6. HIV DISEASE

Steven Asch, MD, MPH

Six practice guidelines (Carpenter et al., 1996; NIH Draft Principles, 1997; NIH Draft Guidelines, 1997; AHCPR, 1994; MMWR, 1988; MMWR, 1995) and five reviews (Bozette and Asch, 1995; Hopkins HIV Report, 1997; Jewett and Hecht, 1993; Richards, Kovacs, and Luft, 1995; Simonds, Hughes, Feinberg, and Navin, 1995) provided the background material in developing quality indicators for HIV disease. We also performed MEDLINE searches of the medical literature from 1993 to 1996 to supplement these references.

IMPORTANCE

HIV/AIDS is a devastating medical and public health problem in the United States and throughout the world. Approximately one million individuals are estimated to have HIV infection in the U.S., although the number of new cases may be leveling off (MMWR, 1996). In the U.S., HIV disease is currently the leading cause of death among young men, and the fastest-rising cause of death among young women. Estimates of the number of new U.S. AIDS cases per year range from 43,000 to 93,000. The majority of AIDS cases in the U.S. are in gay/bisexual men (63%) or intravenous drug users (23%), most of whom live in large metropolitan areas. However, an increase in AIDS incidence in suburban and rural parts of the country is already being seen and is expected to continue (Cohn et al., 1994).

Although the reach of the epidemic is broad, recent improvements in HIV treatment show great promise. New, effective regimens are available to decrease viral loads (Markowitz et al., 1995; Danner et al., 1995; Collier et al., 1996; Kitchen et al., 1995) and prevent opportunistic infections (Simonds et al., 1995; Richards et al., 1995; Ostroff, 1995). Because of these advances, HIV disease has joined conditions such as diabetes, asthma, and atherosclerotic disease as a chronic, manageable illness (Benjamin, 1990). With timely and effective care, many Americans infected with HIV can expect to live full, productive lives for years and even decades (Osmond et al., 1994; Muñoz et al. 1989; Sheppard et al., 1993; Moss and Bacchetti, 1989).
Because the care of HIV-positive patients is so complex, we have concentrated our quality indicators on the following common and important areas: (1) screening and prevention of opportunistic infections and other diagnostic testing, (2) CD4 and viral load monitoring, and (3) antiretroviral therapy. Screening and diagnosis of HIV infection itself and prevention of its spread are covered elsewhere (see the Preventive Care chapter for the General Medicine Panel), and treatment of opportunistic infections is not covered at all. Screening for cervical cancer in HIV patients is also covered elsewhere (see Chapter 3), as is screening for TB infection (see Preventive Care chapter for the General Medicine Panel). Prevention of active TB disease is covered in this chapter.

**SCREENING AND PREVENTION**

HIV-infected patients are at high risk for developing a wide variety of opportunistic infections. As a result, they benefit from screening tests to detect the presence of the infection, and in some cases, presumptive therapy to prevent the opportunistic infection once immune function drops below certain threshold levels. This section discusses the evidence on screening and prevention for the following opportunistic infections: (1) Pnuemocystis carinii pneumonia (PCP), (2) Tuberculosis (TB), (3) Toxoplasmosis encephalitis (TE), (4) Mycobacterium avium complex (MAC), (5) Pneumococcal pneumonia, (6) Cytomegalovirus retinitis (CMV), and (7) Syphilis.

