Guidelines for the Prevention and Treatment of Opportunistic Infections in Adults and Adolescents with HIV.

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What’s New in the Guidelines

Updates to the *Guidelines for the Prevention and Treatment of Opportunistic Infections in Adults and Adolescents with HIV*

The *Guidelines for the Prevention and Treatment of Opportunistic Infections in Adults and Adolescents with HIV* document is published in an electronic format that can be easily updated as relevant changes in prevention and treatment recommendations occur.

The editors and subject matter experts are committed to timely changes in this document because so many health care providers, patients, and policy experts rely on this source for vital clinical information.

All changes are developed by the subject matter groups listed in the document (changes in group composition are also promptly posted). These changes are reviewed by the editors and by relevant outside reviewers before the document is altered. Major revisions within the last 6 months are as follows:

**November 21, 2019**

1. **Talaromycosis (formerly Penicilliosis):** The Panel updated the text, epidemiology, diagnosis, treatment, and references throughout the section and made the following key changes:
   - Primary prophylaxis is only recommended for patients with HIV with CD4 counts <100 cells/mm³ who reside in the highly endemic regions in northern Thailand, southern China, and northern and southern Vietnam who are unable to take antiretroviral therapy (ART) for whatever reason or have treatment failure without access to effective antiretroviral options (BI). The drug choices for prophylaxis are oral itraconazole 200 mg once daily (BI) or oral fluconazole 400 mg once weekly (BII). Primary prophylaxis is not recommended for patients who are on or about to start effective ART, and it is not recommended in geographic areas outside of the mentioned highly endemic regions (AIII).
   - The recommended induction therapy for all patients, regardless of disease severity, is amphotericin B, preferably liposomal amphotericin B 3 to 5 mg/kg body weight/day where available, or deoxycholate amphotericin B 0.7 mg/kg body weight/day, intravenously for 2 weeks (AI).
   - Induction therapy should be followed by consolidation therapy with oral itraconazole, 200 mg every 12 hours for a subsequent duration of 10 weeks (AI). After this period, maintenance therapy (or secondary prophylaxis) with oral itraconazole 200 mg/day is recommended to prevent recurrence until the CD4 count rises above 100 cells/mm³ for at least 6 months (AII).

**October 22, 2019**

1. **Tables:** The Panel updated the following tables relating to drugs used for the treatment of opportunistic infections listed in these guidelines. The updates include information on new drugs added to the guidelines as well as information derived from product labels and published literature since the last revision.
   - [Table 5. Significant Pharmacokinetic Interactions between Drugs Used to Treat or Prevent Opportunistic Infections](#).
   - [Table 6. Common or Serious Adverse Reactions Associated with Systemically Administered Drugs Used to Treat Opportunistic Infections](#).
   - [Table 7. Dosing Recommendations for Drugs Used to Treat or Prevent Opportunistic Infections That Require Dosage Adjustment in Patients with Renal Insufficiency](#).

**October 10, 2019**

1. **Community-Acquired Pneumonia (formerly Bacterial Respiratory Disease):** The Panel updated the text, epidemiology, strength of recommendations, and references throughout the section and made the
following key changes:

- Added a Microbiology section with updated risk factors for drug-resistant pathogens, particularly methicillin-resistant Staphylococcus aureus (MRSA) and Pseudomonas aeruginosa
- Added a clear recommendation section for diagnostic testing based on the severity of community-acquired pneumonia (CAP), including the use of blood cultures, sputum stains and cultures, and urinary antigen testing
- Added considerations regarding the use of rapid nasal swabs for MRSA in diagnostic evaluation and empiric treatment
- Provided an updated summary of the general approach to the treatment of bacterial pneumonia in people living with HIV
- Reviewed treatment recommendations for concurrence with the 2019 American Thoracic Society (ATS)/Infectious Diseases Society of America (IDSA)/Centers for Disease Control and Prevention (CDC) CAP guidelines
- Expanded the discussion of pneumonia severity scales in people living with HIV
- Commented on indications for telavancin and ceftaroline
- Added discussion regarding the use of corticosteroids in CAP, including caution with influenza pneumonia and limited data to support use in CAP for people living with HIV

September 27, 2019

1. **Mycobacterium tuberculosis Infection and Disease:** The Panel updated this section to reflect the availability of results from a number of new studies in tuberculosis (TB) diagnostics, therapeutics, pharmacology, and drug resistance. Several key highlights include:
   - The 3HP regimen (weekly isoniazid plus rifapentine for 3 months) for the treatment of latent tuberculosis infection (LTBI) is now recommended as an alternative regimen when provided as self-administered therapy or directly observed therapy.
   - Four months of daily rifampin monotherapy is now recommended for the treatment of LTBI in patients who cannot receive isoniazid.
   - When dolutegravir is given with concurrent rifampin, it is recommended that the dose be increased to 50 mg twice daily.
   - Bictegravir is not recommended to be given with rifamycin-containing TB treatment.
   - Isoniazid preventive therapy is not recommended for pregnant women until after delivery unless they are close contacts of a known patient with active TB disease.
   - Prednisone is no longer recommended for the treatment of TB pericarditis.
   - Isoniazid-monoresistant TB should be treated with 6 months of rifampin, pyrazinamide, ethambutol, and either levofloxacin or moxifloxacin.
   - For patients at high risk for developing TB-associated immune reconstitution inflammatory syndrome (TB-IRIS), pre-emptive prednisone is recommended as adjunctive therapy with the initiation of antiretroviral therapy.

