Table 2. Treatment of AIDS-Associated Opportunistic Infections (Includes Recommendations for Acute Treatment and Secondary Prophylaxis/Chronic Suppressive/Maintenance Therapy) (page 1 of 21) (Last updated July 1, 2021; last reviewed April 14, 2021)

Opportunistic Infection		Preferred Therapy	Alternative Therapy	Other Comments
Bacterial Enteric Infections	**Empiric therapy pending definitive diagnosis**	Diagnostic fecal specimens should be obtained before initiation of empiric antibiotic therapy. If culture is positive, antibiotic susceptibilities should be performed to inform antibiotic choices given increased reports of antibiotic resistance. If a culture independent diagnostic test is positive, reflex cultures for antibiotic susceptibilities should also be done. Empiric antibiotic therapy is indicated for advanced HIV patients (CD4 count <200 cells/μL or concomitant AIDS-defining illnesses), with clinically severe diarrhea (≥6 stools/day or bloody stool) and/or accompanying fever or chills. Empiric Therapy: • Ciprofloxacin 500–750 mg PO (or 400 mg IV) q12h **(AIII)** Therapy should be adjusted based on the results of diagnostic work-up. For patients with chronic diarrhea (>14 days) without severe clinical signs, empiric antibiotics therapy is not necessary, can withhold treatment until a diagnosis is made.	Empiric Therapy: • Ceftriaxone 1 g IV q24h **(BIII)**, *or* • Cefotaxime 1 g IV q8h **(BIII)**	Oral or IV rehydration (if indicated) should be given to patients with diarrhea **(AIII)**. Antimotility agents should be avoided if there is concern about inflammatory diarrhea, including *Clostridium-difficile*-associated diarrhea **(BIII)**. If no clinical response after 3-4 days, consider follow-up stool culture with antibiotic susceptibility testing or alternative diagnostic tests (e.g., toxin assays, molecular testing) to evaluate alternative diagnosis, antibiotic resistance, or drug-drug interactions. IV antibiotics and hospitalization should be considered in patients with marked nausea, vomiting, diarrhea, electrolyte abnormalities, acidosis, and blood pressure instability.
	Campylo-bacteriosis	For Mild Disease and If CD4 Count >200 cells/μL: • No therapy unless symptoms persist for more than several days **(CIII)** For Mild-to-Moderate Disease Disease (If Susceptible): • Ciprofloxacin 500–750 mg PO (or 400 mg IV) q12h **(BIII)**, *or* • Azithromycin 500 mg PO daily **(BIII)** (Note**:** Not for patients with bacteremia **(AIII)**) For *Campylobacter* Bacteremia: • Ciprofloxacin 500–750 mg PO (or 400 mg IV) q12h **(BIII)** + an aminoglycoside **(BIII)** Duration of Therapy: • *Gastroenteritis:* 7–10 days **(AIII)** (5 days with azithromycin) • *Bacteremia:* ≥14 days **(BIII)** • *Recurrent bacteremia:* 2–6 weeks **(BIII)**	For Mild-to-Moderate Disease (If Susceptible): • Levofloxacin 750 mg (PO or IV) q24h **(BIII)**, *or* • Moxifloxacin 400 mg (PO or IV) q24h **(BIII)** Add an aminoglycoside to fluoroquinolone in bacteremic patients **(BIII)**.	Oral or IV rehydration if indicated **(AIII)**. Antimotility agents should be avoided **(BIII)**. If no clinical response after 5–7 days, consider follow-up stool culture, alternative diagnosis, or antibiotic resistance. There is an increasing rate of fluoroquinolone resistance in the United States (24% resistance in 2011). The rationale of addition of an aminoglycoside to a fluoroquinolone in bacteremic patients is to prevent emergence of quinolone resistance. Effective ART may reduce the frequency, severity, and recurrence of campylobacter infections.

Table 2. Treatment of AIDS-Associated Opportunistic Infections (Includes Recommendations for Acute Treatment and Secondary Prophylaxis/Chronic Suppressive/Maintenance Therapy) (page 2 of 21)

Opportunistic Infection		Preferred Therapy	Alternative Therapy	Other Comments
Bacterial Enteric Infections, *continued*	***Clostridium difficile* Infection (CDI)**	Vancomycin 125 mg (PO) QID for 10–14 days **(AI)** For severe, life-threatening CDI, see text and references for additional information.	<u>*For mild, outpatient disease:*</u> Metronidazole 500 mg (PO) TID for 10–14 days **(CII)**.	*Recurrent CDI:* Treatment is the same as in patients without HIV infection. Fecal microbiota therapy may be successful and safe to treat recurrent CDI in HIV-infected patients **(CIII)**. See text and references for additional information.
	Salmonellosis	All HIV-infected patients with salmonellosis should receive antimicrobial treatment due to an increase of bacteremia (by 20-100 fold) and mortality (by up to 7-fold) compared to HIV-negative individuals **(AIII)**.		Oral or IV rehydration if indicated **(AIII)**. Antimotility agents should be avoided **(BIII)**. The role of long-term secondary prophylaxis in patients with recurrent *Salmonella* bacteremia is not well established. Must weigh benefit against risks of long-term antibiotic exposure **(BIII)**. Effective ART may reduce the frequency, severity, and recurrence of salmonella infections.
		• Ciprofloxacin 500–750 mg PO (or 400 mg IV) q12h, if susceptible **(AIII)** <u>Duration of Therapy</u>: *For gastroenteritis without bacteremia:* • If CD4 count ≥200 cells/μL: 7–14 days **(BIII)** • If CD4 count <200 cells/μL: 2–6 weeks **(BIII)** *For gastroenteritis with bacteremia:* • If CD4 count ≥200 cells/μL: 14 days **or** longer duration if bacteremia persists or if the infection is complicated (e.g., if metastatic foci of infection are present) **(BIII)** • If CD4 count <200 cells/μL: 2–6 weeks **(BIII)** <u>Secondary Prophylaxis Should Be Considered For</u>: • Patients with recurrent *Salmonella* gastroenteritis +/- bacteremia **(CIII)**, *or* • Patients with CD4 <200 cells/μL with severe diarrhea **(CIII)**	• Levofloxacin 750 mg (PO or IV) q24h **(BIII)**, *or* • Moxifloxacin 400 mg (PO or IV) q24h **(BIII)**, *or* • TMP 160 mg-SMX 800 mg (PO or IV) q12h **(BIII)**, *or* • Ceftriaxone 1 g IV q24h **(BIII)**, *or* • Cefotaxime 1 g IV q8h **(BIII)**	

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Opportunistic Infection		Preferred Therapy	Alternative Therapy	Other Comments
Bacterial Enteric Infections, *continued*	**Shigellosis**	• Ciprofloxacin 500–750 mg PO (or 400 mg IV) q12h **(AIII)** Duration of Therapy: • *Gastroenteritis:* 7–10 days **(AIII)** (if azithromycin is used, treat for 5 days) • *Bacteremia:* ≥14 days **(BIII)** • *Recurrent Infections:* up to 6 weeks **(BIII)** **Note:** Increased resistance of *Shigella* to fluoroquinolones is occurring in the United States. Avoid fluoroquinolones if ciprofloxacin MIC is ≥0.12 ug/ml even if the laboratory identifies the isolate as sensitive. Many *Shigella* strains resistant to fluoroquinolones exhibit resistance to other commonly used antibiotics. Thus, antibiotic sensitivity testing of *Shigella* isolates from HIV-infected individuals should be performed routinely.	• Levofloxacin 750 mg (PO or IV) q24h **(BIII)**, *or* • Moxifloxacin 400 mg (PO or IV) q24h **(BIII)**, *or* • TMP 160 mg-SMX 800 mg (PO or IV) q12h **(BIII)** (Note**:** *Shigella* infections acquired outside of the United States have high rates of TMP-SMX resistance), *or* • Azithromycin 500 mg PO daily for 5 days **(BIII)** (Note**:** azithromycin is not recommended for patients with bacteremia **[AIII]**) **Note:** Azithromycin-resistant *Shigella spp* has been reported in HIV-infected MSM.	Therapy is indicated both to shorten duration of illness and prevent spread of infection **(AIII)**. Given increasing antimicrobial resistance and limited data showing that antibiotic therapy limits transmission, antibiotic treatment may be withheld in patients with CD4 >500 cells/mm^3 whose diarrhea resolves prior to culture confirmation of *Shigella* infection **(CIII)**. Oral or IV rehydration if indicated **(AIII)**. Antimotility agents should be avoided **(BIII)**. If no clinical response after 5–7 days, consider follow-up stool culture, alternative diagnosis, or antibiotic resistance. Effective ART may decrease the risk of recurrence of *Shigella* infections.
Bartonellosis		For Bacillary Angiomatosis, Peliosis Hepatis, Bacteremia, and Osteomyelitis: • Doxycycline 100 mg PO or IV q12h **(AII)**, *or* • Erythromycin 500 mg PO or IV q6h **(AII)** CNS Infections: • (Doxycycline 100 mg +/- RIF 300 mg) PO or IV q12h **(AIII)** Confirmed *Bartonella* Endocarditis: • (Doxycycline 100 mg IV q12h + gentamicin 1 mg/kg IV q8h) for 2 weeks, then continue with doxycycline 100 mg IV or PO q12h **(BII)** Other Severe Infections: • (Doxycycline 100 mg PO or IV +/- RIF 300 mg PO or IV) q12h **(BIII)**, *or* • (Erythromycin 500 mg PO or IV q6h) +/- RIF 300 mg PO or IV q12h **(BIII)** Duration of Therapy: • At least 3 months **(AII)**	For Bacillary Angiomatosis, Peliosis Hepatis, Bacteremia, and Osteomyelitis: • Azithromycin 500 mg PO daily **(BIII)** • Clarithromycin 500 mg PO BID **(BIII)** Confirmed *Bartonella* Endocarditis but with Renal Insufficiency: • (Doxycycline 100 mg IV + RIF 300 mg PO or IV) q12h for 2 weeks, then continue with doxycycline 100 mg IV or PI q12h **(BII)**	When RIF is used, take into consideration the potential for significant interaction with ARV drugs and other medications (see Table 5 for dosing recommendations). If relapse occurs after initial (>3 month) course of therapy, long-term suppression with doxycycline or a macrolide is recommended as long as CD4 count <200 cells/μL **(AIII)**.