**Pnuemocystis Carinii Pneumonia (PCP)**

PCP is the most common serious opportunistic infection among HIV patients. Prospective follow-up of a cohort of 2,627 HIV-infected men showed it to be the most common AIDS-defining condition in the absence of prophylaxis. Over 42 percent of the 873 men whose infection had progressed to AIDS had PCP. The incidence of PCP decreased in the early 1990s, most likely due to increasing use of effective primary prophylaxis (Simonds et al., 1995; Muñoz, 1989). Without prophylaxis, cumulative incidence of PCP infection rises dramatically as the CD4 count drops, nearing 20 percent for those with CD4 counts under 200. Unexplained prolonged fever (temperature over 100°F for more than two weeks) and oral candidiasis are also associated with the development of pneumonia (Phair, 1990). Nine RCTs using some combination of these criteria and other AIDS-defining illnesses have shown the following
regimens to reduce the incidence of PCP: 1) TMP/SMX (single strength or double strength at least three times per week), 2) Dapsone (100 mg/day), 3) aerosolized pentamidine (300 mg four times per month), 4) Dapsone (50 mg/day) plus pyrimethamine (50 mg/week) and leucovorin (25 mg/week), 5) Dapsone (200 mg/week) (Simonds et al., 1995; Fischl, 1988; Leoung, 1990; Slavin, 1992; Schneider, 1992; Hardy, 1992; Girad, 1993; Mallolas, 1993; Opravil, 1995; Bozzette and Asch, 1995). Guidelines from the Centers for Disease Control (CDC) and others recommend prophylactic therapy for all patients with nadir CD4 counts less than 200, previous PCP, unexplained fever, or oral candidiasis (MMWR, 1991; MMWR, 1995; NIH Draft Guidelines, 1997). We have reproduced those recommendations as a quality indicator (Indicator 1), but have left out the indication of unexplained fever due to potential difficulties in abstracting this information from the medical record.

**Tuberculosis (TB)**

HIV-positive patients are both more likely to have been infected with TB before contracting HIV and to develop active TB once HIV infection is established. Co-infected patients have a ten percent annual risk of developing active TB (Selwyn, 1989). Although no randomized trials are available, experts usually recommend screening with some combination of history, PPD and anergy testing, and chest x-ray. One study (Jordan, 1991) supports treatment of latent disease for all HIV patients, regardless of screening results. However, most experts now recommend isoniazid therapy if the PPD is greater than 5 mm inuration in the absence of active disease, or if the patient has been recently exposed to someone with active disease (AHCPR, 1994; Hopkins HIV Report, 1997) (Indicator 2).

**Toxoplasmosis Encephalitis (TE)**

TE occurs in ten to 50 percent of patients who are seropositive for antibodies to *Toxoplasma gondii* and who have CD4 counts less than 100. The relative risk for developing the disease in seropositives as compared to seronegatives is 27 (Oskenhendler, 1994). Two RCTs and one observational trial with seropositives show that pyrimethamine and the combination of dapsone and pyramethamine are effective in preventing TE. One RCT showed it to be ineffective, but many of the patients in that trial were on concurrent PCP prophylaxis (Jacobson, 1994; Girad, 1993; Clotet, 1991; Clotet, 1992;
Bachmeyer, 1994). Observational and laboratory data suggest that anti-PCP regimens containing TMP/SMX are also effective (Richards et al., 1995). Expert groups have recommended that all patients be tested for toxoplasmosis antibodies upon diagnosis (MMWR, 1995). Seropositive patients with CD4 counts above 100 should be counseled on avoidance of exposure and those with CD4 counts under 100 should be offered one of the above regimes. We have developed quality indicators to reflect the chemoprophylactic recommendations (Indicator 3) and the screening test recommendations (Indicator 4).

**Mycobacterium Avium Complex (MAC)**

Disseminated MAC is a late-stage complication of HIV infection, eventually affecting 15 to 25 percent of patients with CD4 counts less than 100 (Horsberg, 1991; Nightingale, 1992). Two RCTs of rifabutin in patients with CD4 counts less than 200 showed a 50 percent reduction in the incidence of MAC disease. One of these two trials also showed a mortality benefit (Nightingale, 1993). An RCT of clarithromycin showed an effect of similar magnitude on the incidence of bacteremia for patients with CD4 counts less than 100. This study also showed a positive effect on prevention of mortality (Pierce et al., 1996). Most of the beneficial effect of prophylactic regimens occurs in patients with CD4 counts below 50. Another RCT showed weekly azithromycin to be more effective in preventing disease than rifabutin (Havlir et al., 1996). The results of this trial, and rifabutin’s unfavorable drug interactions, have led to a preference for clarithromycin or azithromycin. Recent CDC recommendations (MMWR, 1997) call for any one of the three therapies for patients with CD4 counts of less than 50 (Indicator 5).

