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What is Good Practice? HIV Care Beyond ART

Learning Objectives:

1) Establish short and long-term goals for each HIV patient, based on assessment, triage, and prioritizing with the patient.

2) Provide treatment to prevent opportunistic infections in HIV patients, according to the 2009 CDC guidelines.

3) Provide prophylactic vaccines to HIV patients, based on the most recent CDC guidelines, to reduce preventable disease.

4) Identify and address issues preventing optimal health for HIV patients, including poor nutrition, smoking, mental illness and substance use.

INTRODUCTION: What is Good Practice?

There are many models for the delivery of good HIV care. Likewise, there are many interpretations of these models. What most providers agree on is that patients deserve good primary care and education as well as expert HIV management. Whether these services are delivered in one practice, usually by an infectious disease specialist or AIDS expert, or by multiple or dual providers separating the HIV care from the primary care, is not an issue. What is important is that each patient is carefully managed to ensure care that is competent, thoughtful and state-of-the-art for his or her specific issues.

Antiretroviral therapy (ART) is the best-known and most critical component of HIV management. However, HIV care does not stop with prescribing and monitoring ART. Episodically, most patients will need referrals to specialists for special needs which could include but not be limited to care related to pregnancy, surgical issues, psychiatric illness, substance abuse, dental and subspecialist procedures. Imperative is the element of collegial communication and cooperation in providing these services.

Models of care may include HIV clinics in academic medical centers, infectious disease practices, federally qualified health centers; some are multi-specialty and others require referrals to specialists through ongoing agreements.

(Continued on next page)

* HAART: Highly Active Antiretroviral Therapy  † ARV: Antiretroviral Therapy  ‡ ART Antiretroviral Therapy

To obtain continuing education credit, complete the quiz, registration, and evaluation on the following pages, or go to: www.umdnj.edu/ccoe/aids

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Society of America, to update guidelines on HIV treatment. They released a new report on undetectable HIV viral loads through treatment adherence efforts. Sufficient adherence or viral resistance to the regimen can contribute to lowering HIV transmission and new HIV cases.

The widespread use of antiretroviral therapy (ART) starting in the mid-1990s has had a profound influence on reducing OI-related mortality in HIV-infected persons, and is the most effective strategy for prevention of OIs. Since the implementation of ART, OI hospitalizations and deaths have decreased, but OIs remain a leading cause of morbidity and mortality in HIV-infected persons, primarily in those who are either not on ART, or for whom it is not effective due to insufficient adherence or viral resistance to the regimen. Achieving and monitoring undetectable HIV viral loads through treatment adherence efforts can also contribute to lowering HIV transmission and new HIV cases.


The 2009 Guidelines emphasize the critical role of ART in preventing and treating OIs, especially for infections for which there is no current chemoprophylaxis or treatment. New recommendations include monitoring for development of immune reconstitution inflammatory syndromes (IRIS), and monitoring patients for interactions between rifampin and antiretroviral therapy.

Learning Objectives
Upon the completion of this activity, participants should be able to:
1) Establish short and long-term goals for each HIV patient, based on assessment, triage, and prioritizing with the patient.
2) Provide treatment to prevent opportunistic infections in HIV patients, according to the 2009 CDC guidelines.
3) Provide prophylactic vaccines to HIV patients, based on the most recent CDC guidelines, to reduce preventable disease.
4) Identify and address issues preventing optimal health for HIV patients, including poor nutrition, smoking, mental illness, and substance use.

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• Kimi Nakata, MSW, MPH, UMDNJ-CCOE

Method of Instruction
Participants should read the learning objectives and review the activity in its entirety. After reviewing the material, complete the self-assessment test which consists of a series of multiple-choice questions. Upon completing this activity as designed and achieving a passing score of 70% or more on the self-assessment test, participants will receive a letter of credit and the test answer key four (4) weeks after receipt of the self-assessment test, registration, and evaluation materials; or may complete the activity on the internet at www.umdnj.edu/ccoe. Estimated time to complete this activity as designed is 1.25 hour.

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Faculty Disclosure Declarations
Debbie Mohammed has disclosed the following: she is on the speaker’s bureaus of BMS and Gilead. Conflicts of interest were resolved by review by Activity Director Brenda Christian, MEd, PA-C. The following have no relevant financial relationships to disclose: Authors Patricia C. Kloser, MD, MPH, FACP and Kimi Nakata, MSW, MPH; Activity Director Brenda J. Christian, MEd, PA-C; Planning committee members Sindy M. Paul, MD, MPH, FACPM; and field testers: Kinshasa Morton, MD; Bonnie Abedini, MSN, RN; Mary C. Krug, RN, MSN, APN; and Kara Winslow, BSN, RN.

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HIV Medical Care

Management of the Viral Infection

What characterizes the care of the HIV infected person is that they are HIV positive. The provider must be comfortable with the disease, but more importantly, with the person who is living with the disease. While HIV is just a viral infection, the emotional overlay and stigma make it more than just another infection. This being said, the most important element for most HIV providers is to achieve an intact immune system with a normal CD4+ count and to seek “nirvana,” otherwise known as an undetectable viral load. There are many ways to achieve this, especially in a patient who is newly diagnosed and who has a pansensitive virus. In fact, most patients will quickly and easily have a favorable response to ART. The problem is maintaining treatment adherence and an undetectable viral load in the long term.

HIV Treatment Guidelines, frequently updated by HIV clinical experts, are a framework to help the practitioner know when to start ART and what regimens to start. The standard of care requires obtaining the patient's CD4+ count, viral load, and genotype to determine the baseline status. The follow-up laboratory management is likewise carefully detailed to ensure appropriate monitoring of the CD4+, viral load, and viral sensitivity to the ART. The most recent HIV Treatment Guidelines may be found at www.aidsinfo.nih.gov/Guidelines.

Avoidance of Treatment Toxicity

Although most breaks in treatment are due to nonadherence, drug toxicity and intolerance also play an important role. While deciding when to start ART and what to start can be fairly straightforward from the laboratory point of view, when dealing with a unique individual, one must have other concerns. Each ART has its own toxicity profile. It is important to match patient preference (and dread) with potentially successful regimens. If a patient tells you that he or she could stand any side effect except nausea, it will be incumbent on the provider to select an ART regimen that will avoid this issue. It is understood that the provider will have a good grasp of the patient's current medical history as well as past to avoid toxicity.

In the female patient, it is important to assess the potential for pregnancy, which the clinician should assume in any woman of childbearing age unless she has had a hysterectomy, menopause, tubal ligation, or sexual practices that do not involve heterosexual intercourse. It is important to avoid efavirenz for any children of childbearing potential and to be vigilant in screening for pregnancy. The clinician should recommend two forms of contraception including a barrier method.

Pre-existing conditions require careful selection of ART to avoid toxicity include renal disease due to heroin use, diabetes, hypertension, or polycystic kidney disease. Clinicians will need to avoid known nephrotoxins for patients with abnormal creatinine clearance, or dose appropriately and monitor closely.

Drugs used to treat opportunistic and other infections that are known to be nephrotoxic include amphotericin B and TMP/SMX (trimethoprim and sulfamethoxazole), also known as Cotrimoxazole, sold as Bactrim, Septra, or Septrim. These may be used as treatment or prophylaxis for *pneumocystis jiroveci* pneumonia (PCP) and other infections. Additional medications of concern include acyclovir, adeovir, amino-glycosides, cidofovir, famcyclovir, foscarnet, gancyclovir, sulfadiazine, valganciclovir, valacyclovir, and vancomycin.