Table 2. Treatment of AIDS-Associated Opportunistic Infections (Includes Recommendations for Acute Treatment and Secondary Prophylaxis/Chronic Suppressive/Maintenance Therapy) (page 4 of 21)

Opportunistic Infection	Preferred Therapy	Alternative Therapy	Other Comments
Candidiasis (Mucocutaneous)	For Oropharyngeal Candidiasis; Initial Episodes (for 7–14 Days) *Oral Therapy:* • Fluconazole 100 mg PO daily **(AI)** For Esophageal Candidiasis (for 14–21 Days): • Fluconazole 100 mg (up to 400 mg) PO or IV daily **(AI)**, *or* • Itraconazole oral solution 200 mg PO daily **(AI)** For Uncomplicated Vulvo-Vaginal Candidiasis: • Oral fluconazole 150 mg for one dose **(AII)**, *or* • Topical azoles (clotrimazole, butoconazole, miconazole, tioconazole, or terconazole) for 3–7 days **(AII)** For Severe or Recurrent Vulvo-Vaginal Candidiasis: • Fluconazole 100–200 mg PO daily for ≥7 days **(AII)**, *or* • Topical antifungal ≥7 days **(AII)**	For Oropharyngeal Candidiasis; Initial Episodes (for 7–14 Days) *Oral Therapy:* • Itraconazole oral solution 200 mg PO daily **(BI)**, *or* • Posaconazole oral suspension 400 mg PO twice a day for 1 day, then 400 mg daily **(BI)** *Topical Therapy:* • Clotrimazole troches, 10 mg PO five times daily **(BI)**, *or* • Miconazole mucoadhesive buccal 50-mg tablet; apply to mucosal surface over the canine fossa once daily (do not swallow, chew, or crush tablet) **(BI)**, *or* • Nystatin suspension 4–6 mL four times a day or 1–2 flavored pastilles four to five times daily **(BII)** • Gentian violet (0.00165%) topical application twice daily **(BI)** For Esophageal Candidiasis (for 14–21 Days): • Voriconazole 200 mg PO or IV twice a day **(BI)**, *or* • Isavuconazole 200 mg PO as a loading dose, followed by 50 mg PO daily **(BI)**, *or* • Isavuconazole 400 mg PO as a loading dose, followed by 100 mg PO daily **(BI)**, *or* • Isavuconazole 400 mg PO once weekly **(BI)**, *or* • Anidulafungin 100 mg IV 1 time, then 50 mg IV daily **(BI)**, *or* • Caspofungin 50 mg IV daily **(BI)**, *or* • Micafungin 150 mg IV daily **(BI)**, *or* • Amphotericin B deoxycholate 0.6 mg/kg IV daily **(BI)**, *or* • Lipid formulation of amphotericin B 3–4 mg/kg IV daily **(BIII)** For Uncomplicated Vulvo-Vaginal Candidiasis: • Itraconazole oral solution 200 mg PO daily for 3–7 days **(BII)** For Azole-Refractory *Candida glabrata* Vaginitis: • Boric acid vaginal suppository 600 mg once daily for 14 days	Chronic or prolonged use of azoles may promote development of resistance. Higher relapse rate for esophageal candidiasis seen with echinocandins than with fluconazole use. Suppressive therapy usually not recommended **(BIII)** unless patients have frequent or severe recurrences. If Decision is to Use Suppressive Therapy *Oropharyngeal Candidiasis:* • Fluconazole 100 mg PO daily or three times weekly **(BI)**; *or* • Itraconazole oral solution 200 mg PO daily **(CI)** *Esophageal Candidiasis:* • Fluconazole 100–200 mg PO daily **(BI)**; *or* • Posaconazole 400 mg PO twice a day **(BII)** *Vulvo-Vaginal Candidiasis:* • Fluconazole 150 mg PO once weekly **(CII)**

Table 2. Treatment of AIDS-Associated Opportunistic Infections (Includes Recommendations for Acute Treatment and Secondary Prophylaxis/Chronic Suppressive/Maintenance Therapy) (page 5 of 21)

Opportunistic Infection	Preferred Therapy	Alternative Therapy	Other Comments
Chagas Disease (American Trypanosomiasis)	For Acute, Early Chronic, and Re-Activated Disease: • Benznidazole 5–8 mg/kg/day PO in 2 divided doses for 30–60 days **(BIII)** (not commercially available in the United States; contact the CDC Drug Service at drugservice@cdc.gov or (404) 639-3670, or the CDC emergency operations center at (770) 488-7100)	For Acute, Early Chronic, and Reactivated Disease: • Nifurtimox 8–10 mg/kg/day PO for 90–120 days **(CIII)** (not commercially available in the U.S., contact the CDC Drug Service at drugservice@cdc.gov or (404) 639-3670, or the CDC emergency operations center at (770) 488-7100)	Treatment is effective in reducing parasitemia and preventing clinical symptoms or slowing disease progression. It is ineffective in achieving parasitological cure. Duration of therapy has not been studied in HIV-infected patients. Initiate or optimize ART in patients undergoing treatment for Chagas disease, once they are clinically stable **(AIII)**.
Coccidioidomycosis	Clinically Mild Infections (e.g., Focal Pneumonia): • Fluconazole 400 mg PO daily **(BII)**, *or* • Itraconazole 200 mg PO BID **(BII)** Severe, Non-Meningeal Infection (Diffuse Pulmonary Infection or Severely Ill Patients with Extrathoracic, Disseminated Disease): • Amphotericin B deoxycholate 0.7–1.0 mg/kg IV daily **(AII)** • Lipid formulation amphotericin B 4-6 mg/kg IV daily **(AIII)** • Duration of therapy: continue until clinical improvement, then switch to an azole **(BIII)** Meningeal Infections: • Fluconazole 400–800 mg IV or PO daily **(AII)** Chronic Suppressive Therapy: • Fluconazole 400 mg PO daily **(AII)**, *or* • Itraconazole 200 mg PO BID **(AII)**	Mild Infections (Focal Pneumonia): *For Patients Who Failed to Respond to Fluconazole or Itraconazole:* • Posaconazole 200 mg PO BID **(BII)**, *or* • Voriconazole 200 mg PO BID **(BIII)** Severe, Non-Meningeal Infection (Diffuse Pulmonary Infection or Severely Ill Patients with Extrathoracic, Disseminated Disease): • Some specialists will add a triazole (fluconazole or itraconazole, with itraconazole preferred for bone disease) 400 mg per day to amphotericin B therapy and continue triazole once amphotericin B is stopped **(BIII)**. Meningeal Infections: • Itraconazole 200 mg PO TID for 3 days, then 200 mg PO BID **(BII)**, *or* • Posaconazole 200 mg PO BID **(BIII)**, *or* • Voriconazole 200–400 mg PO BID **(BIII)**, *or* • Intrathecal amphotericin B deoxycholate, when triazole antifungals are ineffective **(AIII)** Chronic Suppressive Therapy: • Posaconazole 200 mg PO BID **(BII)**, *or* • Voriconazole 200 mg PO BID **(BIII)**	Some patients with meningitis may develop hydrocephalus and require CSF shunting. Therapy should be continued indefinitely in patients with diffuse pulmonary or disseminated diseases because relapse can occur in 25%–33% of HIV-negative patients. It can also occur in HIV-infected patients with CD4 counts >250 cells/μL **(BIII)**. Therapy should be lifelong in patients with meningeal infections because relapse occurs in 80% of HIV-infected patients after discontinuation of triazole therapy **(AII)**. Itraconazole, posaconazole, and voriconazole may have significant interactions with certain ARV agents. These interactions are complex and can be bi-directional. Refer to Table 5 for dosage recommendations. Therapeutic drug monitoring and dosage adjustment may be necessary to ensure triazole antifungal and antiretroviral efficacy and reduce concentration-related toxicities. Intrathecal amphotericin B should only be given in consultation with a specialist and administered by an individual with experience with the technique.