**Pneumococcal Pneumonia**

Vaccination of HIV patients with capsular antigens of multiple strains of pneumococcus induces levels of antibodies thought to be protective for pneumonia, however no clinical trials have directly examined the vaccine’s efficacy in preventing disease in this population. The CDC has nonetheless recommended its use in all HIV patients as early as possible so as to promote immune response (MMWR, 1995) (Indicator 6).
Cytomegalovirus (CMV) retinitis

CMV retinitis is another late-stage complication of HIV disease. Patients with CD4 counts less than 100 have a 21 percent probability of developing CMV infection within two years, usually retinitis (Gallant, 1992, 1994). While one study has shown that oral ganciclovir reduces the risk of CMV (Spector, 1997), the therapy is expensive and not strongly recommended for primary prophylaxis. However, treatment of known CMV retinitis prevents progression to blindness (Masur, 1996) and guidelines from AHCPR and others support at least annual screening fundoscopy for all patients with CD4 counts less than 100 (AHCPR, 1994; Masur, 1996) (Indicator 7). The CDC guidelines also recommend fundoscopic screening, although without specifying a CD4 threshold (MMWR, 1995).

Syphilis

Coinfection with syphilis occurs in one to ten percent of HIV patients (Quinn et al., 1990; 1996; Telzak et al., 1993; Lurie et al., 1995). The virulence of syphilis is greater in HIV-positive patients and the positive predictive value of the VDRL or RPR tests in HIV, despite early doubts, appears to be high (Jewett and Hecht, 1993). Several trials of treatment of HIV patients screened positive for syphilis have shown efficacy in reducing titers (Malone et al., 1995) and experts recommend screening and treatment with penicillin for HIV positive patients (MMWR, 1988, AHCPR, 1994) (Indicators 8 and 9).

DIAGNOSIS

The initial diagnosis of HIV disease usually depends on the measurement of HIV antibody status, except in the rare instance of diagnosed symptomatic primary HIV. In addition, untested patients with unexplained symptoms of immunosuppression (e.g., fever, thrush) should also be offered testing. We have not included a diagnostic indicator for symptom- and condition-based HIV testing because of the difficulty in determining from the medical record whether such symptoms were unexplained.

Once an initial diagnosis of HIV is established, certain diagnostic tests are universally recommended. Guidelines dictate the measurement of a complete blood count, as both a baseline for following potential hematologic side effects of antiretroviral treatment and a screen for HIV complications such as
idiopathic thrombocytopenic purpura (Hopkins, 1997, AHCPR, 1994) (Indicator 10). Both blood CD4 counts and plasma HIV RNA viral load measurement independently predict probability of progression to AIDS and mortality (AHCP, 1994; Katzenstein et al., 1996; Mellors et al., 1997; O’Brien et al., 1996; MMWR, 1995; O’Brien, 1996; Jurriaans, 1994; Saksela, 1995; Enger, 1996; Dickover, 1994; McIntosh, 1996; Mofenson, 1997; Shearere, 1997; Stein, 1992). While no study has directly examined whether a program of measuring CD4 and viral load itself prevents progression, expert panels are in universal agreement that they should be measured at initial diagnosis for staging (Indicator 10). In order to quickly detect eligibility for antiretroviral therapy, patients with CD4 counts over 500 should have the same tests repeated at least every six months, and patients with CD4 counts less than 500 should have them measured every three months (Indicator 11 and 12). Once the patient is taking antiretrovirals, experts agree that CD4 count and viral load should be measured quarterly. In addition, quarterly screens for side effects of antiretroviral therapy should include CBC to detect hematologic complications (Hopkins, 1997; AHCPR, 1994) (Indicator 13). Other drug-specific screens for side effects are not covered here.

**TREATMENT**

There are now 11 drugs approved for treatment of HIV infection. More are under development. These drugs fall into three broad classes:

- **Nucleoside reverse transcriptase inhibitors (NRTIs):** zidovudine (AZT, ZDV), didanosine (Videx, ddI), zalcitabine (HIVID, ddC), stavudine (Zerit, d4T), and lamuvidine (Epivir, 3TC).
- **Protease inhibitors:** saquinavir (Invirase), ritonovir (Norvir), indinavir (Crixivan) and nelfinavir (Viracept).
- **Nonnucleoside reverse transcriptase inhibitors (NNRTIs):** nevirapin (Viramune) and delavirdien (Rescriptor).

The rapid expansion of the chemotherapeutic armamentarium has generated confusion about when to start therapy and what is the ideal regimen. Many regimens have been shown to reduce viral loads: two NRTIs with a protease inhibitor, two NRTIs with an NNRTI, two NRTIs alone, ddI alone, d4T alone. As discussed above, plasma HIV RNA viral loads correlate strongly with clinical progression of the disease. Perhaps the most potent combination in reducing
Viral loads would include two NRTIs and a protease inhibitor (NIH Draft Guidelines, 1997).