HIV antiretroviral medications with nephrotoxic effects include nucleoside/nucleotide reverse transcriptase inhibitors (NRTIs) emtricitabine, lamivudine, tenofovir, and zidovudine; and indinavir, a protease inhibitor. Combination medications containing nephrotoxic NRTIs also require close patient monitoring. These include Combivir (zidovudine + lamivudine), Epzicom (abacavir + lamivudine), Trizivir (zidovudine + lamivudine + abacavir), and Truvada (emtricitabine + tenofovir).

Patients with liver disease, including hepatitis or cirrhosis, often due to alcohol abuse, may not be able to tolerate medications metabolized through the liver. Patients may be unable to take zidovudine due to a history of hematologic disease such as anemia, or menorrhagia, fibroid, amenorrhea, or sickle cell. Most ART is cleared via the liver and may exacerbate hepatic disease. Likewise, antituberculosis drugs may also present issues with hepatic toxicity.

HIV medical providers should test patients for HLA-B*5701 prior to prescribing abacavir to assess their risk for hypersensitive reaction. Similarly, only patients who are resistant to multiple antiretroviral agents should be tested for CCR5-tropism to determine if they are suitable candidates for maraviroc. Certain combinations and agents are notorious for toxicity, including the combination of didanosine (ddI) and stavudine. Nevirapine can cause lactic acidosis especially in obese women with higher CD4+ counts. Stevens-Johnson Syndrome can also be a toxicity associated with this non-nucleoside reverse transcriptase inhibitor (NNRTI), especially if dose escalation is not used for the first 2 weeks of treatment. Patients with depression may be adversely affected by efavirenz, and this agent also can cause teratogenicity in first-trimester pregnancy by affecting the formation of neural tube defects in the fetus.

Pancreatitis is a risk when ddI is given to alcoholics and patients with a history of gall bladder disease.

Protease inhibitors are usually very effective but are fraught with GI symptoms including diarrhea and bloating, and may be implicated in lipodystrophy.
What is Good Practice? HIV Care Beyond ART

Opportunistic Infections (OIs)
The best OI prophylaxis is successful ART which will keep the CD4+ above 200, thus preventing virtually all OIs. That being said, in the newly diagnosed HIV patient, or the chronic patient with unsuppressed virus, who is possibly unwilling to take ART, OI preventive treatment can save lives.

SINCE THE IMPLEMENTATION OF ART, OI hospitalizations and deaths have decreased, but OIs remain a leading cause of morbidity and mortality in HIV-infected persons, primarily in those who are either not on ART, or for whom it is not effective due to insufficient adherence or viral resistance to the regimen. Individuals with CD4+ counts below 200 are vulnerable to PCP, bacterial infections, and cancers; as the CD4+ drops the risks increase, and when it is below 50, there is a very high risk for morbidity and mortality from PCP, mycobacterium avium complex, cytomegalovirus or cancers. Prophylactic treatment may be discontinued once the patient has attained and maintained a CD4+ >200 for at least three months, although some clinicians prefer to wait until six months at this level. See Table 1 for Screening and Prophylaxis Guidelines.1,3

PCP, or pneumocystis jirovecii pneumonia, is still the most deadly OI and the single most important one to prevent. PCP can develop very quickly, manifesting with progressive dyspnea, fever, nonproductive cough, and chest discomfort that continues to worsen over days or weeks. Effective prevention of PCP via TMP/SMX (Bactrim) significantly reduced mortality from HIV/AIDS even before the advent of HAART. The good news about PCP prophylaxis is that it also prevents CNS toxoplasmosis which has a high morbidity rate if not mortality.1,3

Mycobacterium avium-intracellulare (MAI or MAC) is an atypical tuberculosis that may be found in the lungs or in the blood, where it becomes an OI associated with very high fevers, night sweats, weight loss, and anemia. It is preventable.

MTB: Many patients have latent TB infection, which must be treated. The risk of active disease and disseminated mycobacterium tuberculosis rises for patients with lower CD4+ counts. All patients should be screened initially with Quantiferon or ppd or both. These are effective with CD4+ >200, to determine whether there is infection. These tests are less effective below CD4+ of 200, and more likely than not less effective below CD4+ 50. That being said, monitor yearly and repeat when low CD4+ levels rise above 200. Keep suspicion high for extrapulmonary TB in patients with CD4+<50. In special cases the clinician will need expert opinion to diagnose these syndromes. The chest x-ray is less likely to have typical TB stigmata as the CD4+ count drops below 200 and is even less likely to be obvious with us with CD4+ <50. Be suspicious of fever, night sweats, weight loss, enlarged lymph nodes and malaise with or without the pulmonary findings of cough, sputum and hemoptysis (expectoration of blood from the respiratory tract).1,3

Streptococcus pneumonia infection is a risk for all patients with CD4+ counts <200, and is preventable with pneumococcal vaccine, given once every five years.

Influenza A and B virus infection is a concern for all HIV patients. It is preventable, and all HIV patients should receive influenza vaccine annually.1,3,4

Summary of Recommended Immunizations for HIV-Positive Adults and Adolescents

<table>
<thead>
<tr>
<th>Immunization</th>
<th>HIV Infection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varicella vaccination</td>
<td>Contraindicated</td>
</tr>
<tr>
<td>Herpes Zoster</td>
<td>Contraindicated</td>
</tr>
<tr>
<td>Measles, mumps, rubella (MMR) vaccination</td>
<td>Contraindicated</td>
</tr>
<tr>
<td>Tetanus, diphtheria, and acellular pertussis (Td/Tdap) vaccination</td>
<td>1-time dose of Tdap; boost with Td every 10 years</td>
</tr>
<tr>
<td>Human papillomavirus (HPV) vaccination</td>
<td>3 doses for females through age 26</td>
</tr>
<tr>
<td>Influenza vaccination</td>
<td>1 dose annually</td>
</tr>
<tr>
<td>Pneumococcal polysaccharide (PPSV) vaccination</td>
<td>1 or 2 doses</td>
</tr>
<tr>
<td>Hepatitis A vaccination</td>
<td>2 doses if specific risk factor present</td>
</tr>
<tr>
<td>Hepatitis B vaccination</td>
<td>3 doses</td>
</tr>
<tr>
<td>Meningococcal vaccination</td>
<td>1 or more doses if specific risk factor present</td>
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</tbody>
</table>

The above table is adapted from: CDC. Recommended Adult Immunization Schedule – United States, 2009. January 9, 2009 / 57(53);Q-1-Q-4. http://www.cdc.gov/mmwr/PDF/wk/mm5753-Immunization.pdf. The recommendations must be read along with the footnotes in the CDC report, which provide guidance for vaccine and dose administration based on age and immunity status.
IMMUNOSUPPRESSION DUE TO HIV INFECTION increases the risk, occurrence, and severity of opportunistic infections (OIs) and other co-infections such as sexually transmitted infections. Ols can also have adverse effects on the natural history of HIV infection. The widespread use of antiretroviral therapy (ART) starting in the mid-1990s has had a profound influence on reducing OI-related mortality in HIV-infected persons, and is the most effective strategy for prevention of Ols.

Since the implementation of ART, OI hospitalizations and deaths have decreased, but Ols remain a leading cause of morbidity and mortality in HIV-infected persons, primarily in those who are either not on ART, for whom it is not effective due to insufficient adherence or viral resistance to the regimen. Achieving and monitoring undetectable HIV viral loads through treatment adherence efforts can also contribute to lowering HIV transmission and new HIV cases.