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Opportunistic Infection	Preferred Therapy	Alternative Therapy	Other Comments
Community-Acquired Pneumonia (CAP)	Empiric antibiotic therapy should be initiated promptly for patients presenting with clinical and radiographic evidence consistent with bacterial pneumonia. The recommendations listed are suggested empiric therapy. The regimen should be modified as needed once microbiologic results are available **(BIII)**. Providers must also consider the risk of opportunistic lung infections (e.g., PCP, TB), which may alter the empiric therapy. Empiric Outpatient Therapy: • A PO beta-lactam plus a PO macrolide (azithromycin or clarithromycin) **(AII)** *Preferred Beta-Lactams:* • High-dose amoxicillin or amoxicillin/clavulanate *Alternative Beta-Lactams:* • Cefpodoxime or cefuroxime, *or* • Levofloxacin 750 mg PO once daily **(AII)**, *or* moxifloxacin 400 mg PO once daily **(AII)**, especially for patients with penicillin allergies. Empiric Therapy for Hospitalized Patients with Non-Severe CAP: • An IV beta-lactam plus a macrolide (azithromycin or clarithromycin) **(AI)** *Preferred Beta-Lactams:* • Ceftriaxone, cefotaxime, or ampicillin-sulbactam • Levofloxacin 750 mg IV once daily **(AI)**, *or* moxifloxacin, 400 mg IV once daily **(AI)**, especially for patients with penicillin allergies. Empiric Therapy for Hospitalized Patients with Severe CAP: • An IV beta-lactam plus IV azithromycin **(AI)**, *or* • An IV beta-lactam plus (levofloxacin 750 mg IV once daily or moxifloxacin 400 mg IV once daily) **(AI)** *Preferred Beta-Lactams:* • Ceftriaxone, cefotaxime, or ampicillin-sulbactam	Empiric antibiotic therapy should be initiated promptly for patients presenting with clinical and radiographic evidence consistent with bacterial pneumonia. The recommendations listed are suggested empiric therapy. The regimen should be modified as needed once microbiologic results are available **(BIII)**. Providers must also consider the risk of opportunistic lung infections (e.g., PCP, TB), which may alter the empiric therapy. Empiric Outpatient Therapy: • A PO beta-lactam plus PO doxycycline **(CIII)** *Preferred Beta-Lactams:* • High-dose amoxicillin or amoxicillin/clavulanate *Alternative Beta-Lactams:* • Cefpodoxime or cefuroxime Empiric Therapy for Hospitalized Patients with Non-Severe CAP: • An IV beta-lactam plus doxycycline **(CIII)** Empiric Therapy for Hospitalized Patients with Severe CAP *For Penicillin-Allergic Patients:* • Aztreonam IV plus (levofloxacin 750 mg IV once daily or moxifloxacin 400 mg IV once daily) **(BIII)** Empiric Therapy for Patients at Risk of *Pseudomonas* Pneumonia: • An IV antipneumococcal, antipseudomonal beta-lactam plus an IV aminoglycoside plus azithromycin **(BII)**, *or* • An IV antipneumococcal, antipseudomonal beta-lactam plus an aminoglycoside plus (levofloxacin 750 mg IV once daily or moxifloxacin 400 mg IV once daily) **(BIII)** *For Penicillin-Allergic Patients:* • Replace the beta-lactam with aztreonam **(BIII)**.	Duration: • For most patients, 5–7 days. • Patients should be afebrile for 48–72 hours and clinically stable before stopping antibiotics. • Longer duration is often required if severe CAP or bacteremia is present, and particularly if due to *S. pneumoniae* or complicated *S. aureus* pneumonia. Fluoroquinolones should be used with caution in patients in whom TB is suspected but is not being treated. Empiric therapy with a macrolide alone is not routinely recommended, because of increasing pneumococcal resistance (up to 30%) **(BIII)**. Patients receiving a macrolide for MAC prophylaxis may have bacterial resistance to macrolide due to chronic exposure. For patients begun on IV antibiotic therapy, switching to PO should be considered when they are clinically improved and able to tolerate oral medications. Antibiotic chemoprophylaxis is generally not recommended because of the potential for developing drug resistance and drug toxicities **(AI)**.

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Opportunistic Infection	Preferred Therapy	Alternative Therapy	Other Comments
Community-Acquired Pneumonia (CAP), continued	Empiric Therapy for Patients at Risk of *Pseudomonas* Pneumonia: • An IV antipneumococcal, antipseudomonal beta-lactam plus (ciprofloxacin 400 mg IV every 8–12 hours or levofloxacin 750 mg IV once daily) **(AI)** *Preferred Beta-Lactams:* • Piperacillin-tazobactam, cefepime, imipenem, or meropenem Empiric Therapy for Patients at Risk for Methicillin-Resistant *Staphylococcus aureus* Pneumonia: • Add vancomycin IV or linezolid (IV or PO) to the baseline regimen **(AII)** • Addition of clindamycin to vancomycin (but **not** to linezolid) can be considered for severe necrotizing pneumonia to minimize bacterial toxin production **(CII)**.		
Cryptococcosis	Cryptococcal Meningitis *Induction Therapy (2 weeks, followed by consolidation therapy):* • Liposomal amphotericin B 3–4 mg/kg IV daily + flucytosine 25 mg/kg PO QID **(AI)** (Note: Flucytosine dose should be adjusted in patients with renal dysfunction.) • Amphotericin B deoxycholate 0.7-1.0 mg/kg IV daily + flucytosine 25 mg/kg PO QID **(AI)** (if cost is an issue and the risk of renal dysfunction is low), *or* • If not improved clinically or remain clinically unstable, continue induction therapy until the CSF culture is confirmed to be negative **(BIII)**. *Consolidation Therapy (for at least 8 weeks **(AI)**, followed by maintenance therapy):* • Fluconazole 800 mg PO (or IV) daily **(AI)** • For clinically stable patients with negative CSF cultures, dose can be reduced to 400 mg PO once daily **(AII)** • If CSF remains positive (but clinically stable) after 2 weeks of induction therapy, increase fluconazole dose to 1,200 mg and perform LP 2 weeks later **(BIII)**;	Cryptococcal meningitis *Induction Therapy (for at least 2 weeks, followed by consolidation therapy):* • Amphotericin B lipid complex 5 mg/kg IV daily + flucytosine 25 mg/kg PO QID **(BII)**, *or* • Liposomal amphotericin B 3-4 mg/kg IV daily + fluconazole 800-1,200 mg PO or IV daily **(BIII)**, *or* • Fluconazole 1,200 mg PO or IV daily + flucytosine 25 mg/kg PO QID **(BII)**, *or* • Fluconazole 800 mg PO or IV daily + flucytosine 25 mg/kg PO QID **(BIII)**, *or* • Amphotericin B deoxycholate 0.7-1.0 mg/kg IV daily + fluconazole 800-1,200 mg PO or IV daily **(BI)**, *or* • Liposomal amphotericin B 3-4 mg/kg IV daily **(BI)**; *or* • Amphotericin B deoxycholate 0.7–1.0 mg/kg IV once daily alone **(BI)**; *or* • Liposomal amphotericin B 3–4 mg/kg IV once daily plus flucytosine 25 mg/kg PO QID for 1 week followed by fluconazole 1,200 mg PO once daily **(BIII)**; *or* • Fluconazole 1,200 mg PO or IV daily **(CI)**	Addition of flucytosine to amphotericin B has been associated with more rapid sterilization of CSF and decreased risk for subsequent relapse. Patients receiving flucytosine should have either blood levels monitored (peak level 2 hours after dose should be 25–100 mcg/mL) or at least twice weekly monitoring of complete blood counts for cytopenia. Dosage should be adjusted in patients with renal insufficiency **(BII)**. In resource limited settings, induction of 1 week of amphotericin B deoxycholate with flucytosine followed by high dose fluconazole is preferred **(BIII)**. Opening pressure should always be measured when an LP is performed **(AII)**. Repeated LPs or CSF shunting are essential to effectively manage increased intracranial pressure. Corticosteroids and mannitol are ineffective in reducing ICP and are NOT recommended **(AIII)**.

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Opportunistic Infection	Preferred Therapy	Alternative Therapy	Other Comments
Cryptococcosis *continued*	duration of consolidation therapy should be 8 weeks from the time of negative CSF culture **(AI)**. *Maintenance Therapy:* • Fluconazole 200 mg PO daily for ≥ 1 year from initiation of antifungal therapy **(AI)** For Non-CNS, Extrapulmonary Cryptococcosis and Diffuse Pulmonary Disease or Patients with Isolated Asymptomatic Antigenemia Without Meningitis and Serum CrAg. ≥ 1:640 by LFA: • Treatment same as for cryptococcal meningitis **(BIII)** Non-CNS Cryptococcosis with Mild-to-Moderate Symptoms and Focal Pulmonary Infiltrates, or Patients with Isolated Asymptomatic Antigenemia Without Meningitis and Serum CrAg ≤ 1:320 by LFA): • Fluconazole, 400 to 800 mg PO daily for 10 weeks, followed by 200 mg daily for a total of 6 months **(BIII)**	*Consolidation Therapy (for at least 8 weeks **(AI)**, followed by maintenance therapy):* • If patient's CSF culture remains positive at the end of 2 weeks, but not ill enough to be hospitalized, continue flucytosine for an additional 2 weeks with fluconazole 1,200 mg daily, before starting single drug consolidation regimen. • Itraconazole 200 mg PO BID for 8 weeks—less effective than fluconazole **(CI)** *Maintenance Therapy:* • No alternative therapy recommendation	Some specialists recommend a brief course of tapering dose of corticosteroid for management of severe IRIS symptoms **(BIII)**.
Cryptosporidiosis	• Initiate or optimize ART for immune restoration to CD4 count >100 cells/μL **(AII)**, *and* • Aggressive oral or IV rehydration and replacement of electrolyte loss **(AIII)**, *and* • Symptomatic treatment of diarrhea with anti-motility agents **(AIII)**.	No therapy has been shown to be effective without ART. Trial of these agents may be used in conjunction with, but not instead of, ART: • Nitazoxanide 500–1,000 mg PO BID for 14 days **(CIII)**, *or* • Paromomycin 500 mg PO QID for 14–21 days **(CIII)** • With optimized ART, symptomatic treatment and rehydration and electrolyte replacement	Tincture of opium may be more effective than loperamide in management of diarrhea **(CII).**
Cytomegalovirus (CMV) Disease	**CMV Retinitis** Induction Therapy (followed by Chronic Maintenance Therapy): *For Immediate Sight-Threatening Lesions (within 1,500 microns of the fovea):* • Ganciclovir 5 mg/kg q12h IV or Valganciclovir 900 mg PO BID or for 14–21 days **(AI)** (some prefer IV ganciclovir initially and transition to PO valganciclovir when there is evidence of clinical response) **with or without** • Intravitreal injections of ganciclovir (2mg) or foscarnet (2.4mg) to rapidly achieve high intraocular concentration, continue weekly until lesion inactivity is achieved **(AIII)**; plus	**CMV Retinitis** *For Immediate Sight-Threatening Lesions (within 1,500 microns of the fovea): Intravitreal therapy as listed in the Preferred section, plus one of the following:* *Alternative Systemic Induction Therapy (followed by Chronic Maintenance Therapy):* • Foscarnet 90 mg/kg IV q12h or 60 mg/kg q8h for 14–21 days **(BI)**, *or* • Cidofovir 5 mg/kg/week IV for 2 weeks; saline hydration before and after therapy and probenecid, 2 g PO 3 hours before dose, followed by 1 g PO 2 hours and 8 hours after the dose (total of 4 g) **(CI)**.	The choice of therapy for CMV retinitis should be individualized, based on tolerance of systemic medications, prior exposure to anti-CMV drugs, and location of the lesion **(AIII)**. Given the evident benefits of systemic therapy in preventing contralateral eye involvement, reduce CMV visceral disease and improve survival. Whenever feasible, treatment should include systemic therapy. The ganciclovir ocular implant, which is effective for treatment of CMV retinitis is no longer available.

