RECOMMENDED TREATMENT FOR SEXUALLY TRANSMITTED DISEASES IN HIV-INFECTED ADULTS

This table reflects the Centers for Disease Control and Prevention (CDC) 2010 STD Treatment Guidelines and focuses on STDs encountered among HIV-infected adults in an outpatient setting.

DISEASE	RECOMMENDED TREATMENT	ALTERNATIVE TREATMENTS / COMMENTS (use alternatives only if recommended regimens are contraindicated)
SYPHILIS (see CDC guidelines for follow-up recommendations and treatment of syphilis in pregnancy)		
PRIMARY, SECONDARY OR EARLY LATENT (< 1 YEAR)	• Benzathine penicillin G 2.4 million units IM in a single dose (Bicillin® L-A)	**If history of allergy to penicillin:** • Doxycycline 100 mg orally 2 times a day for 14 days **OR** • Tetracycline 500 mg orally 4 times a day for 14 days **OR** • Ceftriaxone 1g IM or IV once a day for 10-14 days Efficacy of non-penicillin regimens in HIV-infected patients is not well studied. If compliance or follow-up cannot be ensured, patients should be desensitized and treated with penicillin. Close serologic and clinical follow-up is recommended.
LATE LATENT (> 1 YEAR) OR LATENT OF UNKNOWN DURATION	• Benzathine penicillin G 2.4 million units IM for 3 doses, 1 week apart (total 7.2 million units)	• Doxycycline 100 mg orally 2 times a day for 28 days **OR** • Tetracycline 500 mg orally 4 times a day for 28 days See treatment considerations above for use of non-penicillin regimens.
NEUROSYPHILIS	• Aqueous crystalline penicillin G 18-24 million units per day, administered as 3-4 million units IV every 4 hours or continuous infusion, for 10-14 days • For late syphilis, consider adding benzathine penicillin 2.4 million units IM one time per week for up to 3 weeks after completion of treatment for neurosyphilis.	• Procaine penicillin 2.4 million units IM once daily **plus** probenecid 500 mg orally 4 times a day, both for 10-14 days (use only if compliance with therapy ensured) • For late syphilis consider adding benzathine penicillin 2.4 million units IM one time per week for up to 3 weeks after completion of treatment for neurosyphilis.
GONOCOCCAL INFECTIONS (see www.std.ca.gov for recommendations for suspected treatment failure)		
ADULTS **CERVIX** **URETHRA** **RECTUM** **PHARYNX**	**Dual antibiotic therapy is now recommended for all patients with gonorrhea regardless of *Chlamydia trachomatis* test results.** **DUAL THERAPY WITH:** • Ceftriaxone 250 mg IM single dose (preferred for treatment at all anatomic sites) OR, IF NOT AN OPTION: • Cefixime 400 mg PO orally single dose (NOT recommended for pharyngeal infection) **OR** • Other single-dose injectable cephalosporin regimens **PLUS** • Azithromycin 1 g orally single dose **OR** • Doxycycline 100 mg orally twice a day for 7 days[2]	**If allergic to cephalosporins or history of severe allergy to penicillin:** • Azithromycin 2 g orally single dose[1] As of April 2007, fluoroquinolones are no longer recommended for treatment of gonococcal infection in the United States. If treatment failure suspected (patient treated with recommended regimen and symptoms have not resolved), perform a test-of-cure using culture and report to the local health department. For clinical consult, call the CA STD Control Branch at 510-620-3400.
CONJUNCTIVA	• Ceftriaxone 1 g IM once, plus consider lavage of infected eye with saline solution once	
CHLAMYDIAL INFECTIONS		
ADULT	• Azithromycin 1 g orally single dose **OR** • Doxycycline 100 mg orally 2 times a day for 7 days[2]	• Erythromycin base 500 mg orally 4 times a day for 7 days **OR** • Erythromycin ethylsuccinate 800 mg orally 4 times a day for 7 days **OR** • Levofloxacin[2] 500 mg orally once a day for 7 days **OR** • Ofloxacin[2] 300 mg orally 2 times a day for 7 days
LYMPHOGRANULOMA VENEREUM (LGV)	• Doxycycline 100 mg orally 2 times a day for 21 days[2] Prolonged therapy may be required	• Erythromycin base 500 mg orally 4 times a day for 21 days **OR** • Azithromycin 1 g orally once weekly for 3 weeks
NONGONOCOCCAL URETHRITIS (NGU)	• Azithromycin 1 g orally single dose **OR** • Doxycycline 100 mg orally 2 times a day for 7 days • See 2010 CDC STD Treatment Guidelines for guidance in treatment of recurrent and persistent urethritis	• Erythromycin base 500 mg orally 4 times a day for 7 days **OR** • Erythromycin ethylsuccinate 800 mg orally 4 times a day for 7 days **OR** • Levofloxacin 500 mg orally once a day for 7 days **OR** • Ofloxacin 300 mg orally 2 times a day for 7 days
EPIDIDYMITIS[3]	• Ceftriaxone 250 mg IM single dose **PLUS** • Doxycycline 100 mg orally 2 times a day for 10 days	For acute epididymitis most likely caused by enteric organisms • Levofloxacin 500 mg orally once a day for 10 days **OR** • Ofloxacin 300 mg orally 2 times a day for 10 days
PELVIC INFLAMMATORY DISEASE (PID)[4] (non-pregnant adults)	• Ceftriaxone 250 mg IM single dose **OR** • Cefoxitin 2 g IM single dose plus probenecid 1 g orally single dose **PLUS** • Doxycycline 100 mg orally 2 times a day for 14 days[2] **PLUS** • Metronidazole 500 mg orally 2 times a day for 14 days (if BV present or cannot be ruled out)	If parenteral cephalosporin therapy is not feasible and risk of gonorrhea is low: • Levofloxacin 500 mg orally once a day for 14 days[2] **OR** • Ofloxacin 400 mg orally 2 times a day for 14 days[2] **PLUS** • Metronidazole 500mg orally 2 times a day for 14 days (if BV present or cannot be ruled out)