The CDC convened a working group, including NIH and the Infectious Disease Society of America, to update the 2004 guidelines on HIV treatment. They released a new report on April 10, 2009: Guidelines for Prevention and Treatment of Opportunistic Infections in HIV-Infected Adults and Adolescents.

The 2009 Guidelines emphasize the critical role of ART in preventing and treating Ols, especially for infections for which there is no current chemotherapeutic treatment. New recommendations include monitoring for development of immune reconstitution inflammatory syndromes (IRIS), and monitoring patients for interactions between rifamycin and antiretroviral therapy.

IO Cancers

Kaposi’s sarcoma (KS): Clinicians should conduct skin inspection on all patients, especially men who have sex with men, with special attention to legs and oropharynx, mouth and esophagus. Indicators are pigmented, nontender, nonblanching lesions. These may be difficult to find on pigmented skin. KS is controllable with chemotherapy or radiation or both. The best control of KS is ART and a healthy immune system. The primary complication of KS is visceral, affecting patients from mouth to anus. KS in the lungs has poorer prognosis but is treatable.

Non-Hodgkins lymphoma may manifest as enlarged lymph nodes, frequently seen in many HIV patients. Also present may be an enlarged spleen and symptoms of fevers, night sweats and weight loss. The clinician must distinguish between lymphoma and lymphadenopathy. Depending on the cell type, it may respond to HAART or require chemotherapy and radiation. Patients with CD4+ <200 have poor prognosis.

Cervical cancer, invasive has been less common in HIV patients since the early 1990’s, when HIV clinicians began proactively conducting more frequent screening as part of the standard of HIV care. In the future, HPV immunization may sharply reduce or even eliminate this as a significant OI. The Standard of Care calls for a baseline cervical Pap test followed up at 6 months and then every 6-12 months depending on the findings. Invasive cervical cancer is treatable and curable if found early, but can be fatal if not found until an advanced stage.

PREVENTION MODEL

Primary

Protect against Disease & Disability

- Primary prevention measures are designed to protect against disease and disability. These measures include but are not limited to immunizations, prenatal care, and ensuring safe drinking water.
  - Primary prevention of HIV/AIDS focuses on protecting uninfected persons from acquiring HIV through sexual intercourse or injection drug use. Education and outreach campaigns often encourage adoption of abstinence or protective measures such as condom use and avoiding sharing of needles and associated equipment.

Secondary

Identify & Treat Disease

- The goal of secondary prevention is to identify and treat disease as early as possible, ideally before symptoms develop. Screening for cancers and heart disease are targeted to those considered to be at risk. Early diagnosis and treatment is often associated with better outcomes including higher rates of cure, or slower disease progression, prevention or minimizing of complications, and lower rates of disabilities. HIV/AIDS is not curable, but antiretroviral treatment is readily available to reduce viral reproduction and its impact on the immune system.

Secondary prevention also aims to prevent the spread of communicable diseases. Individuals who know of their HIV infection have been shown to reduce HIV transmission to their sexual and injection partners. [ref=Richardson et al]

Tertiary

Improve Quality of Life

- Tertiary prevention is designed to improve the quality of life for people with existing diseases and disabilities. Treatment and disease management can limit disease progression and functional impairment, and provide rehabilitation. For people with HIV/AIDS, ART limits disease progression and can prevent opportunistic infections. Both ART and OI prophylaxis are tertiary prevention.
### TABLE 1. Prophylaxis to prevent first episode of opportunistic disease

<table>
<thead>
<tr>
<th>Pathogen</th>
<th>Indication</th>
<th>First Choice</th>
<th>Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumocystis pneumonia (PCP)</td>
<td>– CD4+ count &lt;200 cells/µL or oropharyngeal candidiasis (All)</td>
<td>– Trimethoprim-sulfamethoxazole (TMP-SMX), 1 DS PO daily (All); or 1 SS daily (All)</td>
<td>– TMP-SMX 1 DS PO tiw • (Bll); or Dapsone 100 mg PO daily or 50 mg PO • bid (Bll); or Dapsone 50 mg PO daily + pyrimethamine • 50 mg PO weekly + leucovorin 25 mg PO weekly (Bll); or Atovaquone 1,500 mg PO daily • (Bll); or Atovaquone 1,500 mg + pyrimethamine • 25 mg + leucovorin 10 mg PO daily (CIII)</td>
</tr>
<tr>
<td></td>
<td>– CD4+ &lt;14% or history of AIDS-defining illness (Bll)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>– CD4+ count &gt;200 but &lt;250 cells/µL if monitoring CD4+ count every 1-3 months is not possible (Bll)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>– Prophylaxis should be initiated if seroconversion occurred (All)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toxoplasma gondii encephalitis</td>
<td>– Toxoplasma IgG positive patients with CD4+ count &lt;100 cells/µL (All)</td>
<td>– TMP-SMX, 1 DS PO daily (AII)</td>
<td>– TMP-SMX 1 DS PO tiw • (BIII); or Dapsone 50 mg PO daily + pyrimethamine 50 mg PO weekly + leucovorin 25 mg PO weekly (Bll); or (Dapsone 200 mg + pyrimethamine 75 mg • + leucovorin 25 mg PO weekly (Bll); or (Atovaquone 1,500 mg +/- pyrimethamine • 25 mg + leucovorin 10 mg PO daily (CIII)</td>
</tr>
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<td></td>
<td>– Seronegative patients receiving PCP prophylaxis not active against toxoplasmosis should have toxoplasma serology retested if CD4+ count decline to &lt;100 cells/µL (CIII)</td>
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</tr>
<tr>
<td></td>
<td>– Prophylaxis should be initiated if seroconversion occurred (All)</td>
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<td></td>
</tr>
<tr>
<td>Mycobacterium tuberculosis infection (TB) (Treatment of latent TB infection or LTBI)</td>
<td>– (+) diagnostic test for LTBI, no evidence of active TB, and no prior history of treatment for active or latent TB (All); – (-) diagnostic test for LTBI, but close contact with a person with infectious pulmonary TB and no evidence of active TB (All); – A history of untreated or inadequately treated healed TB (i.e., old fibrotic lesions) regardless of diagnostic tests for LTBI and no evidence of active TB (All)</td>
<td>– Isoniazid (INH) 300 mg PO daily (All) or 900 mg PO biw (Bll) for 9 months – both plus pyridoxine 50 mg PO daily (Bll); or For persons exposed to drug-resistant TB, selection of drugs after consultation with public health authorities (All)</td>
<td>– Rifampin (RIF) 600 mg PO daily x 4 • months (Bll); or Rifabutin (RFB) (dose adjusted based on • concomitant ART) x 4 months (Bll)</td>
</tr>
<tr>
<td>Disseminated Mycobacterium avium complex MAC disease</td>
<td>– CD4+ count &lt;50 cells/µL – after ruling out active MAC infection (All)</td>
<td>– Azithromycin 1,200 mg PO once weekly (All); or Clarithromycin 500 mg PO bid (All); or Azithromycin 600 mg PO twice weekly (BIII)</td>
<td>– RFB 300 mg PO daily • (Bll) (dosage adjustment based on drug-drug interactions with ART); rule out active TB before starting RFB</td>
</tr>
<tr>
<td>Streptococcus pneumoniae infection</td>
<td>– CD4+ count &gt;200 cells/µL and no receipt of pneumococcal vaccine in the past 5 years (All)</td>
<td>– 23-valent PPV 0.5 mL IM x 1 (Bll)</td>
<td></td>
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<tr>
<td></td>
<td>– CD4+ count &lt;200 cells/µL – vaccination can be offered (CIII)</td>
<td>– Inactivated influenza vaccine 0.5 mL IM annually (All)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>– In patients who received polysaccharide pneumococcal vaccination (PPV) when CD4+ count &lt;200 cells/µL, but has increased to &gt;200 cells/µL in response to ART (CIII)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza A and B virus infection</td>
<td>– All HIV-infected patients (AllII)</td>
<td>– Inactivated influenza vaccine 0.5 mL IM annually (All)</td>
<td></td>
</tr>
<tr>
<td>Histoplasma capsulatum infection</td>
<td>– CD4+ count &lt;150 cells/µL and at high risk because of occupational exposure or live in a community with a hyperendemic rate of histoplasmosis (&gt;10 cases/100 patient-years) (CI)</td>
<td>– Itraconazole 200 mg PO daily (CI)</td>
<td></td>
</tr>
<tr>
<td>Coccidioidomycosis</td>
<td>– Positive IgM or IgG serologic test in a patient from a disease-endemic area; and CD4+ count &lt;250 cells/µL (CIII)</td>
<td>– Fluconazole 400 mg PO daily (CIII)</td>
<td>– Itraconazole 200 mg PO bid (CIII)</td>
</tr>
</tbody>
</table>
### TABLE 1. Prophylaxis to prevent first episode of opportunistic disease (continued)

