

PROPHYLAXIS TO PREVENT FIRST EPISODE OF OPPORTUNISTIC DISEASE IN ADULTS AND ADOLESCENTS WITH HIV INFECTION

		PREVENTIVE REGIMENS	
PATHOGEN	INDICATION	FIRST CHOICE	ALTERNATIVES
Strongly Recommended as Standard of Care			
<i>Pneumocystis jiroveci</i> (PCP) formerly known as <i>Pneumocystis carinii</i> ¹	CD4+ T cell count <200/mm ³ or oropharyngeal candidiasis	Trimethoprim-sulfamethoxazole (TMP-SMX), 1 double-strength (DS) tablet po q.d TMP-SMX, 1 single-strength (SS) tablet po q.d	Dapsone, 50mg po b.i.d or 100mg po q.d; dapsone, 50mg po q.d plus pyrimethamine, 50mg po q.w plus leucovorin 25mg po q.w Dapsone, 200mg po plus pyrimethamine, 75mg po plus leucovorin, 25mg po q.w Aerosolised pentamidine, 300mg q.m via Respigard II ^(TM) nebuliser Atovaquone, 1,500mg po q.d TMPSMX, 1 DS po t.i.w
<i>Mycobacterium tuberculosis</i> (TB)			
Isoniazid (INH)-sensitive ²	Tuberculin skin test (TST) reaction of ≥5 mm or prior positive TST result without treatment or contact with case of active TB regardless of TST result	INH, 300mg po plus pyridoxine, 50mg po q.d x 9 months or INH, 900mg po plus pyridoxine, 100mg po b.i.w x 9 months	Rifampin (RIF), 600mg po q.d x 4 months or rifabutin, 300mg po q.d x 4 months Pyrazinamide (PZA), 15-20mg/kg po q.d x 2 months plus either RIF, 600mg po q.d x 2 months or rifabutin, 300mg po q.d x 2 months
INH resistant	Same as above; high probability of exposure to INH-resistant TB	RIF, 600mg po or rifabutin, 300mg po q.d x 4 months	PZA 15-20mg/kg po q.d plus either RIF, 600mg po or rifabutin, 300mg po q.d x 2 months
Multi-drug (INH and RIF) resistant	Same as above; high probability of exposure to multi-drug resistant TB	Choice of drugs requires consultation with public health authorities. Depends on susceptibility of isolation from source	

		PREVENTIVE REGIMENS	
PATHOGEN	INDICATION	FIRST CHOICE	ALTERNATIVES
		patient	
<i>Toxoplasma gondii</i> ³	IgG antibody to <i>Toxoplasma</i> and CD4+ T cell count of <100/mm ³	TMP-SMX, 1 DS po q.d	TMP-SMX, 1 SS po q.d dapsone, 50mg po q.d plus pyrimethamine, 50mg po q.w plus leucovorin, 25mg po q.w Dapsone, 200mg po plus pyrimethamine, 75mg po plus leucovorin, 25mg po q w Atovaquone, 1500mg po q.d with or without pyrimethamine, 25mg po q.d plus leucovorin, 10mg po q.d
<i>Mycobacterium avium</i> Complex (MAC) ⁴	CD4+ T cell count of <50/mm ³	Azithromycin, 1,200mg po q.w or clarithromycin ⁴ , 500mg po b.i.d	Rifabutin, 300mg po q.d; azithromycin, 1,200mg po q.w plus rifabutin, 300mg po q.d
Varicella zoster Virus (VZV)	Significant exposure to chickenpox or shingles for patients who have no history of either condition or, if available, negative antibody to VZV	Varicella zoster immune globulin (VZIG), 5 vials (1.25 mL each) IM, administered ≤96 hours after exposure, ideally within 48 hours	
Generally Recommended as Standard of Care			
<i>Streptococcus pneumoniae</i> ⁵	CD4+ T cell count >200/mm ³	23-valent polysaccharide vaccine, 0.5mL IM	None
Hepatitis B Virus (HBV) ^{6,7}	All susceptible (anti-HBc-negative) patients	HBV vaccine: 3 doses	None
Influenza Virus ^{6,8}	All patients (annually, before influenza season)	Inactivated trivalent influenza virus vaccine: 1 annual dose (0.5mL) IM	Oseltamivir, 75mg po q.d (influenza A or B) Rimantadine, 100mg po b.i.d, or amantadine, 100mg po b.i.d (influenza A only)
Hepatitis A Virus (HAV) ⁷	All susceptible (anti-HAV-negative) patients at increased	HAV vaccine: 2 doses	None

		PREVENTIVE REGIMENS	
PATHOGEN	INDICATION	FIRST CHOICE	ALTERNATIVES
	risk for HAV infection (e.g. illicit drug users, men who have sex with men (MSM), haemophiliacs) or with chronic liver disease, including chronic HBV or hepatitis C		
Evidence for Efficacy but Not Routinely Indicated			
Invasive Bacterial Infections	Neutropaenia	Granulocyte-colony-stimulating factor (G-CSF), 5-10 µg/kg SC q.d x 2-4 weeks or granulocyte--macrophage colony-stimulating factor (GM-CSF), 250 µg/m ² SC IV x 2-4 weeks	None
<i>Cryptococcus neoformans</i>	CD4+ T cell count of <50/mm ³	Fluconazole, 100-200mg po q.d	Itraconazole capsule, 200mg po q.d
<i>Histoplasma capsulatum</i> ⁹	CD4+ T cell count of <100/mm ³ , endemic geographic area	Itraconazole capsule, 200mg po q.d	None
Cytomegalovirus (CMV) ¹⁰	CD4+ T cell count of <50/mm ³ and CMV antibody positivity	Oral ganciclovir, 1g po t.i.d	None

NOTES: The Respirgard II™ nebuliser is manufactured by Marquest, Englewood, Colorado, USA.