Trials that evaluate clinical endpoints rather than the surrogate marker of viral loads are rare and more likely to evaluate the older agents. Initial placebo-controlled studies of monotherapy with ZDV in antiretroviral-naive patients showed a delay in progression to AIDS but only a debatable survival benefit (Fischl et al., 1990; Volberding et al., 1990). Since then, the following combinations have been shown in RCTs to be superior to ZDV monotherapy in preventing disease progression or death: ZDV/DDI, DDI alone, ZDV/zalcitabine (Eron et al., 1995; Hammer et al. 1996; Collier et al., 1996; Schooley et al., 1996; D’Aquila et al., 1996). These effects were most pronounced in patients with CD4 counts between 200 and 500. Adding protease inhibitors to the regimens of patients who have already taken NRTIs has been shown to reduce progression and death, particularly in patients with advanced disease (Carpenter et al., 1996).

Experts are divided into two camps with regard to the initiation of therapy. One advocates using the most potent antiretroviral regimen first, in all patients, early in the course of the infection. The recent preliminary report from the NIH consensus panel (NIH Draft Guidelines, 1997) supports this position. The other camp reserves the most potent therapy for those with higher pretreatment progression risk, or for those who progress despite less potent therapy. We believe that both approaches are defensible with current clinical trial evidence.

In the proposed quality indicator we have concentrated on areas of agreement (Indicator 14). We included any treatment regimen that has been shown to reduce viral load more effectively than ZDV monotherapy. In addition, we have used the more conservative combined CD4 and viral load cutpoints for initiation of therapy, as proposed by the International AIDS Society Panel in 1996 (Carpenter et al., 1996). This indicator would not penalize providers or plans who take the more aggressive approach, but would identify care that both camps consider inadequate.

Protease inhibitors have certain drawbacks despite high antiretroviral activity. One of them is drug interaction with commonly prescribed antihistamines, antibiotics, and promotilic agents. We recommend an indicator that proscribes those drug combinations (Indicator 15).
FOLLOW-UP

Many experts recommend that viral load be measured within a few weeks of changes in antiretroviral therapy in order to gauge the response, though the threshold of response for determining successful or failed therapy is a matter of some debate (NIH Draft Guidelines, 1997; Hopkins HIV Report, 1997) (Indicator 16).
REFERENCES