<table>
<thead>
<tr>
<th>Pathogen</th>
<th>Indication</th>
<th>First Choice</th>
<th>Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varicella-zoster virus (VZV)</td>
<td>– Pre-exposure prevention: Patients with CD4+ count &gt;200 cells/µL who have not been vaccinated, have no history of varicella or herpes zoster, or who are seronegative for VZV (CIII) – Note: routine VZV serologic testing in HIV-infected adults is not recommended – Post-exposure – close contact with a person who has active varicella or herpes zoster: For susceptible patients (those who have no history of vaccination or of either condition, or are known to be VZV seronegative) (CIII)</td>
<td>– Pre-exposure prevention: Primary varicella vaccination (Varivax™), 2 doses (0.5 mL SQ) administered 3 months apart (CIII) If vaccination results in disease because of vaccine virus, treatment with acyclovir is recommended (All) Post-exposure therapy: Varicella-zoster immune globulin (VarIZIG™) 125 IU per 10 kg (maximum of 625 IU) IM, administered within 96 hours after exposure to a person with active varicella or herpes zoster (All) Note: As of June 2007, VarIZIG can be obtained only under a treatment IND (1-800-843-7477, FFF Enterprises)</td>
<td>– VZV-susceptible household contacts • of susceptible HIV-infected persons should be vaccinated to prevent potential transmission of VZV to their HIV-infected contacts (BIII) – Alternative post-exposure therapy: Post-exposure varicella vaccine (Varivax) • 0.5 mL SQ x 2 doses, 3 months apart if CD4+ count &gt;200 cells/µL (CIII); or Pre-emptive acyclovir 800 mg PO 5x/day • for 5 days (CIII) These two alternatives have not been studied in the HIV population</td>
</tr>
<tr>
<td>Human Papillomavirus (HPV) infection</td>
<td>– Women aged 15–26 yrs (CIII)</td>
<td>HPV quadravalent vaccine 0.5 mL IM months 0, 2, and 6 (CIII)</td>
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<tr>
<td>Hepatitis A virus (HAV) infection</td>
<td>– HAV-susceptible patients with chronic liver disease, or who are injection-drug users, or men who have sex with men (All). Certain specialists might delay vaccination until CD4+ count &gt;200 cells/µL (CIII)</td>
<td>– Hepatitis A vaccine 1 mL IM x 2 doses - at 0 &amp; 6–12 months (All) IgG antibody response should be assessed 1 month after vaccination; non-responders should be revaccinated (BII)</td>
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<tr>
<td>Hepatitis B virus (HBV) infection</td>
<td>– All HIV patients without evidence of prior exposure to HBV should be vaccinated with HBV vaccine, including patients with CD4+ count &lt;200 cells/µL (All) Patients with isolated anti-HBc: (BII) (consider screening for HBV DNA before vaccination to rule out occult chronic HBV infection)</td>
<td>– Hepatitis B vaccine IM (Engerix-B® 20 µg/mL or Recombivax HB® 10 µg/mL) at 0, 1, and 6 months (All) – Anti-HBs should be obtained one month after completion of the vaccine series (BII)</td>
<td>– Some experts recommend vaccinating with 40 µg doses of either vaccine (CIII)</td>
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<tr>
<td>Malaria</td>
<td>– Travel to disease-endemic area</td>
<td>– Recommendations are the same for HIV-infected and -uninfected patients. One of the following three drugs is usually recommended depending on location: atovaquone/proguanil, doxycycline, or mefloquine. Refer to the following website for the most recent recommendations based on region and drug susceptibility. <a href="http://www.cdc.gov/malaria/">http://www.cdc.gov/malaria/</a> (AllI)</td>
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Definitions of abbreviations: DS = double strength; PO = by mouth; SS = single strength; bid = twice daily; tiw = 3 times weekly; SQ = subcutaneous; IM = intramuscular

**REFERENCE:**
Screening for Other Infectious Diseases

Sexually Transmitted Infections (STIs or STDs): These infections are of concern because they usually indicate that patients are having unsafe sex, and are both harming their own health and possibly transmitting STIs and HIV to their partners. All patients should be screened at least initially and annually for the most common STIs.

Chlamydia and Gonorrhea are easily diagnosed by urine test. Chlamydia trachomatis has become the most common bacterial STI, especially among younger women, and carries the risk of ectopic pregnancy and infertility in both men and women. Gonorrhea is less common but is usually symptomatic and often resistant to treatment with quinolones. Both tests should be run annually on all patients and every six months or more frequently for patients who are sexually active with many partners, including commercial sex workers. Because dual infection is common, patients diagnosed with either gonorrhea or chlamydia should receive empiric treatment for both infections. Gonorrhea may be treated with a single dose of Ceftriaxone 125 mg IM or Cefixime 400 mg orally in a single dose or 400 mg by suspension. Chlamydia may be treated with Azithromycin 1 g orally in a single dose, or doxycycline 100 PO Q12 for seven days. Both infections may be treated with a single dose of 2 g azithromycin, but this is often accompanied by gastrointestinal distress and is not usually recommended. Guidelines from the CDC include several alternative, multi-dose regimens, which may be less acceptable to patients.6,7

Lymphogranuloma venereum (LGV) outbreaks, caused by Chlamydia trachomatis, have been reported over the past several years among men who have sex with men (MSM), causing genital ulcers followed with inguinal adenopathy. Diagnosis is by blood test. LGV may be treated by Doxycycline 100 mg orally twice daily for 21 days, or a Erythromycin or Azithromycin regimen.6,7