Table 2. Treatment of AIDS-Associated Opportunistic Infections (Includes Recommendations for Acute Treatment and Secondary Prophylaxis/Chronic Suppressive/Maintenance Therapy) (page 9 of 21)

Opportunistic Infection	Preferred Therapy	Alternative Therapy	Other Comments
Cytomegalovirus (CMV) Disease, continued	*For Peripheral Lesions –* • Valganciclovir 900 mg PO BID for 14–21 days, then 900 mg once daily **(AI)** Maintenance Therapy – • Valganciclovir 900 mg PO daily **(AI)** for 3-6 months until ART induced immune recovery **CMV Esophagitis or Colitis:** • Ganciclovir 5 mg/kg IV q12h; may switch to valganciclovir 900 mg PO q12h once the patient can tolerate oral therapy **(BI)** • Valganciclovir 900 mg PO q12h may be considered as initial therapy in mild diseases **(CIII)** • Duration: 21–42 days or until symptoms have resolved **(CII)** • Maintenance therapy is usually not necessary, but should be considered after relapses **(BII)**. Well-Documented, Histologically Confirmed CMV Pneumonia: • Experience for treating CMV pneumonitis in HIV patients is limited. Use of IV ganciclovir or IV foscarnet is reasonable (doses same as for CMV retinitis) **(CIII)**. • The optimal duration of therapy and the role of oral valganciclovir have not been established. CMV Neurological Disease ***Note: Treatment should be initiated promptly.*** • Ganciclovir 5 mg/kg IV q12h + (foscarnet 90 mg/kg IV q12h or 60 mg/kg IV q8h) to stabilize disease and maximize response, continue until symptomatic improvement and resolution of neurologic symptoms **(CIII)** • The optimal duration of therapy and the role of oral valganciclovir have not been established.	(Note: This regimen should be avoided in patients with sulfa allergy because of cross hypersensitivity with probenecid.) *Chronic Maintenance (for 3-6 months until ART induced immune recovery):* • Foscarnet 90–120 mg/kg IV once daily **(AI)**, *or* • Cidofovir 5 mg/kg IV every other week with saline hydration and probenecid as above **(BI)** CMV Esophagitis or Colitis: • Foscarnet 90 mg/kg IV q12h or 60 mg/kg q8h **(BI)** for patients with treatment-limiting toxicities to ganciclovir or with ganciclovir resistance, *or* • Valganciclovir 900 mg PO q12h in milder disease and if able to tolerate PO therapy **(BII)**, *or* • Duration: 21–42 days or until symptoms have resolved **(CII)** • For mild disease, if ART can be initiated without delay, consider withholding CMV therapy **(CIII)**.	Routine (i.e., every 3 months) ophthalmologic follow-up is recommended after stopping chronic maintenance therapy for early detection of relapse or IRU, and then periodically after sustained immune reconstitution **(AIII)**. IRU may develop in the setting of immune reconstitution. Treatment of IRU • Periocular, intravitreal, or short courses of systemic steroid **(BIII)**. Initial therapy in patients with CMV retinitis, esophagitis, colitis, and pneumonitis should include initiation or optimization of ART **(BIII)**.

Table 2. Treatment of AIDS-Associated Opportunistic Infections (Includes Recommendations for Acute Treatment and Secondary Prophylaxis/Chronic Suppressive/Maintenance Therapy) (page 10 of 21)

Opportunistic Infection	Preferred Therapy	Alternative Therapy	Other Comments
Hepatitis B Virus (HBV) Disease	ART is recommended for all HIV/HBV-co-infected patients regardless of CD4 cell count **(AII)**. ART regimen should include 2 drugs that are active against both HBV and HIV, such as [tenofovir 300 mg + emtricitabine 200 mg (or lamivudine 300 mg)] PO once daily (+ additional drug (s) for HIV) **(AIII)**. Duration: Continue treatment indefinitely **(CIII)**	For Patients Who Refuse or Are Unable to Take ART or Who Are HIV Long-Term Non-Progressors: • HBV treatment is indicated for patients with elevated ALT and HBV DNA >2,000 IU/mL significant liver fibrosis, advanced liver disease or cirrhosis. **(AI)** • Peginterferon alfa-2a 180 μg SQ once weekly for 48 weeks **(CIII)**, *or* • Peginterferon alfa-2b 1.5 μg/kg SQ once weekly for 48 weeks **(CIII)** If Tenofovir Cannot Be Used as Part of HIV/HBV Therapy (Because of Current or High Risk of Renal Dysfunction): • Use a fully suppressive ART regimen without tenofovir, and with the addition of entecavir (dose adjustment according to renal function) **(BIII).**	Directly acting HBV drugs such as adefovir, emtricitabine, entecavir, lamivudine, telbivudine, or tenofovir **must not be given** in the absence of a fully suppressive ART regimen to avoid selection of drug resistance HIV **(AI)**. Cross-resistance to emtricitabine or telbivudine should be assumed in patients with suspected or proven lamivudine-resistance. When changing ART regimens, continue agents with anti-HBV activity **(BIII)**. If anti-HBV therapy is discontinued and a flare occurs, therapy should be re-instituted because it can be potentially life-saving **(AIII)**.
Hepatitis C Virus (HCV) Disease	The field of HCV drug development is evolving rapidly, with a number of investigational drugs currently at late stage clinical trials, and some will soon be approved for use. Clinicians should refer to the most recent HCV treatment guidelines (http://www.hcvguidelines.org) for the most up-to-date recommendations.		
Herpes Simplex Virus (HSV) Disease	Orolabial Lesions (for 5–10 Days): • Valacyclovir 1 g PO twice a day **(AIII)**, *or* • Famciclovir 500 mg PO twice a day **(AIII)**, *or* • Acyclovir 400 mg PO three times a day **(AIII)** Initial or Recurrent Genital HSV (for 5–14 Days): • Valacyclovir 1 g PO twice a day **(AI)**, *or* • Famciclovir 500 mg PO twice a day **(AI)**, *or* • Acyclovir 400 mg PO three times a day **(AI)** Severe Mucocutaneous HSV: • Initial therapy acyclovir 5 mg/kg IV every 8 hours **(AIII)** • After lesions begin to regress, change to PO therapy as above. Continue until lesions are completely healed.	For Acyclovir-Resistant HSV *Preferred Therapy:* • Foscarnet 80–120 mg/kg/day IV in two to three divided doses until clinical response **(AI)** *Alternative Therapy **(CIII)**:* • IV cidofovir (dosage as in CMV retinitis), *or* • Topical trifluridine 1% three times a day, *or* • Topical cidofovir 1% once daily, *or* • Topical imiquimod 5% three times weekly, *or* • Topical foscarnet 1% five times daily Duration of Therapy: • 21–28 days or longer	Patients with HSV infection can be treated with episodic therapy when symptomatic lesions occur, or with daily suppressive therapy to prevent recurrences. Extemporaneous compounding of topical products can be prepared using trifluridine ophthalmic solution and the IV formulation of cidofovir and foscarnet. An expanded access program of oral pritelivir is now available for immunocompromised patients with acyclovir-resistant HSV infection. For more information, see the AiCuris Pritelivir website.