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DISEASE	RECOMMENDED TREATMENT	ALTERNATIVE TREATMENTS / COMMENTS (use alternatives only if recommended regimens are contraindicated)
HERPES SIMPLEX VIRUS (HSV)-non-pregnant adults (See www.cdc.gov/std for the management of herpes in pregnancy)		
First clinical episode of genital HSV	• Acyclovir 400 mg orally 3 times a day for 7-10 days **OR** • Acyclovir 200 mg orally 5 times a day for 7-10 days **OR** • Famciclovir 250 mg orally 3 times a day for 7-10 days **OR** • Valacyclovir 1 g orally 2 times a day for 7-10 days	No data to differentiate therapeutic response between HIV-infected and uninfected patients
Daily Suppressive Therapy	• Acyclovir 400–800 mg orally 2 to 3 times a day **OR** • Famciclovir 500 mg orally 2 times a day **OR** • Valacyclovir 500 mg orally 2 times a day	One study found famciclovir was less effective in reducing viral shedding compared to valcyclovir.
Episodic Recurrent Infection	• Acyclovir 400 mg orally 3 times a day for 5-10 days **OR** • Famciclovir 500 mg orally 2 times a day for 5-10 days **OR** • Valacyclovir 1 g orally 2 times a day for 5-10 days	
PEDICULOSIS PUBIS	• Permethrin 1% cream rinse applied to affected area and washed off after 10 minutes **OR** • Pyrethrins with piperonyl butoxide applied to affected area and washed off after 10 minutes	• Malathion 0.5% lotion applied for 8-12 hours and washed off **OR** • Ivermectin[2] 250 mcg/kg orally, repeated in 2 weeks
BACTERIAL VAGINOSIS (BV)	• Metronidazole[5] 500 mg orally 2 times a day for 7 days **OR** • Metronidazole gel 0.75% intravaginally once a day for 5 days **OR** • Clindamycin cream[7] 2% intravaginally at bedtime for 7 days	• Tinidazole[6] 2 g orally once daily for 2 days **OR** • Tinidazole[6] 1g orally once daily for 5 days **OR** • Clindamycin 300 mg orally 2 times a day for 7 days **OR** • Clindamycin ovules 100 mg intravaginally at bedtime for 3 days
TRICHOMONIASIS[8]	• Metronidazole[5] 2 g orally single dose **OR** • Tinidazole[6] 2 g orally single dose	• Metronidazole[5] 500 mg orally 2 times a day for 7 days (in one clinical trial in HIV-infected women, 7 day regimen was more effective than a single dose of metronidazole 2 g)