Syphilis has had a resurgence, especially among men who have sex with men. Untreated syphilis brings the risk of later development of neurosyphilis. Diagnosis is by RPR or VDRL blood tests, followed by staging of the infection. Patients whose infection is known to be detected early, with titers under 1:8, may be treated with a single injection of benzathine penicillin G, 2.4 million units intramuscularly (IM). However, patients with higher titers or unknown duration of infection will need to receive the same dose weekly for 3 consecutive weeks (7.2 million units total). They should also be examined for ophthalmologic, cardiac, and CNS symptoms. A lumbar puncture may be indicated to rule out neurosyphilis.6,7

Herpes simplex, including both HSV 1 and 2, may be treated according to the established guidelines for STI treatment [reference]. Patients with frequent outbreaks (more than six per year) should receive suppressive treatment with anti-HSV medications such as acyclovir (ZOVARAX), valacyclovir (Valtrex), or famciclovir (Famvir). Patients with less frequent outbreaks can be treated episodically for 1-5 days.6,7

Hepatitis: A, B, and C: It is imperative to screen all patients for hepatitis B and C. If results are positive for either, follow-up includes liver function tests, genotyping, viral load testing to stage the disease and determine the potential effectiveness of treatment. Patient education and counseling should be given about the risk of accelerated liver damage with alcohol. Hepatitis B and HIV treatment can be combined in a single antiretroviral treatment regimen, but the clinician must be sure to include hepatitis B treatment when the regimen is changed, to avoid a flare. The clinician must be cognizant of hepatitis B and C status and monitor liver function when administering ART, to identify the need for drug avoidance to minimize liver toxicity. Hepatitis C treatment requires a relatively intact immune system, and is effective in patients with CD4+ >350. Patients with advanced liver disease may be eligible for liver transplant if they have CD4+ >200 and an undetectable viral load. Transplant decisions are complicated by the need to suppress the immune system to avoid organ rejection, which is risky for any HIV patient.6,7

Immunizations: summary:

- Influenza and Pneumococcal: all patients should have annual influenza vaccine and pneumococcal vaccine every five years.
- Hepatitis B: initial and annual blood screening; provide hepatitis B vaccine for all who test HBV negative.
- Human papillomavirus (HPV): screening for all, targeted prevention: vaccine for women up to age 25.

For more information on opportunistic infections:


AIDSInfoNet: New Mexico AIDS Education and Training Center-sponsored site provides frequently updated factsheets on HIV/AIDS services and treatments in both English and Spanish. Separate fact sheets are available on each OI. www.aidsinfonet.org


Other Primary Care Concerns

Cardiac

ALL HIV PATIENTS should have their lipid profiles monitored at least annually and treatment provided to control lipids if necessary. Lipodystrophy has become a common comorbidity in HIV patients due to several factors: 1) aging; the entire HIV-positive population is living longer, and reaching a stage of life when the condition is more common; 2) HIV medications, especially protease inhibitors, can directly increase lipids and exacerbate existing lipid abnormalities; and 3) obesity has become more common in long-term survivors with HIV.

Note: not all chest pain is pulmonary. Check for coronary artery disease, noting age, abnormal lipids that may be due to ART, alcohol and drug use, and comorbidities including diabetes. In women, cardiac disease often presents with silent or atypical symptoms such as nausea or malaise, especially in perimenopausal and postmenopausal women. Cocaine users are at risk for sudden myocardial infarction, with a high mortality rate.\textsuperscript{1,8,9}

Pulmonary

The most common co-morbidity for HIV patients is asthma, which is also the most common presenting problem for HIV positive patients in many clinics. This could be due to or triggered by cocaine use and environmental exposures. Chronic obstructive pulmonary disease (COPD) is most common in smokers. Interstitial lung disease, including sarcoidosis, is confounded by PCP, which a similar appearance on chest x-ray. Cancer of the lung is appearing more often as HIV patients live longer and develop solid tumors. Symptoms may be seen in the mouth and should be monitored especially in smokers; urban environments also contribute to lung cancer.\textsuperscript{1,7,9}

Gastrointestinal

COLON CANCER: Monitor per Internal Medicine guidelines, which indicate the schedule for colonoscopy is no different from any other patient, consider age, family history. For HIV patients, do a colon evaluation if patient is anemic or reports blood in stool.\textsuperscript{1,8}

STOMACH: Dyspepsia and diarrhea are common side effects of some HIV antiretroviral medications. Check patients with dyspepsia for peptic ulcer disease and for H. pylori. Treatment requires caution to avoid interactions with protease inhibitors. Diarrhea may be caused by isospora belli, microsporidiaosis, or cryptosporidiosis, which is commonly found in drinking water and usually does not cause symptoms except in patients with CD4+ <200. It can become fatal in patients with CD4+ <50. There is no treatment that is completely effective for cryptosporidiosis; usual treatment is HAART and supportive care. C. difficile colitis may be found post-antibiotic use and requires symptomatic care. MAC can cause diarrhea.\textsuperscript{2,9}

NAUSEA AND VOMITING are often side effects of newly initiated ART. These effects usually subside within two weeks, and symptom relief should be provided to support patients staying on these new regimens. Norvir and zidovudine should be taken with food to avoid nausea, whereas efavirenz, ddl, and combinations containing them such as Atripla (efavirenz/tenofovir/emtricitabine) should be taken on an empty stomach.\textsuperscript{2,9}

The clinician and treatment team must be aware of the need to educate patients about optimal management of medications and side effects.

Blood in the stool always requires attention, and patients should be asked about this at every visit as part of the multidisciplinary update.

ABDOMINAL PAIN may be caused by gall bladder problems including gall stones, especially in those who are overweight or have severely fluctuating weight. Treatment includes diet and potentially surgery. Pancreatitis is found in individuals with a history of alcohol or drug use, or gall bladder disease. Treatment is not curative, but includes diet and medication. The condition may persist long after alcohol use has ceased. Pancreatitis can be life-threatening for the patient on ddl.\textsuperscript{2,9}
Cancer Screenings

HIV patients should have, at a minimum, the cancer screenings recommended by U.S. Preventive Services Task Force. Cancers which are not opportunistic infections, but still may affect many HIV patients, include lung, head and neck, GI, breast, colon, prostate, rectal, renal, and liver. Screening for lung, GI, and colon cancers has been described in earlier sections.

**HEAD AND NECK CANCER:** Clinicians should conduct frequent oral examinations, especially in smokers and drinkers, and those who chew tobacco, as these individuals are at highest risk for oral and head and neck cancers.

**BREAST CANCER** screening follows internal medicine guidelines, including taking a family history and having mammography five years before an index case in a close relative, as well as a baseline at 40 and recommendations and teaching patients for self exams.

**PROSTATE CANCER** screening is especially important for African American men, who are disproportionately affected and a significant population among HIV patients.

**RECTAL CANCER** can be detected by anal pap, which is considered optional in most HIV practices, and increasingly conducted for men who have sex with men. A rectal smear can be obtained at the same time as a cervical pap for women or a colon cancer screening for either gender.

**LIVER CANCER** is a significant risk for patients with hepatitis C, cirrhosis, and a history of substance use and abnormal liver function tests.

**Renal or Kidney Disease**

Kidney disease may be due to diabetes, hypertension, polycystic disease, heroin or cocaine use, and possibly even HIV disease itself. **All patients should have regular BUN, creatinine, (GFR) and urinalysis monitoring.** Many medications for HIV and comorbidities are nephrotoxic and can increase the risk of kidney disease. Patients taking medications such as TMX/SMX, acyclovir, vancyclovir, tenofovir, lamivudine, and Indinavir, and others noted in the earlier section of this article on “Avoidance of Treatment Toxicity,” should be monitored, as should those exhibiting proteinuria.