Table 2. Treatment of AIDS-Associated Opportunistic Infections (Includes Recommendations for Acute Treatment and Secondary Prophylaxis/Chronic Suppressive/Maintenance Therapy) (page 11 of 23)

Opportunistic Infection	Preferred Therapy	Alternative Therapy	Other Comments
Herpes Simplex Virus (HSV) Disease *continued*	Chronic Suppressive Therapy *For Patients with Severe Recurrences of Genital Herpes **(AI)** or Patients Who Want to Minimize Frequency of Recurrences **(AI)**:* • Valacyclovir 500 mg PO twice a day **(AI)**, *or* • Famciclovir 500 mg PO twice a day **(AI)**, *or* • Acyclovir 400 mg PO twice a day **(AI)** • Continue indefinitely regardless of CD4 count.		
Histoplasmosis	Moderately Severe to Severe Disseminated Disease *Induction Therapy:* • For at least 2 weeks or until clinically improved • Liposomal amphotericin B 3 mg/kg IV daily **(AI)** *Maintenance Therapy:* • Itraconazole 200 mg PO three times a day for 3 days, then 200 mg PO twice a day **(AII)** Less Severe Disseminated Disease *Induction and Maintenance Therapy:* •Itraconazole 200 mg PO three times a day for 3 days, then 200 mg PO twice a day **(AII)** *Duration of Therapy:* • At least 12 months Meningitis *Induction Therapy (4–6 weeks):* • Liposomal amphotericin B 5 mg/kg/day **(AIII)** *Maintenance Therapy:* • Itraconazole 200 mg PO twice a day to three times a day for ≥12 months and until resolution of abnormal CSF findings **(AII)** Long-Term Suppression Therapy: *For patients with severe disseminated or CNS infection **(AIII)** after completion of at least 12 months of therapy and who relapse despite appropriate therapy **(BIII)**:* • Itraconazole 200 mg PO daily **(AIII)**	Moderately Severe to Severe Disseminated Disease *Induction Therapy (for at least 2 weeks or until clinically improved):* • Amphotericin B lipid complex 5 mg/kg IV daily **(AIII)**, *or* Alternatives to Itraconazole for Maintenance Therapy or Treatment of Less Severe Disease: • Posaconazole extended release 300 mg PO twice a day for 1 day, then 300 mg PO once daily **(BIII)** • Voriconazole 400 mg PO twice a day for 1 day, then 200 mg twice a day **(BIII)**, *or* • Fluconazole 800 mg PO daily **(CII)** Meningitis (these recommendations are based on limited clinical data for patients with intolerance to itraconazole): • Posaconazole extended release 300 mg PO twice a day for 1 day, then 300 mg PO once daily **(BIII)** • Voriconazole 400 mg PO twice a day for 1 day, then 200 mg twice a day **(BIII)**, *or* • Fluconazole 800 mg PO daily **(CII)** Long-Term Suppression Therapy: • Posaconazole 300 mg extended release tablet PO once daily **(BIII)** • Voriconazole 200 mg PO twice daily **(BIII)** • Fluconazole 400 mg PO once daily **(CII)**	Itraconazole, posaconazole, and voriconazole may have significant interactions with certain ARV agents. These interactions are complex and can be bi-directional. Refer to Drug-Drug Interactions in the Adult and Adolescent Antiretroviral Guidelines for dosage recommendations. Therapeutic drug monitoring and dosage adjustment may be necessary to ensure triazole antifungal and ARV efficacy and reduce concentration-related toxicities. Random serum concentration of itraconazole between 1-2 mcg/mL is recommended. Frequency and severity of toxicities increase when concentration is >4 mcg/mL. Acute pulmonary histoplasmosis in HIV-infected patients with CD4 counts >300 cells/mm^3 should be managed as non-immunocompromised host **(AIII)**.

Table 2. Treatment of AIDS-Associated Opportunistic Infections (Includes Recommendations for Acute Treatment and Secondary Prophylaxis/Chronic Suppressive/Maintenance Therapy) (page 12 of 21)

Opportunistic Infection	Preferred Therapy	Alternative Therapy	Other Comments
Human Herpesvirus-8 Diseases *(Kaposi Sarcoma [KS], Primary Effusion Lymphoma [PEL], Multicentric Castleman's Disease [MCD])*	Mild To Moderate KS (localized involvement of skin and/or lymph nodes): • Initiate or optimize ART **(AII)** Advanced KS [visceral **(AI)** or disseminated cutaneous KS **(BIII)**]: • Chemotherapy (per oncology consult) + ART • Liposomal doxorubin first line chemotherapy **(AI)** Primary Effusion Lymphoma: • Chemotherapy (per oncology consult) + ART **(AIII)** • PO valganciclovir or IV ganciclovir can be used as adjunctive therapy **(CIII)**. MCD Therapy Options (in consultation with specialist, depending on HIV/HHV-8 status, presence of organ failure, and refractory nature of disease): ART **(AIII)** along with one of the following: • Valganciclovir 900 mg PO BID for 3 weeks **(CII)**, *or* • Ganciclovir 5 mg/kg IV q12h for 3 weeks **(CII)**, *or* • Valganciclovir PO or Ganciclovir IV + zidovudine 600 mg PO q6h for 7–21 days **(CII)** • Rituximab +/- Prednisone **(CII)** • Monoclonal antibody targeting IL-6 or IL-6 receptor **(BII)** Concurrent KS and MCD • Rituximab + liposomal doxorubicin **(BII)**	MCD • Rituximab (375 mg/m^2 given weekly for 4–8 weeks) may be an alternative to or used adjunctively with antiviral therapy **(CII)**.	• Corticosteroids should be avoided in patients with KS, including those with KS-IRIS **(AIII)** • Corticosteroids are potentially effective as adjunctive therapy for MCD, but should be used with caution, esp. in patients with concurrent KS. • Patients who received rituximab for MCD may experience subsequent exacerbation or emergence of KS.
Human Papillomavirus (HPV) Disease	**Treatment of Condyloma Acuminata (Genital Warts)** Patient-Applied Therapy for Uncomplicated External Warts That Can Be Easily Identified by Patients: • Podophyllotoxin (e.g., podofilox 0.5% solution or 0.5% gel): Apply to all lesions BID for 3 consecutive days, followed by 4 days of no therapy, repeat weekly for up to 4 cycles, until lesions are no longer visible **(BIII)**, *or* • Imiquimod 5% cream: Apply to lesion at bedtime and remove in the morning on 3 non-consecutive nights weekly for up to 16 weeks, until lesions are no longer visible. Each treatment should be washed	Provider-Applied Therapy for Complex or Multicentric Lesions, or Lesions Inaccessible to Patient: *Applied Therapy:* • Cryotherapy (liquid nitrogen or cryoprobe): Apply until each lesion is thoroughly frozen. Repeat every 1–2 weeks for up to 4 weeks, until lesions are no longer visible **(BIII)**. Some providers allow the lesion to thaw, then freeze a second time in each session **(BIII)**, *or* • Trichloroacetic acid or bichloroacetic acid cauterization: 80%–90% aqueous solution, apply to wart only, allow to dry until	HIV-infected patients may have larger or more numerous warts and may not respond as well to therapy for genital warts when compared to HIV-uninfected individuals. Topical cidofovir has activity against genital warts, but the product is not commercially available **(CIII)**. Intralesional interferon-alpha is usually not recommended because of high cost, difficult administration, and potential for systemic side effects **(CIII)**. The rate of recurrence of genital warts is high despite

Table 2. Treatment of AIDS-Associated Opportunistic Infections (Includes Recommendations for Acute Treatment and Secondary Prophylaxis/Chronic Suppressive/Maintenance Therapy) (page 13 of 21)

Opportunistic Infection		Preferred Therapy	Alternative Therapy	Other Comments
Human Papillomavirus (HPV) Disease *continued*		with soap and water 6–10 hours after application **(BII)**, *or* • Sinecatechins 15% ointment: Apply to affected areas TID for up to 16 weeks, until warts are completely cleared and not visible **(BIII)**.	a white frost develops. Repeat weekly for up to 6 weeks, until lesions are no longer visible **(BIII)**, *or* • Surgical excision **(BIII)** or laser surgery **(CIII)** to external or anal warts, *or* • Podophyllin resin 10%–25% in tincture of benzoin: Apply to all lesions (up to 10 cm^2), then wash off a few hours later, repeat weekly for up to 6 weeks until lesions are no longer visible **(CIII)**.	treatment in HIV-infected patients. There is no consensus on the treatment of oral warts. Many treatments for anogenital warts cannot be used in the oral mucosa. Surgery is the most common treatment for oral warts that interfere with function or for aesthetic reasons.
Isosporiasis (Cystoisosporiasis)		For Acute Infection: • TMP-SMX (160 mg/800 mg) PO (or IV) QID for 10 days **(AII)**, *or* • TMP-SMX (160 mg/800 mg) PO (or IV) BID for 7–10 days **(BI)** • Can start with BID dosing first and increase daily dose and/or duration (up to 3–4 weeks) if symptoms worsen or persist **(BIII)** • IV therapy may be used for patients with potential or documented mal-absorption. Chronic Maintenance Therapy (Secondary Prophylaxis): • In patients with CD4 count <200/μL, TMP-SMX (160 mg/800 mg) PO TIW **(AI)**	For Acute Infection: • Pyrimethamine 50–75 mg PO daily + leucovorin 10–25 mg PO daily **(BIII)**, *or* • Ciprofloxacin 500 mg PO BID for 7 days **(CI)** as a second line alternative Chronic Maintenance Therapy (Secondary Prophylaxis): • TMP-SMX (160 mg/800 mg) PO daily or (320 mg/1,600 mg) three times weekly **(BIII)** • Pyrimethamine 25 mg PO daily + leucovorin 5–10 mg PO daily **(BIII)** • Ciprofloxacin 500 mg three times weekly **(CI)** as a second-line alternative	Fluid and electrolyte management in patients with dehydration **(AIII)**. Nutritional supplementation for malnourished patients **(AIII)**. Immune reconstitution with ART may result in fewer relapses **(AIII)**.
Leish-maniasis	**Visceral**	For Initial Infection: • Liposomal amphotericin B 2–4 mg/kg IV daily **(AII)**, *or* • Liposomal amphotericin B interrupted schedule (e.g., 4 mg/kg on days 1–5, 10, 17, 24, 31, 38) **(AII)** • To achieve total dose of 20–60 mg/kg **(AII)** Chronic Maintenance Therapy (Secondary Prophylaxis); Especially in Patients with CD4 Count <200 cells/μL: • Liposomal amphotericin B 4 mg/kg every 2–4 weeks **(AII)**, *or* • Amphotericin B lipid complex **(AII)** 3 mg/kg every 21 days **(AII)**	For Initial Infection: • Other lipid formulation of amphotericin B, dose and schedule as in Preferred Therapy, *or* • Amphotericin B deoxycholate 0.5–1.0 mg/kg IV daily for total dose of 1.5–2.0 g **(BII)**, *or* • Sodium stibogluconate (pentavalent antimony) **(BII)** 20 mg/kg IV or IM daily for 28 days. • Miltefosine - if 30-44 kg: 50 mg BID; if (*insert actual >/= sign*)45 kg, 50 mg TID - for 28 days. Chronic Maintenance Therapy (Secondary Prophylaxis): • Sodium stibogluconate 20 mg/kg IV or IM every 4 weeks **(BII)**	ART should be initiated or optimized **(AIII)**. For sodium stibogluconate, contact the CDC Drug Service at (404) 639-3670 or drugservice@cdc.gov. For miltefosine – can be accessed via http://www.impavido.com/

