I. Medical Assessment of HIV Infected Patients:
Medical assessment HIV infected patients, relative to their safe dental treatment, is primarily based upon current laboratory test values.

"Significant Laboratory Tests" are listed below, along with their relevance to the patient's health.

"Critical Laboratory Test Values", the values at which a change in dental management is appropriate, is listed in the next section.

The "Frequency of Laboratory Tests" is also outlined and is primarily dependent on the patient's CD4 T-helper cell count and if the patient is on antiretroviral medication.

If you feel the patient needs a more thorough medical evaluation, then they should be referred to their physician. Such an evaluation/physician consult is seldom necessary relative to dental treatment planning. Appropriate and timely laboratory tests, along with a current health history, are almost always adequate to identify any problems and safely manage the patient.
Significant Laboratory Tests

The laboratory tests listed below provide important information relative to the HIV infected patient’s overall health. All, except CD4 and viral load, can be gotten by ordering a "Complete Blood Count (CBC) with a differential"). The next section "Critical Laboratory Test Values," outlines their impact on dental management.

CD4, T-helper Cell Count
Measures the number of T-helper cells. These cells stimulate the immune system to fight infections. As their numbers go down, the risk of infection goes up.

CD4 - CD8 ratios
CD4 cells, as mentioned above, are T-helper cells. CD8 cells are T-suppressor cells. As this ratio goes down, essentially by a decrease in the number of CD 4 cells, the risk of infection goes up.

Viral load/Plasma HIV-1RNA
This measurement reveals the number of copies of the virus per milliliter of blood. Ideally, there would be zero detectable copies (virus). As the viral load goes up, indicating the virus is replicating at an increasing rate, the incidence of secondary problems increases. However, even the highest number of copies has no impact on the provision of dental care.

CBC with differential

Platelets: Platelets are necessary, along with other factors, for blood to clot. An important concern in HIV-infected patients is low platelets (thrombocytopenia) (see critical laboratory test values). If this occurs the risk of bleeding may be so severe as to delay any elective and, at times, even emergency therapy, until the platelets can be replaced.

White count: The white cells in the body are designed to do a variety of things including fight infections. As the white count decreases (leukopenia), the risk of infection increases.

Absolute neutrophils: The neutrophils are a special class of white cells which are also important in fighting infection. If their numbers decrease, the risk of infection increases.

Hematocrit: The hematocrit is the percentage of whole blood that is red cells. In most cases of anemia the hematocrit will decrease.

Hemoglobin: Hemoglobin is the oxygen carrying component of the red blood cells. In certain types of anemia it is possible to have an adequate number of red blood cells, but inadequate amount of hemoglobin and, therefore, a decreased capacity for the blood to carry oxygen.
**Red Blood Cell Count:** Red blood cell count measures the number of red blood cells per cubic mm of blood. A decrease in number means an inadequate number of red blood cells (anemia). This leads to an inadequate ability to carry oxygen. The patient becomes easily fatigued and is a poor healer. A low red blood cell count is usually reflected in a low hematocrit.
Critical Laboratory Test Values
These lab test values represent critical information relative to dental management. All, except CD4 and viral load, can be gotten by ordering a "Complete Blood Count (CBC) with a differential").

White Blood Count (total)
Less than 2,000 (Granulocytopenia) (Normal values: 4,000-10,000 cells/mm$^3$). Low counts are a cause for concern because the body becomes more susceptible to infection. Consider a therapeutic regimen of antibiotics concurrently with invasive procedures or delay elective dental procedures until white count improves.

Absolute Neutrophils
Less than 1,000 (Neutropenia) - Consider therapeutic regimen of antibiotics concurrently with invasive procedures. Delay elective dental procedures until white count improves.

Platelets
Less than 60,000 (Thrombocytopenia) (Normal values: 150,000-450,000 cells/mm$^3$) Consult with physician and recommend intervention to boost platelets prior to invasive procedures. Physician may elect to give platelet infusion or administer prednisone to increase platelet count. The dentist must receive laboratory confirmation of platelet count immediately (1-2 days) before invasive procedure. Delay elective dental procedures until platelet count improves. Platelet count should be above 60-80,000, depending on invasiveness (risk of bleeding) and extent of planned procedure.

Hematocrit (%) (HCT)
Less than 10% - Consult with physician (Normal values: female 37-47%, male 42-52%) - consider red cell transfusion, at the recommendation of the physician, for invasive procedures. Low values are an indicator of anemia.

Hemoglobin (HGB)
Less than 10 (Normal values: female 12-16g/dL, male 14-18g/dL) - consult with physician - consider red cell transfusion, at the recommendation of the physician, for invasive procedures.

Red Blood Cell (RBC)
Less than 1.0 million/mm$^3$. (Normal values: female 4-5 million/mm$^3$, male 4-6 million/mm$^3$). Consult with physician - consider red cell transfusion at the recommendation of a physician, for invasive procedures. Low values are an indicator of anemia.
CD4 T-Lymphocytes (Helper cells) (absolute)
Less than 50 (normal values 590-1120 cells/mm) - Evaluate patient for severe opportunistic disease. Usually there is no problem with routine dental care. If white count is expected to increase, then you may consider delaying elective dental procedures until white count improves. Emphasize good oral care and have them contact you immediately if oral problems start.

Viral Load
As noted, viral load does not have an impact on dental treatment planning. The number of viral copies is indicative of disease, but any modification of dental treatment would be based on the other above laboratory test results and not on the viral load.