¹Prophylaxis should also be considered for persons with a CD4+ T cell percentage of <14%, for persons with a history of an AIDS-defining illness, and possibly for those with CD4+ T cell counts of >200 but <250 cells/mm³. TMP-SMX also reduces the frequency of toxoplasmosis and some bacterial infections. Patients receiving dapsone should be tested for glucose-6 phosphate dehydrogenase deficiency. A dosage of 50mg q.d is probably less effective than 100mg q.d. The efficacy of parenteral pentamidine (e.g. 4mg /kg/month) is uncertain. Fansidar® (sulfadoxine-pyrimethamine) is rarely used due to severe hypersensitivity reactions. Patients who are being administered therapy for toxoplasmosis with sulfadiazine-pyrimethamine are protected against PCP and do not need additional prophylaxis against PCP.

²Directly observed therapy (DOT) is recommended for INH, e.g. 900mg b.i.w; INH regimens should include pyridoxine to prevent peripheral neuropathy. If RIF or rifabutin is administered concurrently with protease inhibitors (PIs) or non-nucleoside reverse transcriptase inhibitors (NNRTIs), careful consideration should be given to potential pharmacokinetic interactions. There have been reports of fatal and severe liver injury associated with the treatment of latent TB infection in HIV-uninfected persons treated with the two-month regimen of daily RIF and PZA; therefore, it may be prudent to use regimens that do not contain PZA in HIV-infected persons whose completion of treatment can be assured (Source: CDC. Update: fatal and severe liver injuries associated with rifampin and pyrazinamide for latent tuberculosis infection and revisions in American Thoracic Society/CDC recommendations, United States 2001. MMWR Weekly [serial on the Internet] 2001 Aug 31 [cited

2004] 50(34):[about 2p.]. Available from: <<http://www.cdc.gov/mmwr>>.). Exposure to multidrug-resistant TB might require prophylaxis with two drugs; consult public health authorities. Possible regimens include PZA plus either ethambutol (EMB) or a fluoroquinolone.

³Protection against toxoplasmosis is provided by TMP-SMX, dapsone plus pyrimethamine, and possibly by atovaquone. Atovaquone may be used with or without pyrimethamine. Pyrimethamine alone probably provides little, if any, protection.

⁴See *Treatment Guidelines* for discussion of drug interactions.

*During pregnancy, azithromycin is preferred over clarithromycin due to the teratogenicity in animals of clarithromycin.

⁵Vaccination may be offered to persons who have CD4+ T cell counts of <200 cells/mm³, although the efficacy is likely to be diminished. Revaccination five years after the first dose, or sooner if the initial immunisation was given when the CD4+ T cell count was <200 cells/mm³ and the CD4+ T cell count has increased to >200 cells/mm³ on HAART, is considered optional. Some authorities are concerned that immunisations might stimulate the replication of HIV.

⁶Although data demonstrating the clinical benefit of these vaccines in HIV-infected persons are not available, it is logical to assume that those patients who develop antibody responses will derive some protection. Some authorities are concerned that immunisations might stimulate HIV replication, although for influenza vaccination, a large observational study of HIV-infected persons in clinical care showed no adverse effect of this vaccine, including multiple doses, on patient survival (Ward J, personal communication). Also, this concern may be less relevant in the setting of HAART. However, due to the theoretical concern that increases in HIV plasma RNA following vaccination during pregnancy might increase the risk of perinatal transmission of HIV, providers may wish to defer vaccination for such patients until after HAART is initiated.

⁷HBV vaccine has been recommended for all children and adolescents and for all adults with risk factors for HBV. For persons requiring vaccination against both HAV and HBV, a combination vaccine is now available.

⁸Oseltamivir is appropriate during outbreaks of either influenza A or influenza B. Rimantadine or amantadine is appropriate during outbreaks of influenza A (although neither rimantadine nor amantadine is recommended during pregnancy). Dosage reduction for antiviral chemoprophylaxis against influenza might be indicated for decreased renal or hepatic function and for persons with seizure disorders. Physicians should consult the drug package inserts for more specific information about adverse effects and dosage adjustments.

⁹In a few unusual occupational or other circumstances, prophylaxis should be considered; consult a specialist.

¹⁰Acyclovir is not protective against CMV. Valacyclovir is not recommended because of an unexplained trend toward increased mortality observed in persons with AIDS who were being administered this drug for prevention of CMV disease.