## RECOMMENDED QUALITY INDICATORS FOR HIV DISEASE

The following indicators apply to men and women age 18 and older.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Quality of Evidence</th>
<th>Literature</th>
<th>Benefits</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Screening and Prevention</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. HIV+ patients should be offered PCP prophylaxis within one month of meeting any of the following conditions:</td>
<td>I</td>
<td>MMWR, 1995; MMWR, 1991; Simonds, 1995; Fischl, 1988; Leuong, 1990; Slavin, 1992; Schneider, 1992; Hardy 1992; Girad, 1993; Mallolas, 1993; Opravil 1995; Bozzette, 1995; NIH Draft Principles, 1997</td>
<td>Prevent PCP.</td>
<td>9 RCTs support a variety of regimens for patients with CD4 counts &lt; 200, thrush, unexplained fever and/or AIDS defining illnesses. Unexplained fever not included due to potential feasibility problems. Experts recommend lifetime secondary prophylaxis.</td>
</tr>
<tr>
<td>a. CD4 count dropping below 200;</td>
<td>I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Thrush;</td>
<td>I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Completion of active treatment of PCP.</td>
<td>III</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. HIV+ patients who do not have active TB and who have not previously received TB prophylaxis should be offered TB prophylaxis within one month of meeting any of following conditions:</td>
<td>III</td>
<td>AHCPR, 1994; Hopkins HIV Report, 1997</td>
<td>Prevent development of active TB.</td>
<td></td>
</tr>
<tr>
<td>a. Current PPD &gt; 5 mm;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Provider noting that patient has had PPD &gt; 5 mm administered at anytime since HIV diagnosis;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Contact with person with active TB.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indicator</td>
<td>Quality of Evidence</td>
<td>Literature</td>
<td>Benefits</td>
<td>Comments</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>---------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| 3. HIV+ patients who do not have active toxoplasmosis should be offered toxoplasmosis prophylaxis within one month of meeting all of the following conditions:  
  • Toxo IgG positive;  
  • CD4 count dropping below 100;  
<p>| 4. Toxoplasmosis serology should be offered within one month of initial diagnosis of HIV. | II                  | NIH Draft Principles, 1997; MMWR, 1995; Oskenhendler, 1994                | Prevent symptomatic toxoplasmosis.            | Screen for asymptomatic toxoplasmosis.                                   |
| 5. HIV+ patients should be offered MAC prophylaxis within one month of a CD4 count dropping below 50. | I                   | MMWR, 1995; Nightingale, 1992 and 1993; Pierce, 1996; Havlir, 1996       | Prevent development of MAC bacteremia.        |                                                                          |
| 6. HIV+ patients should have a documented pneumovax.                      | II                  | MMWR, 1995                                                               | Prevent pneumococal pneumonia.                |                                                                          |
| 7. HIV+ patients with a lowest recorded CD4 count of less than 100 should have had a fundoscopic exam in the past year. | III                 | AHCPR, 1994                                                             | Prevent blindness from CMV retinopathy        | Screen for CMV.                                                          |
| 8. VDRL or RPR should be offered within one month of initial diagnosis of HIV infection unless done in past year. | III                 | AHCPR, 1994; MMWR, 1988                                                 | Prevent syphilitic symptoms.                  | Screen for asymptomatic syphilis.                                        |</p>
<table>
<thead>
<tr>
<th>Indicator</th>
<th>Quality of Evidence</th>
<th>Literature</th>
<th>Benefits</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diagnosis</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. The following tests should be obtained within one month of initial diagnosis of HIV infection:</td>
<td>III</td>
<td>AHCPR, 1994; Hopkins HIV Report, 1997; Katzenstein, et al., 1996; Mellors, et al., 1997; O’Brien, et al., 1996; MMWR, 1995; O’Brien, 1996; Jurriaans, 1994; Saksele, 1995; Enger, 1996; Dickover, 1994; McIntosh, 1996; Mofenson, 1997; Shearer, 1997; Stein, 1992</td>
<td>(a) Prevent side effects of antiretroviral therapy. (b &amp; c) Reduce morbidity and mortality from HIV infection.</td>
<td>Pap smear and PPD covered in other chapters. (a) Baseline for side effects of future antiretroviral therapy. (b &amp; c) Staging for antiretroviral therapy.</td>
</tr>
<tr>
<td>a. CBC; b. HIV RNA (viral load); c. CD4.</td>
<td>II</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. HIV+ patients with CD4 counts &gt; 500 should be offered the following tests within 6 months:</td>
<td>II</td>
<td>AHCPR, 1994; Katzenstein, et al., 1996; Mellors, et al., 1997; O’Brien, et al., 1996; MMWR, 1995; O’Brien, 1996; Jurriaans, 1994; Saksele, 1995; Enger, 1996; Dickover, 1994; McIntosh, 1996; Mofenson, 1997; Shearer, 1997; Stein, 1992</td>
<td>Reduce morbidity and mortality from HIV infection.</td>
<td>Staging for antiretroviral therapy.</td>
</tr>
<tr>
<td>a. CD4; b. viral loads.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indicator</td>
<td>Quality of Evidence</td>
<td>Literature</td>
<td>Benefits</td>
<td>Comments</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------------</td>
<td>------------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>12. HIV+ patients with CD4 counts &lt; 500 should be offered the following tests within 3 months: a. CD4; b. viral loads.</td>
<td>II</td>
<td>AHCPR, 1994; Katzenstein, et al., 1996; Mellors, et al., 1997; O’Brien, et al., 1996; MMWR, 1995; O’Brien, 1996; Jurriaans, 1994; Saksela, 1995; Enger, 1996; Dickover, 1994; McIntosh, 1996; Mofenson, 1997; Shearer, 1997; Stein, 1992</td>
<td>Staging for antiretroviral therapy.</td>
<td></td>
</tr>
<tr>
<td>13. HIV+ patients on antiretroviral therapy should have been offered the following tests within the past 3 months: a. CD4; b. viral load; c. CBC.</td>
<td>III</td>
<td>NIH Draft Guidelines, 1997</td>
<td>(a &amp; b) Reduce morbidity and mortality from HIV infection. (c) Prevent side effects of antiretroviral therapy.</td>
<td>Monitoring effects, side effects of antiretroviral therapy. Baseline for side effects of future antiretroviral therapy. Staging for antiretroviral therapy.</td>
</tr>
<tr>
<td><strong>Treatment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. HIV+ patients should receive adequate antiretroviral treatment within one month of any of the following conditions being met: a. CD4 &gt; 500 and viral load &gt;30k; b. CD4 350-500 and viral load &gt;10k; c. CD4 &lt;350; d. Any AIDS-defining condition; e. Thrush.</td>
<td>I-III (see comments)</td>
<td>Carpenter, 1996; NIH Draft Guidelines, 1997; Mellors, 1997; O’Brien, 1996</td>
<td>Reduce opportunistic infections, prolong survival.</td>
<td>RCT evidence of decreasing viral load for all regimens and strong observational evidence associating viral load and clinical endpoints. RCT evidence of decreasing progression to AIDS or mortality for certain NRTIs and protease inhibitors. Experts disagree as to the precise levels of CD4 and viral load for initiating therapy. Indicator comprises areas of agreement.</td>
</tr>
<tr>
<td>15. Protease inhibitors should not be prescribed concurrently with astemizole, terfenadine, rifampin or cisapride.</td>
<td>III</td>
<td>NIH Draft Guidelines, 1997</td>
<td>Prevent adverse drug interactions.</td>
<td>Alternatives to contraindicated drugs to available to patients on PI therapy.</td>
</tr>
<tr>
<td><strong>Follow-up</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. HIV+ patients should be offered viral load measurement within one month of initiation or change in antiretroviral treatment.</td>
<td>III</td>
<td>NIH Draft Guidelines, 1997</td>
<td>Reduce opportunistic infections. Prolong survival.</td>
<td>Monitors effectiveness of therapy.</td>
</tr>
</tbody>
</table>
Definitions and Examples