Suggested Frequency of Obtaining Lab Reports
Laboratory tests are important to monitor the patient's health. The suggested frequency of tests is listed below and is based on the patient's prior CD4 test results. Current laboratory test results are very important for some dental procedures, for example those associated with significant bleeding or dental infection. At the same time, clinical judgment is appropriate; most dental procedures should not be delayed just because the laboratory results are older than ideal.

Patients undergoing highly active antiretroviral therapy (HAART) need lab testing annually. HAART is a customized combination of different classes of medications that a physician prescribes based on such factors as the patient’s viral load (how much virus is in the blood), the particular strain of the virus, the CD4+ cell count, and other considerations (e.g., disease symptoms). For HIV/AIDS patients not undergoing this treatment or not currently being followed, the frequency depends on the CD4 count. New labs need to be obtained every six months when the CD4 is above 200 and every 3 months if below 200.

Any CD4 count - all patients
Inform all patients that you would like to be sent a copy of their laboratory reports any time a test is done, in order to keep their dental records current. Doing so will insure that no unknown medical problems will impact their dental care and will help in keeping their dental care progressing smoothly.

Use good clinical judgment
Evaluate each patient on a case-by-case basis. Use the above recommendations as general guidelines. Proper and timely patient care, especially urgent care, may require flexibility with critical values. Keep current on your patient’s medical care and antiretroviral therapy. Your knowledge of their medical status, just like your knowledge of all of your patients’ medical status, will insure their safest and most efficient dental care.
II. Suggested Drug Management of Common Oral Conditions

**Oral Candidiasis** (erythematous, pseudomembranous, hyperplastic)

Rx  Mycelex troche, 10 mg ( clotrimazole )
Disp: (70) seventy tabs
Sig: Dissolve one tab in mouth 5 times a day

For resistant cases, use systemic antifungal

Rx  Nizoral, 200 mg ( ketoconazole )
Disp: (28) twenty-eight
Sig: Take one tab per day
Refill x 2

or

Rx  Diflucan, 200 mg (fluconazole)
Disp: (28) twenty-eight
Sig: Take one tab per day

**Angular Cheilitis**

Rx  Mycolog cream
Disp: (15) fifteen grams
Sig: Apply to corners of mouth 4 times a day

Note: Consider antifungal therapy when the patient is recommended for antibiotic treatment.

**Herpes Simplex Virus (HSV)**

Rx  Valacyclovir 500 (Valtrex®)
Disp: (28) twenty-eight
Sig: Take 1 tablet two times per day

Rx  Acyclovir, 200 mg (Zovirax)
Disp: (70) seventy tabs
Sig: Two tabs three times per day
Herpes Zoster Virus (HZV)

Rx  Acyclovir, 200 mg
    Disp: (140) one hundred forty tabs
    Sig: Two tabs every 3 hours for up to 10 tabs/day

Recurrent Aphthous Ulceration (RAU)

Mild - (few lesions present in accessible area of mouth)

Rx  Lidex ointment in Orabase, 50:50
    Disp: (30) thirty gms
    Sig: Apply to oral lesions 4-6 times a day

Moderate to Severe - (or for lesions in inaccessible areas such as tonsillar pillars, soft palate, or oropharynx regions)

Rx  Dexamethasone elixir, .5 mg/5ml
    Disp: 200 ml
    Sig: Rinse and gargle with ½ oz 4-6 times a day

In some cases of very severe or persistent RAU consider systemic prednisone. This should be done only in consultation with patient's physician. In fact you may recommend systemic prednisone therapy as the treatment and the physician will do the prescribing and managing.

Rx  Prednisone 5 mg
    Disp: 87
    Sig: Take 4 tabs a.m., 4 at noon for 7 days, then reduce dose by 1 tablet a day over next 7 days until O

Rx  Solumedrol dose pack
    Disp: 1
    Sig: Take as directed on package

HIV-Related Periodontal Diseases:

HIV-Gingivitis (Marginal Gingival Erythema)

Rx  Chlorhexidine Gluconate, .12% (Perio Gard) or (Peridex)
    Disp: 16 oz
    Rinse with ½ oz twice a day
HIV-Acute Necrotizing Ulcerative Gingivitis (ANUG), or Necrotizing Ulcerative Periodontitis (NUP) (formerly HIVPeriodontitis)

- **Rx** Metronidazole, 500 mg
  Disp: (21) twenty-one tabs
  Sig: One tab three times a day

- **Rx** Augmentin, 500 mg
  Disp: (24) twenty four
  Sig: One tab three times a day

  or

  For severe or resistant cases

- **Rx** Clindamycin, 300 mg
  Disp: (21) twenty one tabs\`
  Sig: One tab three times a day

**Palliative Treatment for Oral Lesions**

- **Rx** Xylocaine 2% viscous
  Disp: 45 ml
  Sig: Rinse with two teaspoons as needed for pain

- **Rx** Baking soda and hydrogen peroxide
  1 teaspoon baking soda in cup of solution that is ½ water and ½ 3% hydrogen peroxide.

**Useful Internet Resources:**


  A useful 4 unit CE course on Management of HIV/AIDS Patients in Dental Practice can be accessed at [http://www.dentalcare.com/media/en-US/education/ce70/ce70.pdf](http://www.dentalcare.com/media/en-US/education/ce70/ce70.pdf)

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