HUMAN PAPILLOMAVIRUS (HPV)-ANOGENITAL WARTS

EXTERNAL WARTS

PROVIDER-ADMINISTERED THERAPY (repeat every 1-2 weeks as necessary)

- **Cryotherapy** with liquid nitrogen or cryoprobe **OR**
- **Podophyllin resin 10%-25%**[9] in a compound tincture of benzoin. Apply and allow to air dry. Wash off 1-4 hours after application **OR**
- **Trichloroacetic acid (TCA) or bichloroacetic acid (BCA)** 80%-90%. Apply small amount to warts. Allow to dry. If excess applied, powder with talc/baking soda **OR**
- **Surgical Removal**

PATIENT-APPLIED THERAPY[10]

- **Podofilox 0.5% solution or gel**[9]. Apply 2 times a day for 3 days, followed by 4 days off. Repeat cycle as necessary up to 4 times. Total wart area should not exceed 10 cm^2 and total volume applied daily should not exceed 0.5 ml **OR**
- **Imiquimod 5% cream**[9]. Apply once daily at bedtime 3 times a week for up to 16 weeks. Wash treatment area with soap and water 6-10 hours after application.

Urethral Meatus Warts

- **Cryotherapy** with liquid nitrogen **OR**
- **Podophyllin 10%-25%** in a compound tincture of benzoin.

Vaginal Warts

- **Cryotherapy** with liquid nitrogen. Cryoprobe not recommended (risk of perforation/fistula) **OR**
- **TCA or BCA 80%-90%**. (see left for instructions)

External Anal Warts

- **Cryotherapy** with liquid nitrogen **OR**
- **TCA or BCA 80%-90%** (see left for instructions) **OR**
- **Surgical removal**

Oral Warts

- **Cryotherapy** with liquid nitrogen **OR**
- Surgical removal

FOOTNOTES

1. For patients with cephalosporin allergy, or severe penicillin allergy, (e.g., anaphylaxis, Stevens Johnson syndrome, and toxic epidermal necrolysis), azithromycin is an option. However, because of GI intolerance and concerns regarding emerging resistance, it should be used with caution. Test-of-cure is prudent because efficacy data are limited and because of concerns over emerging resistance.
2. Contraindicated in pregnancy.
3. Ceftriaxone and doxycycline are recommended for epididymitis most likely caused by gonococcal or chlamydial infection. Levofloxacin or ofloxacin is recommended if epididymitis is most likely caused by enteric organisms.
4. Quinolones can be considered for PID if the risk of GC is low, a NAAT test for GC is performed, and follow-up of the patient can be assured. If GC is documented, re-treat with recommended ceftriaxone and doxycycline regimen. If cephalosporin therapy is not an option, add azithromycin 2 g orally as a single dose to a quinolone-based PID regimen. It is not known whether HIV-infected women require more intensive treatment for PID.
5. Multiple studies and meta-analysis have not demonstrated a consistent association between metronidazole use during pregnancy and teratogenic or mutagenic effects in newborns.
6. Pregnancy category C. Tinidazole is contraindicated in the first trimester of pregnancy and should only be used in the second/third trimester if no other treatment options exist and benefits of treatment outweigh the risks.
7. May weaken latex condoms and contraceptive diaphragms.
8. For suspected drug-resistant trichomoniasis, see 2010 CDC Guidelines under Trichomonas Follow-up, p. 60, or http://www.cdc.gov/std for other treatment options. For laboratory/clinical consultations, contact CDC at 404-718-4141.
9. Safety in pregnancy has not been established. Pregnancy category C.
10. Sinecatechins 15% ointment applied topically three times a day for up to 16 weeks has been FDA approved for genital warts but is not currently recommended in HIV-infected populations due to lack of clinical efficacy data.

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