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Opportunistic Infection		Preferred Therapy	Alternative Therapy	Other Comments
Leish-maniasis	**Cutaneous**	• Liposomal amphotericin B 2–4 mg/kg IV daily for 10 days **(BIII)**, *or* • Liposomal amphotericin B interrupted schedule (e.g., 4 mg/kg on days 1–5, 10, 17, 24, 31, 38) to achieve total dose of 20–60 mg/kg **(BIII)**, *or* • Sodium stibogluconate 20 mg/kg IV or IM daily for 3–4 weeks **(BIII)** Chronic Maintenance Therapy: May be indicated in immunocompromised patients with multiple relapses **(CIII)**	Possible Options Include: • Oral miltefosine (can be obtained via a treatment IND), *or* • Topical paromomycin, *or* • Intralesional sodium stibogluconate, *or* • Local heat therapy No data exist for any of these agents in HIV-infected patients; choice and efficacy dependent on species of *Leishmania*.	None.
Malaria		Because *Plasmodium falciparum* malaria can progress within hours from mild symptoms or low-grade fever to severe disease or death, all HIV-infected patients with confirmed or suspected *P. falciparum* infection should be hospitalized for evaluation, initiation of treatment, and observation **(AIII)**. Treatment recommendations for HIV-infected patients are the same as HIV-uninfected patients **(AIII)**. Choice of therapy is guided by the degree of parasitemia, the species of *Plasmodium*, the patient's clinical status, region of infection, and the likely drug susceptibility of the infected species, and can be found at http://www.cdc.gov/malaria.	When suspicion for malaria is low, antimalarial treatment should not be initiated until the diagnosis is confirmed.	For treatment recommendations for specific regions, clinicians should refer to the following web link: http://www.cdc.gov/malaria/ or call the CDC Malaria Hotline: (770) 488-7788: M–F 8 AM–4:30 PM ET, or (770) 488-7100 after hours
Microsporidiosis		For GI Infections Caused by *Enterocytozoon bienuesi*: • Initiate or optimize ART with immune restoration to CD4 count >100 cells/mm^3 **(AII)**; *plus* • Manage severe dehydration, malnutrition, and wasting by fluid support **(AII)** and nutritional supplement **(AIII)** For Intestinal and Disseminated (Not Ocular) Infections Caused by Microsporidia Other Than *E. bienuesi* and *Vittaforma corneae*: • Albendazole 400 mg PO twice daily **(AII)**, continue until CD4 count >200 cells/mm^3 for >6 months after initiation of ART **(BIII)** For Disseminated Disease Caused by *Trachipleistophora* or *Anncaliia*: • Itraconazole 400 mg PO daily plus albendazole 400 mg PO twice daily **(CIII)**	For GI Infections Caused by *E. bienuesi:* • Fumagillin 60 mg/day **(BII)** and TNP-470 (a synthetic analog of fumagillin) **(BIII)** may be effective, but neither is available in the United States. • Nitazoxanide (1,000 mg twice daily) may have some effect but response may be minimal in patients with low CD4 cell counts **(CIII)**.	Anti-motility agents can be used for diarrhea control if required **(BIII)**. Fumagillin is available in France as FLISINT® 20 mg capsules. Only available as compassionate use; see the Sanofi Compassionate Use/Managed Access Program website.

Table 2. Treatment of AIDS-Associated Opportunistic Infections (Includes Recommendations for Acute Treatment and Secondary Prophylaxis/Chronic Suppressive/Maintenance Therapy) (page 15 of 21)

Opportunistic Infection	Preferred Therapy	Alternative Therapy	Other Comments
Microsporidiosis *continued*	For Ocular Infection: • Topical fumagillin bicylohexylammonium (Fumidil B) eye drops 3 mg/mL in saline (fumagillin 70 μg/mL): two drops every 2 hours for 4 days, then two drops four times daily (investigational use only in United States) **(BII)** plus albendazole 400 mg PO twice daily, for management of systemic infection **(BIII)** *If CD4 count >200 cells/mm^3:* • Continue until symptoms resolved **(CIII)**. *If CD4 count ≤200 cells/mm^3:* • Continue until resolution of ocular symptoms **and** CD4 count increases to >200 cells/mm^3 for >6 months in response to ART **(BIII)**.		
***Mycobacterium avium* Complex (MAC) Disease**	At Least 2 Drugs as Initial Therapy to Prevent or Delay Emergence of Resistance: • Clarithromycin 500 mg PO BID **(AI)** + ethambutol 15 mg/kg PO daily **(AI)**, *or* • If drug interaction or intolerance precludes the use of clarithromycin, (azithromycin 500–600 mg + ethambutol 15 mg/kg) PO daily **(AII)** Duration: • At least 12 months of therapy, can discontinue if no signs and symptoms of MAC disease and sustained (>6 months) CD4 count >100 cells/mm^3 in response to ART	Some experts recommend addition of a third or fourth drug for patients with high mycobacterial loads (>2 log CFU/mL of blood), or in the absence of effective ART **(CIII)**. Third or Fourth Drug Options May Include: • Rifabutin 300 mg PO daily (dose adjustment may be necessary based on drug interactions) **(CI)**, *or* • A fluoroquinolone such as moxifloxacin 400 mg PO daily **(CIII)** or levofloxacin 500 mg PO daily **(CIII)**, *or* • An injectable aminoglycoside such as amikacin 10–15 mg/kg IV daily **(CIII)** or streptomycin 1 g IV or IM daily **(CIII)**	Testing of susceptibility to clarithromycin and azithromycin is recommended **(BIII)**. NSAIDs can be used for moderate to severe symptoms attributed to IRIS **(CIII)**. If IRIS symptoms persist, short course (i.e., 4 weeks–8 weeks) systemic corticosteroid (equivalent to 20–40 mg prednisone) can be used **(CII)**.

Table 2. Treatment of AIDS-Associated Opportunistic Infections (Includes Recommendations for Acute Treatment and Secondary Prophylaxis/Chronic Suppressive/Maintenance Therapy) (page 16 of 21)

Opportunistic Infection	Preferred Therapy	Alternative Therapy	Other Comments
***Mycobacterium tuberculosis* (TB) Disease**	After collecting specimen for culture and molecular diagnostic tests, empiric TB treatment should be started in individuals with clinical and radiographic presentation suggestive of TB **(AIII)**. Refer to Table 3 for dosing recommendations. Initial Phase (2 Months, Given Daily by DOT) **(AI)**: • INH (plus pyridoxine) plus (RIF or RFB) plus PZA plus EMB **(AI)**. Continuation Phase (Duration Depends on Site and Severity of Infection [as noted below]): • INH (plus pyridoxine) plus (RIF or RFB) daily **(AI)** Total Duration of Therapy (For Drug-Susceptible TB) *Pulmonary, Drug-Susceptible TB:* • 6 months **(BII)** *Pulmonary TB with Positive Culture After 2 Months of TB Treatment, or Severe Cavitary or Disseminated Extrapulmonary TB:* • 9 months **(BII)** *Extra-Pulmonary TB with CNS Infection:* • 9–12 months **(BII)** *Extra-Pulmonary TB in Other Sites:* • 6 months **(BII)**	If rapid **drug susceptibility testing** (DST) indicates resistance to rifampin with or without other drugs: • INH (plus pyridoxine) plus EMB plus PZA plus (moxifloxacin or levofloxacin) plus an aminoglycoside, *or* • Capreomycin **(BIII)**; adjust regimen as conventional DST become available Treatment for Drug Resistant TB *Resistant to INH:* • (Moxifloxacin or levofloxacin) plus (RIF or RFB) plus EMB plus PZA plus for 6 months **(BII)**; Resistant to Rifamycins Plus or Minus Other Drugs: • Therapy should include at least 5 active drugs, individualized based on DST results, clinical and microbiological responses, and with close consultation with experienced specialists **(AIII)**.	DOT is recommended for all patients **(AII)**. All patients with HIV and TB should be started on ART. Refer to text for recommendations on when to start ART while on TB treatment. All rifamycins may have significant pharmacokinetic interactions with ARV drugs, please refer to the Drug-Drug Interactions section in the Adult and Adolescent Antiretroviral Guidelines for dosing recommendations. Therapeutic drug monitoring should be considered in patients receiving rifamycin and interacting ART. Adjunctive corticosteroids improve survival for TB with CNS involvement **(AI)**. See text for drug, dose, and duration recommendations. Paradoxical IRIS that is not severe can be treated with NSAIDs without a change in TB or HIV therapy **(BIII)**. See text for prednisone dosing recommendations for pre-emptive treatment or management of IRIS.