September 13, 2019

1. **Histoplasmosis:** The Panel updated this section and made the following key changes:
   - For both primary and secondary prophylaxis, an undetectable HIV viral load as well as a CD4 count >150 cells/mm³ should be present for 6 months before therapy is stopped in patients taking antiretroviral therapy (ART).
• For the treatment of patients who do not tolerate itraconazole, voriconazole and posaconazole are discussed in greater detail than before; suggested doses are given, as well as therapeutic serum concentrations that should be sought.

• Data on the measurement of Histoplasma antigen in serum, urine, bronchoalveolar lavage (BAL) fluid, and cerebrospinal fluid (CSF) is discussed more extensively than previously and has been updated with current terminology using ng/mL instead of units.

September 5, 2019

1. Varicella-Zoster Virus Disease: The Panel updated the text, epidemiology, and references throughout the section and made the following key changes:

• Guidance on the use of two available vaccines (recombinant zoster vaccine [RZV, Shingrix] and zoster vaccine live [ZVL, Zostavax]) to prevent herpes zoster (shingles) in persons with HIV aged 50 years and older is provided.
  - RZV (Shingrix) is recommended to prevent herpes zoster using a two-dose schedule (intramuscular injection at Month 0 and Month 2) for adults with HIV aged 50 years and older.
  - RZV is preferred over ZVL (Zostavax) for prevention of herpes zoster.
  - If RZV is not available or cannot be given because of allergy or intolerance, ZVL can be given as a single subcutaneous dose among adults with CD4 counts ≥200 cells/mm$^3$. ZVL is contraindicated for persons with CD4 counts <200 cells/mm$^3$.

• The clinical description and section on the treatment of ocular complications of varicella-zoster virus infection have been expanded.

August 7, 2019

1. Figure: Recommended Immunization Schedule for Adults and Adolescents with HIV Infection: The immunization table has been updated to reflect 2019 Advisory Committee on Immunization Practices (ACIP) recommendations, which include specific recommendations for people with HIV (PWH). Because the ACIP is silent on some issues related to newer vaccines, this section will be updated again shortly to provide additional recommendations from the Panel.

July 16, 2019

1. Cryptosporidiosis: The Panel updated the Cryptosporidiosis section to reflect the availability of new diagnostic tests and data on the efficacy of available therapeutic agents. The updated text and references underscore the following:

• The incidence of cryptosporidiosis in the United States is now <1 case per 1,000 person-years; however, outbreaks due to contamination of recreational water continue to be a public health issue. Individuals with HIV continue to have an increased risk of disease and should adhere to safe food and water practices, especially when traveling.

• Multiplex molecular tests can identify a greater number of cases than microscopic methods.

• Nitazoxanide, paromomycin, and spiramycin have some efficacy in patients with HIV receiving antiretroviral therapy (ART), but are not as effective in patients with severe immunosuppression; especially those not on ART. Among the three agents, nitazoxanide has shown the greatest efficacy, demonstrating a significant decrease in diarrhea and organism load in patients with HIV with CD4 counts >50 cells/mm$^3$.

June 14, 2019

1. Microsporidiosis: The Panel provided an update on the various microsporidia that have been documented
in human infections and the correct taxonomy for these organisms, including the relationship of the microsporidia to the cryptomycota. The therapeutics section has been updated to include information on the availability of fumagillin for the treatment of *Enterocytozoon bieneusi* infection, including contact information for obtaining this medication from Sanofi. In addition, data on the use of nitazoxanide for the treatment of microsporidiosis is discussed. The reference section has been updated to include the authoritative textbook *Microsporidia: Pathogens of Opportunity*.

May 15, 2019

- The name of the guidelines was updated to include People-First Language. People-First Language is a way of reducing stigma and showing respect for individuals who are living with HIV by focusing on the person instead of the disease. The new title is *Guidelines for the Prevention and Treatment of Opportunistic Infections in Adults and Adolescents with HIV*.
- The sections about opportunistic infections were alphabetized to make it easier to navigate the guidelines.
- The information in Tables 1, 2, and 4 were also alphabetized by opportunistic infection name.
- The name of the Isosporiasis section was updated to *Cystoisosporiasis*.
- The name of the Penicilliosis section was updated to *Talaromycosis*.
- The Preventing Exposures section was removed from the current guidelines. This section can be found in the archived versions of the guidelines.