**Liver Disease**

The most common infectious agent is hepatitis. Liver toxicity may develop due to HIV medications, and other medications metabolized through the liver. All HIV patients should have liver function monitored as part of standard labwork.

**Allergy and Immunology**

Many patients have common disorders such as seasonal allergies and sinusitis, which are easily treated. Rheumatologic conditions including arthritis, myopathies, arthropathies, and lupus can affect any patient, which may reduce their mobility and add another set of medications with high risk of interactions with HIV treatment.

**Endocrine**

**Diabetes is endemic in the patient population seen in urban HIV practices,** which are predominantly African American and Latino. Many patients have elevated risks for diabetes including family history, morbid obesity, and predisposition due to use of protease inhibitors. Treatment of asthma and arthritis with steroids also increases the risk of diabetes. With patients who complain of fatigue, the clinician should consider abnormal thyroid function. Both hyperthyroid and hyperthyroid conditions can occur in the HIV patient.

**Hypogonadism,** or decreasing testosterone functioning, is found with advanced HIV disease. Men may present with erectile dysfunction, and their serum testosterone should be measured before treating. In women, some affected with this condition may be able to take hormone replacement therapy if it is carefully selected and monitored. Post-menopausal women who have severe symptoms and a favorably risk profile may benefit from estrogen replacement therapy (ERT).
If any one of these “legs” (or four key issues) is missing or in disarray, the patient will wobble and struggle with adherence. If there are two areas malfunctioning, the patient is likely to fall out of adherence.

**Mental health vs. illness:** For all patients, the provider should conduct a baseline screening that evolves over the first several visits. A single encounter will not suffice to obtain an accurate picture of the patient’s emotional and mental health history, risks, and current functioning. It is essential to quickly refer any patients who are identified as experiencing or at risk for mental illness to mental health services, preferably a known psychiatrist, psychologist, or clinical social worker experienced in working with HIV-positive individuals. Many patients with mental illness can be treated effectively with a combination of medication, therapy, and lifestyle modifications such as exercise. Current research supports multi-modal treatment including exercise or other movement as more effective than medication or therapy alone.10

**Substance use** use is nearly universal, but is problematic in a substantial proportion of HIV patients. In addition to the substance use and treatment history obtained at intake, all patients should have a baseline toxicology screen. Following the initial screen, clinicians should routinely ask about substance use, and respond to current use that is affecting functioning with offers of referral to addiction treatment, counseling, 12-step groups and harm reduction programs. The clinician should consider additional toxicology screens randomly as well as upon suspicion of intoxication, especially if testing is refused. Substance abuse is expensive both in the cost to the patient for drugs and alcohol purchased before living needs, and in the cost of healthcare required for conditions related to the effects of altered judgment and resultant infections.

**Economic deprivation** is perhaps the most difficult challenge to address. Patients may be unaware of the resources available to them to help pay for medical care and medications, such as Ryan White-funded clinics and ADAP prescription coverage. Consultation with the clinic social worker or case manager should be mandatory, to assure that all patients have access to necessary supports regardless of their literacy level, language, or fears of legal and bureaucratic entanglements. Housing, childcare, and other expenses may be far less accessible, but case managers are links to community resources that may help patients achieve more stable lives that will directly and indirectly help them live healthier lives and thus manage their HIV infection and treatment adherence more effectively.

**A supportive family structure** is a tremendous resource for the patients fortunate enough to have one. This family of origin or of choice may include a partner, parents, siblings, friends or others who are able to encourage the patient to be optimistic about the effectiveness of treatment, and to see and experience more in their lives than their diagnosis. However, in many cases, family is more of a stress and responsibility than a support, and patients struggle daily to have stability and safety for themselves and their children.

If you ask the patient how she is sleeping, you may hear why the patient doesn’t get enough rest:

- The patient who looks exhausted may tell you that she is dodging bullets several nights a week because gang fighting results in many strays going through apartment windows. Will she remember to take her medication three times a day? Will she get enough sleep, and eat healthy meals at appropriate intervals to buffer medication side effects? How is her anxiety level, and what kind of mental health or social work services may reduce her stress?
Short-Term and Long-Term Treatment Goals

HIV patient care requires that the clinician establish and work toward both short-term and long-term goals for each patient, based on assessment, triage, and discussion with the patient to prioritize treatment for the immediate future. This process is repeated many times over the years and may still uncover new information at any point. Throughout treatment, the clinician must monitor the patient for immune status through CD4+ counts and response to treatment through viral load tests, and become especially vigilant when viral loads are high, whether due to non-adherence or resistance due to some other factor. Prevention of opportunistic infections becomes the most critical aspect of HIV care for immune compromised patients, and clinicians must provide prophylactic treatment until the immune system has improved. For instance, PCP prophylaxis is provided until the CD4+ count has remained above 200 for at least six months.\(^8\)

For the overloaded clinician, the ideal HIV patient will be totally adherent to ART, will follow all advice and go to all referrals and laboratory appointments. This patient will require very few visits, and care will become as routine as care for any chronic illness.

The HIV patient’s goals are different: first, to feel good and not experience discomfort or pain. Ideally, the disease will be uneventful and medication will become unnecessary, with few visits to the doctor and no hospital stays. The primary goal is to live long and well with as little medical intervention as possible.

Clinician and patient goals are not always possible to reconcile, but working toward mutual goals and solutions is essential to clinician-patient partnership. The Karnofsky score, often used in developing countries, is a useful indicator to assess the functional status of severely immune compromised patients as they progress through HIV care and treatment, to determine and document needs for supportive services such as home healthcare, pain management, and physical therapy, or to demonstrate a patient’s attaining a higher level of functioning needed for return to work. A harm reduction approach includes patient involvement in preventive medicine goals such as OI prophylaxis, as well as in adoption and reinforcement of healthy behaviors.

The clinical team can teach the patient to be a “good patient” who understands the rationale for monitoring and treatment, and is involved in care decisions. An interdisciplinary team is an important resource for problem-solving both for medical issues and for addressing problems that interfere with a stable and healthy life, such as substance abuse, homelessness, mental illness, and making healthier behavior changes such as smoking cessation and improved nutrition. The team can work with the patient to identify a regimen that requires the fewest number of pills and side effects, and as few visits as possible. This partnership can help both patients and clinicians weather crises and periods when one or both parties feel that treatment is not working. When clinicians acknowledge the difficulties of treatment and the possibility of needing to change strategies, it humanizes the clinician and helps patients become more aware of their own role in having better health. HIV/AIDS has no cure. Like an inactive person who enters training for a marathon, the person living with HIV infection must train for the long haul, over many years. The clinician and HIV care team serve as coaches, helping the individual move from the recliner to trying out new muscles, working through pain and inconvenience, in many stages. Progress is not linear, and it takes great effort to continue working toward the long-term goal of a strong healthy body.
What is Good Practice? HIV Care Beyond ART – Conclusion

Competent HIV care is far more than reaching an undetectable viral load and a CD4+ count under 200. Continuity of care is essential to maintain the health of the person living with HIV infection. The HIV care provider gets to know the patient over time and through crises as well as calmer times. The patient who is familiar with and known to both the clinic or practice and the clinician will have the highest quality of care.
# What is Good Practice? HIV Care Beyond ART