Table 2. Treatment of AIDS-Associated Opportunistic Infections (Includes Recommendations for Acute Treatment and Secondary Prophylaxis/Chronic Suppressive/Maintenance Therapy) (page 17 of 21)

Opportunistic Infection	Preferred Therapy	Alternative Therapy	Other Comments
***Pneumocystis* Pneumonia (PCP)**	Patients who develop PCP despite TMP-SMX prophylaxis can usually be treated with standard doses of TMP-SMX **(BIII)**. Duration of PCP treatment: 21 days **(AII)** For Moderate to Severe PCP: • TMP-SMX: (TMP 15–20 mg and SMX 75–100 mg)/kg/day IV given every 6 hours or every 8 hours **(AI)**; may switch to PO formulations after clinical improvement **(AI)**. For Mild to Moderate PCP: • TMP-SMX: (TMP 15–20 mg and SMX 75–100 mg)/kg/day, given PO in 3 divided doses **(AI)**, *or* • TMP-SMX: (160 mg/800 mg or DS) two tablets PO three times daily **(AI)** Secondary Prophylaxis, After Completion of PCP Treatment: • TMP-SMX DS: 1 tablet PO daily **(AI)**, *or* • TMP-SMX (80 mg/400 mg or SS): 1 tablet PO daily **(AI)**	For Moderate-to-Severe PCP: • Pentamidine 4 mg/kg IV daily infused over ≥60 minutes **(AI)**; can reduce dose to 3 mg/kg IV daily in the event of toxicities **(BI)**, *or* • Primaquine 30 mg (base) PO daily plus (clindamycin 600 mg IV every 6 hours or 900 mg IV every 8 hours) or (clindamycin 450 mg PO every 6 hours or 600 mg PO every 8 hours) **(AI)** For Mild-to-Moderate PCP: • Dapsone 100 mg PO daily plus TMP 5 mg/kg PO TID **(BI)**, *or* • Primaquine 30 mg (base) PO daily plus (clindamycin 450 mg PO every 6 hours or 600 mg PO every 8 hours) **(BI)**, *or* • Atovaquone 750 mg PO twice daily with food **(BI)** Secondary Prophylaxis, After Completion of PCP Treatment: • TMP-SMX DS: 1 tablet PO three times weekly **(BI)**, *or* • Dapsone 100 mg PO daily **(BI)**, *or* • Dapsone 50 mg PO daily with (pyrimethamine[a] 50 mg plus leucovorin 25 mg) PO weekly **(BI)**, *or* • (Dapsone 200 mg plus pyrimethamine[a] 75 mg plus leucovorin 25 mg) PO weekly **(BI)**, *or* • Aerosolized pentamidine 300 mg monthly via Respirgard II™ nebulizer **(BI)**, *or* • Atovaquone 1,500 mg PO daily **(BI)**, *or* • (Atovaquone 1,500 mg plus pyrimethamine[a] 25 mg plus leucovorin 10 mg) PO daily **(CIII)**	Indications for Adjunctive Corticosteroids **(AI)**: • PaO_2 <70 mmHg at room air, *or* • Alveolar-arterial DO_2 gradient >35 mmHg Prednisone Doses (Beginning as Early as Possible and Within 72 Hours of PCP Therapy) **(AI)**: • Days 1–5: 40 mg PO twice daily • Days 6–10: 40 mg PO daily • Days 11–21: 20 mg PO daily IV methylprednisolone can be administered as 75% of prednisone dose. Benefit of corticosteroid if started after 72 hours of treatment is unknown, but some clinicians will use it for moderate-to-severe PCP **(BIII)**. Whenever possible, patients should be tested for G6PD before use of dapsone or primaquine. Alternative therapy should be used in patients found to have G6PD deficiency. Patients who are receiving pyrimethamine[a]/sulfadiazine for treatment or suppression of toxoplasmosis do not require additional PCP prophylaxis **(AII)**. If TMP-SMX is discontinued because of a mild adverse reaction, re-institution should be considered after the reaction resolves **(AII)**. The dose can be increased gradually (desensitization) **(BI)**, reduced, or the frequency modified **(CIII)**. TMP-SMX should be permanently discontinued in patients with possible or definite Stevens-Johnson Syndrome or toxic epidermal necrosis **(AII)**.

Table 2. Treatment of AIDS-Associated Opportunistic Infections (Includes Recommendations for Acute Treatment and Secondary Prophylaxis/Chronic Suppressive/Maintenance Therapy) (page 18 of 21)

Opportunistic Infection	Preferred Therapy	Alternative Therapy	Other Comments
Progressive Multifocal Leukoencephalopathy (PML)/JC Virus Infections	There is no specific antiviral therapy for JC virus infection. The main treatment approach is to reverse the immunosuppression caused by HIV. Initiate ART immediately in ART-naive patients **(AII)**. Optimize ART in patients who develop PML in phase of HIV viremia on ART **(AIII)**.	None.	Corticosteroids may be used for PML-IRIS characterized by contrast enhancement, edema or mass effect, and with clinical deterioration **(BIII)** (see text for further discussion).
Syphilis (*Treponema pallidum* Infection)	Early Stage (Primary, Secondary, and Early-Latent Syphilis): • Benzathine penicillin G 2.4 million units IM for 1 dose **(AII)** Late-Latent Disease (>1 year or of Unknown Duration, and No Signs of Neurosyphilis): • Benzathine penicillin G 2.4 million units IM weekly for 3 doses **(AII)** Late-Stage (Tertiary–Cardiovascular or Gummatous Disease): • Benzathine penicillin G 2.4 million units IM weekly for 3 doses **(AII)** (Note: rule out neurosyphilis before initiation of benzathine penicillin, and obtain infectious diseases consultation to guide management) Neurosyphilis (Including Otic or Ocular Disease): • Aqueous crystalline penicillin G 18–24 million units per day (administered as 3–4 million units IV q4h or by continuous IV infusion) for 10–14 days **(AII)** +/- benzathine penicillin G 2.4 million units IM weekly for 3 doses after completion of IV therapy **(CIII)**	Early Stage (Primary, Secondary, and Early-Latent Syphilis): *For penicillin-allergic patients* • Doxycycline 100 mg PO BID for 14 days **(BII)**, *or* • Ceftriaxone 1 g IM or IV daily for 10–14 days **(BII)**, *or* • Azithromycin 2 g PO for 1 dose **(BII)** (Note: azithromycin is not recommended for men who have sex with men or pregnant women **(AII)**) Late-Latent Disease (>1 year or of Unknown Duration, and No Signs of Neurosyphilis): *For penicillin-allergic patients* • Doxycycline 100 mg PO BID for 28 days **(BIII)** Neurosyphilis: • Procaine penicillin 2.4 million units IM daily plus probenecid 500 mg PO QID for 10–14 days **(BII)** +/- benzathine penicillin G 2.4 million units IM weekly for 3 doses after completion of above **(CIII)**, *or* • *For penicillin-allergic patients:* Desensitization to penicillin is the preferred approach **(BIII)**; if not feasible, ceftriaxone, 2 g IV daily for 10–14 days **(BII)**	The efficacy of non-penicillin alternatives has not been evaluated in HIV-infected patients and they should be used only with close clinical and serologic monitoring. Combination of procaine penicillin and probenecid **is not recommended** for patients who are allergic to sulfa-containing medications **(AIII)**. The Jarisch-Herxheimer reaction is an acute febrile reaction accompanied by headache and myalgia that can occur within the first 24 hours after therapy for syphilis. This reaction occurs most frequently in patients with early syphilis, high non-treponemal titers, and prior penicillin treatment.

Table 2. Treatment of AIDS-Associated Opportunistic Infections (Includes Recommendations for Acute Treatment and Secondary Prophylaxis/Chronic Suppressive/Maintenance Therapy) (page 19 of 21)

Opportunistic Infection	Preferred Therapy	Alternative Therapy	Other Comments
Talaromycosis (Penicilliosis)	Induction Therapy: • Liposomal amphotericin B 3–5 mg/kg/day IV **(AI)** *Duration:* • 2 weeks **(AI)**, followed by consolidation therapy Consolidation Therapy: • Itraconazole 200 mg PO twice daily for 10 weeks **(AI)**, followed by chronic maintenance therapy Chronic Maintenance Therapy: • Itraconazole 200 mg PO once daily, until CD4 count >100 cells/mm^3 for ≥6 months **(AII)**	Induction Therapy: • Amphotericin B deoxycholate 0.7 mg/kg/day IV for 2 weeks (if liposomal amphotericin B is not available) **(AI)** *If Amphotericin B is Not Available:* • Voriconazole 6 mg/kg IV every 12 hours for 1 day (loading dose), then 4 mg/kg IV every 12 hours **(BII)**, *or* • Voriconazole 600 mg PO twice daily for 1 day (loading dose), then 400 mg PO twice daily **(BII)** *Duration:* • 2 weeks **(BII)** followed by consolidation therapy with itraconazole (preferred) or voriconazole Consolidation Therapy: • Voriconazole 200 mg PO twice daily for 10 weeks **(BII)**, followed by chronic maintenance therapy Chronic Maintenance Therapy: • Itraconazole should be used **(AII)**. Chronic maintenance therapy with voriconazole has not been studied.	Itraconazole is not recommended as induction therapy for talaromycosis **(AI)**. ART can be initiated as early as 1 week after initiation of treatment for talaromycosis **(BIII)**. Itraconazole and voriconazole may have significant interactions with certain ARV agents. These interactions are complex and can be bi-directional. Refer to Drug-Drug Interactions in the Adult and Adolescent Antiretroviral Guidelines for dosage recommendations. TDM and dosage adjustment may be necessary to ensure triazole antifungal and ARV efficacy and reduce concentration-related toxicities. The goals of itraconazole and voriconazole trough concentrations are >0.5 mcg/mL and >1.0 mcg/mL respectively.

