common, usually bilateral
  - Often accompanied by xerostomia
- Apparent increase with HAART
  - Increase in DILS, can dx. w/ minor gland biopsy, no need to incise major gland
  - May be related to immune reconstitution disease

Xerostomia

- Common complaint of HIV+
  - 30% report dry mouth symptoms
  - Factors: meds, smoking, V.L. >100,000, salivary gland disease
  - Causes caries, fungal growth, discomfort
- Management:
  - Artificial saliva substitutes
  - Sialogogue meds
  - Drink more water
What Dentists Need to Know About Treating People with HIV

- Same as any person with disease, i.e. enough to treat safely
  - Medically weakened: relieve pain & infection
  - Illness under control: definitive treatment
- Dentists need to be aware of CD4 & OIs
  - CD4 <200 defining point for AIDS, OIs often start
  - Dental work safe at any CD4 if patient can withstand the treatment

Stage of Disease Evaluation

- Early stage:
  - Asymptomatic patient
  - CD4 > 200
  - Treat dental patients as HIV negative
- Late Stage:
  - CD4 < 200
  - Treatment appropriate to medical status
  - Refer based on medical status, not dental procedure
  - Medication may bring back EARLY STAGE

Prevention of Oral Disease

- Evaluate on case-by-case basis
- Xerostomia from meds common
- Caries: if cannot be controlled, no crown and bridge
- Periodontal disease: oral hygiene and home care very important!!
- Candidiasis and other oral lesions need early management, can progress rapidly

Oral Surgery

- Based on same criteria as for all patients: patient’s current health status
- Specific concerns with HIV/AIDS:
  - Preventing Infection
  - Bleeding tendencies

Preventing Infections

- Advanced HIV - more susceptible to infections
- NO “routine” antibiotic therapy
- Evaluate on a case-by-case basis
- CD4 <100: evaluate for neutropenia

Antimicrobial Prophylaxis and Therapy

- Antibiotic Prophylaxis:
  - Use if neutrophils < 500 mm3
  - Moderate neutropenia: 500-1000 mm3: use antibiotics in invasive procedures
- Antibiotics: potential for adverse reactions in HIV+
  - Use with caution
- Concerned about antibiotics? – consult with treating physician
Oral Surgery cont.

- **Bleeding Tendencies:**
  - Evaluate anticoagulant effects of any meds taken, consult treating physician if necessary
  - Immune Thrombocytopenia
    - Platelets: < 50,000 mm$^3$: NO dental extractions
    - Hemoglobin: 7.0 g/dL or less: NO extractions

- **Implants:**
  - No difference in postoperative complications or osseo-integration compared with HIV- patients

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**What Dentists Need to Know About Treating People with HIV**

- Same as any person with disease, i.e. enough to treat safely
- Dentists need to be aware of CD4 & OIs
  - Dental work safe at any CD4 if patient can withstand the treatment
  - CD4 <200 is defining point for AIDS and OIs become more frequent at this point
- Successful ARV can bring back non-AIDS stage
  - HIV now more of a chronic disease for those with access to meds
  - Well-managed patients can tolerate all forms of dental treatment
- Work closely with treating physicians to help with patient management

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**Dentists Responsibilities**

- Treat patients at appropriate standard of care
  - Medically weakened: relieve pain & infection
  - Illness under control: definitive treatment
- Need to be able to recognize common oral lesions assoc. with HIV/AIDS
  - Can assist in early diagnosis
  - Identify signs of disease progression or ARV failure
- Focus on disease control and function
  - Patients more vulnerable to disease processes

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**In this battle, we are all together**