1. PCP prophylaxis: TMP/SMX at least 3x/week, Dapsone 100 mg /day, aerosolized pentamidine 300 mg q month, or any toxo regimen (see below)
2. TB prophylaxis: INH (either 300 mg/d or 900 mg 2x week) + pyrodoxine x12 months or Rifampin 600 mg/day x 12 months
3. Toxo prophylaxis: Toxoplasmosis prophylaxis: TMP-SMX 1 SS/d or 1 DS 3 x wk, Dapsone 50 mg/d + pyrimethamine 50 mg/wk + leucovorin 25 mg/wk, Dapsone 200 mg/wk + pyrimethamine 75 mg/wk + leucovorin 25 mg/wk.
4. MAC prophylaxis: Clarithromycin 500 mg qd or bid, Azithromycin > 1000 mg/wk, Rifabutin 300 mg/d
5. Adequate antiretroviral regimens include: 2 NRTIs + protease inhibitor, 2 NRTIs + NNRTI, 2 NRTIs alone, ddl alone, d4T alone. NRTIs are nucleoside analogues and include: zidovudine (AZT, ZDV), didanosine (Videx, ddI), zalcitabine (HIVID, ddC), stavudine (Zerit, d4T), and lamuvidine (Epivir, 3TC). Protease inhibitors include: saquinavir (Invirase), ritonovir (Norvir), indinavir (Crixivan) and nelfinavir (Viracept). NNRTIs are nonnucleoside reverse transcriptase inhibitors and include: nevirapin (Viramune) and delavirdien (Rescriptor).
6. AIDS-defining conditions include: candidiasis, coccidiomycosis, cryptosporidiosis, cytomegalovirus (CMV), herpes simplex, histoplasmosis, isosporiasis, listeriosis, tuberculosis, mycobacterium avium intrecelluleare, pneumocystis carni pneumonia, recurrent salmonella septicemia, toxoplasmosis, progressive multifocal leucoencephalopathy, cervical cancer, Kaposi's sarcoma, Burkitt's lymphoma, lymphoma - immunoblastic, lymphoma - primary of the brain, non-Hodgkin's lymphoma.

Quality of Evidence Codes
I  Randomized controlled trials
II-1 Nonrandomized controlled trials
II-2 Cohort or case analysis
II-3 Multiple time series
III  Opinions or descriptive studies