***Toxoplasma gondii* Encephalitis**	Treatment of Acute Infection **(AI)**:
	• Pyrimethamine[a] 200 mg PO 1 time, followed by weight-based therapy:
	  • If <60 kg, pyrimethamine[a] 50 mg PO once daily + sulfadiazine 1,000 mg PO q6h + leucovorin 10–25 mg PO once daily
	  • If ≥60 kg, pyrimethamine[a] 75 mg PO once daily + sulfadiazine 1,500 mg PO q6h + leucovorin 10–25 mg PO once daily
	• Leucovorin dose can be increased to 50 mg daily or BID.
	Duration for Acute Therapy:
	• At least 6 weeks **(BII)**; longer duration if clinical or radiologic disease is extensive or response is incomplete at 6 weeks
	• After completion of acute therapy, all patients should be initiated on chronic maintenance therapy
		Treatment of Acute Infection:
		• Pyrimethamine[a] (leucovorin)* + clindamycin 600 mg IV or PO q6h **(AI)**, *or*
		• TMP-SMX (TMP 5 mg/kg and SMX 25 mg/kg) IV or PO BID **(BI)**, *or*
		• Atovaquone 1,500 mg PO BID with food + pyrimethamine[a] (leucovorin)* **(BII)**, *or*
		• Atovaquone 1,500 mg PO BID with food + sulfadiazine 1,000–1,500 mg PO q6h (weight-based dosing, as in preferred therapy) **(BII)**, *or*
		• Atovaquone 1,500 mg PO BID with food **(BII)**, *or*
		Chronic Maintenance Therapy:
		• Clindamycin 600 mg PO q8h + (pyrimethamine[a] 25–50 mg + leucovorin 10–25 mg) PO daily **(BI)**, *or*
		• TMP-SMX DS 1 tablet BID **(BII)**, *or*
			If pyrimethamine is unavailable or there is a delay in obtaining it, TMP-SMX should be utilized in place of pyrimethamine-sulfadiazine **(BI)**.
			For patients with a history of sulfa allergy, sulfa desensitization should be attempted using one of several published strategies **(BI)**.
			Atovaquone should be administered until therapeutic doses of TMP-SMX are achieved **(CIII)**.
			Adjunctive corticosteroids (e.g., dexamethasone) should only be administered when clinically indicated to treat mass effect associated with focal lesions or associated edema **(BIII)**; discontinue as soon as clinically feasible.

Table 2. Treatment of AIDS-Associated Opportunistic Infections (Includes Recommendations for Acute Treatment and Secondary Prophylaxis/Chronic Suppressive/Maintenance Therapy) (page 20 of 21)

Opportunistic Infection	Preferred Therapy	Alternative Therapy	Other Comments
Toxoplasma gondii* Encephalitis *continued	Chronic Maintenance Therapy: • Pyrimethamine[a] 25–50 mg PO daily + sulfadiazine 2,000–4,000 mg PO daily (in 2–4 divided doses) + leucovorin 10–25 mg PO daily **(AI)**	• TMP-SMX DS 1 tablet once daily **(BII)**; *or* • Atovaquone 750–1,500 mg PO BID + (pyrimethamine[a] 25 mg + leucovorin 10 mg) PO daily **(BII)**, *or* • Atovaquone 750–1,500 mg PO BID + sulfadiazine 2,000–4,000 mg PO daily (in 2–4 divided doses) **(BII)**, *or* • Atovaquone 750–1,500 mg PO BID with food **(BII)** * Pyrimethamine[a] and leucovorin doses are the same as for preferred therapy.	Anticonvulsants should be administered to patients with a history of seizures **(AIII)** and continued through acute treatment, but should not be used as seizure prophylaxis **(AIII)**. If clindamycin is used in place of sulfadiazine, additional therapy must be added to prevent PCP **(AII)**.

Varicella-Zoster Virus (VZV) Disease	Primary Varicella Infection (Chickenpox)
	Uncomplicated Cases:
	• Initiate as soon as possible after symptom onset and continue for 5 to 7 days:
	  • Valacyclovir 1 g PO three times a day **(AII)**, *or*
	  • Famciclovir 500 mg PO three times a day **(AII)**
	Severe or Complicated Cases:
	• Acyclovir 10 mg/kg IV every 8 hours for 7–10 days **(AIII)**
	• May switch to oral valacyclovir, famciclovir, or acyclovir after defervescence if no evidence of visceral involvement **(BIII)**.
	Herpes Zoster (Shingles)
	Acute Localized Dermatomal:
	• For 7–10 days; consider longer duration if lesions are slow to resolve
	• Valacyclovir 1 g PO three times a day **(AII)**, *or*
	• Famciclovir 500 mg three times a day **(AII)**
	Extensive Cutaneous Lesion or Visceral Involvement:
	• Acyclovir 10 mg/kg IV every 8 hours until clinical improvement is evident **(AII)**
	• May switch to PO therapy (valacyclovir, famciclovir, or acyclovir) after clinical improvement (i.e., when no new vesicle formation or improvement of signs and symptoms of visceral VZV), to complete a 10–14-day course **(BIII)**.
		Primary Varicella Infection (Chickenpox)
		Uncomplicated Cases (For 5-7 Days):
		• Acyclovir 800 mg PO 5 times a day **(BII)**
		Herpes Zoster (Shingles)
		Acute Localized Dermatomal:
		• For 7–10 days; consider longer duration if lesions are slow to resolve
		• Acyclovir 800 mg PO 5 times a day **(BII)**
			In managing VZV of the eyes, consultation with an ophthalmologist experienced in management of VZV retinitis **is strongly recommended (AIII)**.
			Duration of therapy for VZV retinitis is not well defined, and should be determined based on clinical, virologic, and immunologic responses and ophthalmologic responses.
			Optimization of ART is recommended for serious and difficult-to-treat VZV infections (e.g., retinitis, encephalitis) **(AIII)**.
			In patients with herpes zoster ophthalmicus who have stromal keratitis and anterior uveitis, topical corticosteroids to reduce inflammation may be necessary. The role of ART has not been established in these cases.

Table 2. Treatment of AIDS-Associated Opportunistic Infections (Includes Recommendations for Acute Treatment and Secondary Prophylaxis/Chronic Suppressive/Maintenance Therapy) (page 21 of 21)

Opportunistic Infection	Preferred Therapy	Alternative Therapy	Other Comments
Varicella-Zoster Virus (VZV) Disease continued	ARN: • Acyclovir 10 mg/kg IV every 8 hours for 10–14 days, followed by valacyclovir 1 g PO three times a day for >14 weeks **(AIII)**, *plus* • Intravitreal ganciclovir 2 mg/0.05 mL twice weekly for 1-2 doses **(BIII)** PORN: • Acyclovir 10 mg/kg IV every 8 hours or ganciclovir 5 mg/kg IV every 12 hours **(AIII)**, *plus* • ≥1 intravitreal antiviral injection: ganciclovir 2 mg/0.05 mL or foscarnet 1.2 mg/0.05 mL twice weekly **(AIII)** • Initiate or optimize ART **(AIII)**		

[a] Refer to Daraprim Direct for information on accessing pyrimethamine.

Key to Acronyms: ACTG = AIDS Clinical Trials Group; ARN = acute retinal necrosis; ART = antiretroviral therapy; ARV = antiretroviral; ATV/r = ritonavir-boosted atazanavir; BID = twice a day; BIW = twice weekly; BOC = boceprevir; CD4 = CD4 T lymphocyte cell; CDC = The Centers for Disease Control and Prevention; CFU = colony-forming unit; CNS = central nervous system; CSF = cerebrospinal fluid; CYP3A4 = Cytochrome P450 3A4; ddI = didanosine; DOT = directly-observed therapy; DS = double strength; EFV = efavirenz; EMB = ethambutol; g = gram; G6PD = Glucose-6-phosphate dehydrogenase; GI = gastrointestinal; ICP = intracranial pressure; ICU = intensive care unit; IM = intramuscular; IND = investigational new drug; INH = isoniazid; IRIS = immune reconstitution inflammatory syndrome; IRU = immune reconstitution uveitis; IV = intravenous; LP = lumbar puncture; mg = milligram; mmHg = millimeters of mercury; NNRTI = non-nucleoside reverse transcriptase inhibitor; NRTI = nucleoside reverse transcriptase inhibitor; NSAID = non-steroidal anti-inflammatory drugs; PegIFN = Pegylated interferon; PI = protease inhibitor; PO = oral; PORN = progressive outer retinal necrosis; PZA = pyrazinamide; qAM = every morning; QID = four times a day; q(n)h = every "n" hours; qPM = every evening; RBV = ribavirin; RFB = rifabutin; RIF = rifampin; SQ = subcutaneous; SS = single strength; TID = three times daily, TVR = telaprevir; TMP-SMX = trimethoprim-sulfamethoxazole; ZDV = zidovudine

Evidence Rating:

Strength of Recommendation:

A: Strong recommendation for the statement

B: Moderate recommendation for the statement

C: Optional recommendation for the statement

Quality of Evidence for the Recommendation:

I: One or more randomized trials with clinical outcomes and/or validated laboratory endpoints

II: One or more well-designed, nonrandomized trials or observational cohort studies with long-term clinical outcomes

III: Expert opinion

In cases where there are no data for the prevention or treatment of an OI based on studies conducted in HIV-infected populations, but data derived from HIV-uninfected patients exist that can plausibly guide management decisions for patients with HIV/AIDS, the data will be rated as III but will be assigned recommendations of A, B, C depending on the strength of recommendation.