## My medical care

### Who is my personal physician/clinician?

### How do I get in touch?

### When is my next medical appointment?

### Do I need to get blood drawn at the lab?

## Meditations:

### What medications do I take?

### When should I take them?

### What does each one treat?

- HIV antiretroviral meds: be able to name each one
  - A
  - B
  - C
- Other infection
- High blood pressure
- Depression
- Hepatitis

## MY PART IN STAYING HEALTHY: Am I maintaining my health in my daily life?

- **Good nutrition:** To reduce salt and sugar intake and maintain optimal weight and energy level; and make good use of restricted budgets.
- **Eat fresh foods,** drinking plenty of water, and choose good quality protein.
- **Avoid empty, expensive calories** such as soda and processed foods. Foods in cans or cellophane with long lists of unfamiliar ingredients are usually not good food investments.
- **Get exercise & be active,** for both physical & mental health.
- **Smoking:** Cut back or stop, especially with lung problems including asthma, allergies, history of pneumonia and PCP.
- **Drinking:** Cut back or stop, especially with liver disease.
- **Using drugs:**
  - If stopping is not realistic, try harm reduction steps:
    - Stop using needles
    - Eliminate one agent (drug)
    - Go to 12-step meetings, even if you are not abstinent
    - Try methadone or suboxone treatment
- **Maintain or build security** in living situation with adequate income to assure housing and food for self and family.

## REFERENCES


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# Checklist for the HIV Patient

## My Medical Care

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- **Maintain or build security** in living situation with adequate income to assure housing and food for self and family.

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# References

Questions 1 through 4 refer to the following case:

**Case:** The patient is an anxious 37-year-old woman admitted to the hospital with PCP, hepatitis C and B, endocarditis, wasting, and oral esophageal candida. She is a commercial sex worker and has been hospitalized seven times in the last year. Her latest CD4+ is 18 and her viral load is 128,000. She takes her medication when she can, but not all of them, and not every day. She says that she does the best that she can. She uses heroin, cocaine, and street Xanax “to feel better.” She lives variably in her sister’s basement, the shelter, or on the street with friends. She has lost custody of two young children, and this has made her very depressed. She is now better and about to be discharged. You want to help this woman. What can you do in the short term and the long term?

1. **The most important outpatient medical intervention to initiate for this patient IMMEDIATELY is:**
   A. ART
   B. PCP prophylaxis.
   C. Treatment for hepatitis C
   D. STI monitoring

2. **The patient’s immediate health risks related to prostitution should be addressed by:**
   A. Frequent STI screening and safer sex counseling.
   B. Referral to substance abuse treatment.
   C. Advising patient that her health is endangered by her lifestyle.
   D. Help with applying for public assistance to reduce her need for prostitution income.

3. **The team should help the patient address her most important social need, which is:**
   A. Substance abuse treatment.
   B. Safer sex counseling.
   C. Reuniting her with her family.
   D. Ask the patient to name her priority.

4. **What intervention would be most appropriate to address the behavioral health concerns you have identified about this patient?**
   A. Provide Xanax prescription.
   B. Referral to mental health clinic for evaluation and treatment.
   C. Provide pain medication.
   D. Referral to substance abuse treatment.

Questions 5 through 7 refer to the following case:

**Case:** A 37-year-old professional man was admitted through the Emergency Department with shortness of breath and was diagnosed with pneumonia. He was found to be HIV-positive, and TB was ruled out. PCP was found, and he was placed on a vent. His CD4+ count was 2. He was treated but initial response was so poor that a DNR was considered. He was unable to walk from a chair to bed. He gradually improved and was placed on HAART. His CD4+ count three months later was 39, with an undetectable viral load. He felt better, though he was not able to return to work and was very worried about dying, especially in poverty. His family was out of state, and his male partner was often not available; he had no social supports. He continued to take HAART and PCP and MAI prophylaxis. He was also treated for HSV-2. After six months, his CD4+ count had improved to 64. At one year, the patient was feeling well. His CD4+ was 254 and viral load was <48. This patient has now moved out of the area where he was first treated, and is your patient. How will you proceed?

5. **The patient is still on PCP prophylaxis.**
   **When can you discontinue this treatment?**
   A. You should continue permanently, as the patient has AIDS.
   B. You should continue permanently, as the patient has a history of PCP.
   C. You can discontinue prophylaxis once the patient has had CD4+ >200 for more than 6 months.
   D. You can discontinue prophylaxis now, as the patient has taken medication for 6 months.

6. **Why did the patient do so well following such severe illness?**
   A. He had a history of professional employment.
   B. He was adherent to both PCP medication and ART.
   C. He was an MSM and not an intravenous drug user.
   D. He had PCP and not a community-acquired pneumonia.

7. **Would you advise the patient that he can return to work?**
   **What are the indicators?**
   A. The patient can work as long as he feels healthy, is able to perform all activities of daily living, and continues to take ART and medications as prescribed.
   B. The patient should be seen monthly for three months to assure that he is adherent, and enroll in mental health services or other support services that will be a resource in case of future acute illness.
   C. The patient should not return to work until his CD4+ has stabilized above 350 and he has had six months with no infections.
   D. The patient can work if his CD4+ is above 200.
Questions refer to the content of the article and the notes that follow. To receive CME/CE/CEU credit: complete exam, registration, and evaluation forms on-line at www.umdnj.edu/ccoe/aids or fill in the forms on the following pages, and mail or fax to UMDNJ-CCOE (see Registration Form).

Questions 8 through 10 refer to the following case:

Case: A female patient was diagnosed with HIV infection 23 years ago, in 1996, following the death of her husband from AIDS. She was eight months pregnant at the time, and was told by her husband's physician that both she and the baby had six months to live. She came to the infectious disease clinic for a second opinion, and received a full work-up. Her infant was followed by the pediatric infectious disease clinic, and seroreverted. The patient's initial CD4+ count was 175, and she also had genital warts and herpes simplex type 2. The clinic enrolled her in a clinical trial of a combination therapy, which was an early HAART trial.

For approximately 10 years, she came to the clinic but preferred to see the nurse practitioner, and to focus treatment on acute medical care. She had many difficulties with medications, and frequently stopped ART to address each of the side effects. She also developed resistance due to intermittent adherence to ART, secondary to a series of changes in regimens. She developed candida, hypertension, and cardiac disease, only partially explained by a family history of hypertension. She was hospitalized an average of more than once a year from the mid-1990s until 2005. She had a diverting colostomy due to a rectovaginal fistula from ongoing herpes outbreaks and genital wart.

She continued to be sad about the loss of her husband during this time and each complication reminded her of him. She never used illegal drugs and was very cautious about dating and sexual relationships since diagnosis. Her son continued to be healthy, did well in school, and the focus of her life was ensuring his well-being.

In 2007 the patient came in with extreme fatigue and was diagnosed with congestive heart failure (CHF) aortic stenosis. She had neuropathy, and needed to use a cane or wheelchair. Her CD4+ count had dropped to 7. The cardiologist consulting on her case recommended aortic valve replacement, but she was too ill to undergo surgery. She became despondent and feared she would not be able to see her son graduate from college. She was now being hospitalized every one to two months.

Upon extensive discussion, the patient agreed to go back on ART, “for my son.” She responded and began to feel better, and her CD4+ count rose to over 200. She was re-evaluated for cardiac surgery, but they found that her aorta was too stiff. She also developed renal failure and refractory CHF. Many, in both her personal life and the hospital, thought that she would die.

Despite all of her medical complications, the patient's health has continued to improve, and her viral load is now undetectable and her CD4+ count is 351. She is taking cardiac medications and was re-evaluated as stable. Her colostomy was reversed, and her candida is gone. This winter, she traveled to Florida to visit her son in college. She has remained adherent to her ART and continues to be under the care of her cardiologist, nephrologist, and ID physician who coordinate her care.

8. **What was the role of the immune system in STD manifestation?**
   A. More severe symptoms
   B. Poorer response to treatment
   C. More aggressive disease
   D. All of the above

9. **What medications would you not need to avoid or adjust in treating this patient, to avoid renal failure?**
   A. Indinavir or lamivudine
   B. Zidovudine
   C. Efavirenz
   D. Protease inhibitors

10. **What strategy would you use to avoid the resistance that developed in the middle years of this patient's treatment?**
   A. Take patient off some of her ART until her infections are cured or stabilize.
   B. Avoid medications causing or exacerbating cardiac disease.
   C. Using frequent visits to achieve side effects management to short-circuit any medication-caused problems, with supportive counseling from the multidisciplinary team.
   D. Referral to complementary therapy program to manage side effects without use of toxic medications.
# What is Good Practice? HIV Care Beyond ART

## Registration Form

In order to obtain continuing education credit, participants are required to:

1. Read the learning objectives, and review the activity, and complete the post-test.
2. Complete this registration form and the activity evaluation form on the next page, and record your test answers below.
3. Send the registration and evaluation forms to: UMDNJ-Center for Continuing and Outreach Education
   - VIA MAIL: PO Box 1709, Newark, NJ 07101-1709
   - VIA FAX: (973) 972-7128
4. Retain a copy of your test answers. Your answer sheet will be graded and if you achieve a passing score of 70% or more, a credit letter awarding 1.25 AMA PRA Category 1 Credit(s)™ or 1.25 contact hours or 0.125 continuing education units, and the test answer key will be mailed to you within four (4) weeks.

Individuals who fail to attain a passing score will be notified and offered the opportunity to complete the activity again.

**Online option:** This activity will be posted at [www.umdnj.edu/ccoe/aids](http://www.umdnj.edu/ccoe/aids) where you will be able to submit your registration, quiz, and evaluation, and print your own credit letter.

Please note: CE credit letters and long-term credit retention information will only be issued upon receipt of completed evaluation form.

### POST-TEST
Circle the best answer for each question.

- **1.** A B C D
- **2.** A B C D
- **3.** A B C D
- **4.** A B C D
- **5.** A B C D
- **6.** A B C D
- **7.** A B C D
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- **9.** A B C D
- **10.** A B C D

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Fax #

Preferred Mailing Address:  
- Home  
- Business

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Indicate the type of continuing education credit you wish to obtain as a result of your participation in this activity.

- [ ] Nurses: Nursing contact hours (ANCC): Hours awarded: 1.25
- [ ] Physicians: AMA PRA Category 1 Credit(s)™ Credit Letter: Credits Claimed: ____
- [ ] General: Continuing Education Units (up to 0.125): Credits Claimed: ____

One credit for each hour of participation (ANCC, AMA); not to exceed 1.25 credits. Continuing Education Units: one unit per ten hours of participation.

I attest that I have completed the activity as designed. I will report the number of credits claimed above during my filing of continuing education credit with professional organizations, licensing boards or other agencies.

Signature __________________________ Date __________________

**Release date:** June 1, 2009  •  **Expiration date:** Credit for this activity will be provided through May 30, 2011.

Nursing Credit for this activity will be provided through May 30, 2011.

**UMDNJ-Center for Continuing & Outreach Education**
PO Box 1709, Newark, New Jersey 07101-1709
Phone: 973-972-4267 or 1-800-227-4852  •  Fax: 973-972-7128

Page 17 / New Jersey AIDSLine, June 2009
What is Good Practice? HIV Care Beyond ART
Registration Form

In order to obtain continuing education credit, participants are required to:

1. Read the learning objectives, and review the activity, and complete the post-test.
2. Complete this registration form and the activity evaluation form on the next page, and record your test answers below.
3. Send the registration and evaluation forms to: UMDNJ-Center for Continuing and Outreach Education
   • Via Mail: PO Box 1709, Newark, NJ 07101-1709 • Via Fax: (973) 972-7128
4. Retain a copy of your test answers. Your answer sheet will be graded and if you achieve a passing score of 70% or more, a credit letter awarding 1.25 AMA PRA Category 1 Credit(s)™ or 1.25 contact hours or 0.125 continuing education units, and the test answer key will be mailed to you within four (4) weeks.

Individuals who fail to attain a passing score will be notified and offered the opportunity to complete the activity again.

Online option: This activity will be posted at www.umdnj.edu/ccoe/aids where you will be able to submit your registration, quiz, and evaluation, and print your own credit letter.

Please note: CE credit letters and long-term credit retention information will only be issued upon receipt of completed evaluation form.

POST-TEST
Circle the best answer for each question.


– PLEASE PRINT –

First Name  M.I.  Last Name  Degree
Daytime Phone #  Evening Phone #
Fax #  E-mail
Preferred Mailing Address:  □ Home  □ Business
Address
City  State  Zip Code
Affiliation/Specialty

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Page 18 / New Jersey AIDSLine, June 2009
The planning and execution of useful and educationally sound continuing education activities are guided in large part by input from participants. To assist us in evaluating the effectiveness of this activity and to make recommendations for future educational offerings, please take a few moments to complete this evaluation form. Your response will help ensure that future programs are informative and meet the educational needs of all participants.

Please note: CE credit letters and long-term credit retention information will only be issued upon receipt of completed evaluation form. Thank you for your cooperation!

PROGRAM OBJECTIVES:

Having completed this activity, are you better able to:

**Objective 1:** Establish short and long-term goals for each HIV patient, based on assessment, triage, and prioritizing with the patient.

**Objective 2:** Provide treatment to prevent opportunistic infections in HIV patients, according to the 2009 CDC guidelines.

**Objective 3:** Provide prophylactic vaccines to HIV patients, based on the most recent CDC guidelines, to reduce preventable disease.

**Objective 4:** Identify and address issues preventing optimal health of HIV patients, including nutrition, smoking, mental health and substance use.

If you do not feel confident that you can achieve the above objectives to some extent, please describe why not.

OVERALL EVALUATION:

The information presented increased my awareness/understanding of the subject.

The information presented will influence how I practice.

The information presented will help me improve patient care.

The faculty demonstrated current knowledge of the subject.

The program was educationally sound and scientifically balanced.

The program avoided commercial bias or influence.

Overall, the program met my expectations.

I would recommend this program to my colleagues.

Based on the content of the activity, what will you do differently in the care of your patients? (check one)

☐ Implement a change in my practice.
☐ Seek additional information on this topic.
☐ Do nothing differently. System barriers prevent change.
☐ Not applicable. I do not see patients in my current position

If you anticipate changing one or more aspects of your practice as a result of your participation in this activity, please provide us with a brief description of how you plan to do so.

May we contact you in two months to see how you are progressing on the changes indicated above?

☐ Yes. Please provide your email address __________________________
☐ No. I do not wish to participate in the follow-up assessment.

If you are not able to effectively implement what you learned at this activity, please tell us what the system barriers are (e.g., reimbursement issues, managed care rules, formulary decisions, countervailing practice guidelines, etc).

Please list any topics that you would like addressed in future educational activities.

CE Activity Code: 11HC07-DE01 / This form may be photocopied.