CENTERS FOR DISEASE CONTROL

October 18, 1985 / Vol. 34 / No. 4S

MMWR Supplement

MORBIDITY AND MORTALITY WEEKLY REPORT

1985 STD Treatment Guidelines

This document is the same as
1985 STD Treatment Guidelines
(Atlanta: CDC, September 1985).

U.S. Department of Health and Human Services
Public Health Service
Division of Sexually Transmitted Diseases
Center for Prevention Services
Centers for Disease Control
Atlanta, Georgia 30333

Abbreviations Used in This Publication

AIDS	Acquired immunodeficiency syndrome
APPG	Aqueous procaine penicillin G
CMRNG	Chromosomally mediated resistant *Neisseria gonorrhoeae*
CMV	Cytomegalovirus
CSF	Cerebrospinal fluid
DIS	Disease Intervention Specialist(s)
HCl	Hydrochloride
HPV	Human papilloma virus
HSV	Herpes simplex virus
HTLV-III/LAV	Human T-cell lymphotropic virus type III/lymphadenopathy-associated virus
IM	Intramuscularly
IUD	Intrauterine device
IV	Intravenously
LGV	Lymphogranuloma venereum
NGU	Nongonococcal urethritis
PID	Pelvic inflammatory disease
PPNG	Penicillinase-producing *Neisseria gonorrhoeae*
RPR	Rapid plasma reagin
STD	Sexually transmitted disease(s)

TABLE OF CONTENTS

These guidelines for treatment of sexually transmitted diseases (STD) were established after careful deliberation by a group of experts and staff of the Centers for Disease Control (CDC). Commentary received after dissemination of preliminary documents to a large group of physicians was also considered. Certain aspects of these guidelines represent the best judgment of experts. These guidelines should not be construed as rules, but rather as a source of guidance within the United States. This is particularly true for topics that are controversial or based on limited data.*

Expert Committee Members

*MF Rein, MD, School of Medicine, University of Virginia; V Caine, MD, Bellflower Clinic, Indianapolis; JH Grossman III, MD, PhD, George Washington University School of Medicine; LT Gutman, MD, Duke University Medical Center; HH Handsfield, MD, Seattle King County Department of Public Health and University of Washington School of Medicine; KK Holmes, MD, PhD, University of Washington School of Medicine, Seattle; JP Luby, MD, University of Texas Southwestern Medical School, Dallas; Z McGee, MD, University of Utah School of Medicine; RC Reichman, MD, University of Rochester School of Medicine; R Rothenberg, MD, MPH, New York State Health Department.

Acquired Immunodeficiency Syndrome (AIDS)

Acquired immunodeficiency syndrome (AIDS) is a sexually transmissible infection caused by a retrovirus presently known as human T-cell lymphotropic virus type III/lymphadenopathy-associated virus (HTLV-III/LAV). Current data suggest that approximately 1%-10% of persons in high-risk groups infected with HTLV-III/LAV ultimately develop AIDS, and a larger proportion may develop AIDS-related conditions.

No interventions have been demonstrated to eradicate or alter the course of HTLV-III/LAV infection (secondary prevention) or to rehabilitate persons with overt AIDS (tertiary prevention). At present, there is no established treatment available to reverse the immune dysfunction of AIDS. Experimental studies to evaluate the efficacy of immunomodulating agents and compounds active against HTLV-III/LAV are in progress. Treatment for many of the infections and neoplastic complications of AIDS has been successful, but may require consultation with specialists in infectious diseases, oncology, or dermatology.

The factors determining infection with HTLV-III/LAV, development of overt disease, and eventual outcome are under intense investigation, but are not fully understood. Primary prevention is the only control measure currently available. Although the remainder of these guidelines focus on treatment, the public health importance of AIDS and the absence of effective therapy make it appropriate to provide guidelines on primary prevention of sexually transmitted HTLV-III/LAV infection. These guidelines are offered in the context of a rapidly evolving understanding of the disease.

Behavioral Changes

Health professionals should encourage persons in population groups at risk of sexually transmitted HTLV-III/LAV infection to alter their sexual activities to minimize the risk of exposure to or transmission of the virus. Certain sexual practices (e.g., anal intercourse) have been shown to potentiate the risk of transmission. However, HTLV-III/LAV has been demonstrated in semen, saliva, tears, and blood of infected persons; consequently, no sexual practices between individuals which pass these fluids should be excluded as potential means of transmission. It should be noted that HTLV-III/LAV transmission through saliva or tears during casual contact has not been demonstrated. The following guidelines are temporary, pending definitive information on the level of risk associated with specific sexual practices or the development of a vaccine or other effective primary or secondary preventive modalities.

a. The only certain method to prevent transmission or acquisition of sexually acquired infection is abstention from all sexual activity with persons infected with HTLV-III/LAV. When infection status is unknown, sexual contact with persons in population groups at increased risk of HTLV-III/LAV infection should be avoided. Sexual contact with an individual who has been sexually active with large numbers of casual or anonymous partners may incur particular risk and should be avoided. A permanent, monogamous sexual relationship introduces no new risks, provided that neither person is infected or becomes infected with HTLV-III/LAV.

b. For persons who choose to initiate a new sexual relationship with a person at increased risk of HTLV-III/LAV infection or to maintain casual sexual partnerships, sexual practices should be limited to those that do not permit overt exchange of blood or bodily secretions. Anal intercourse is strongly discouraged, and a condom should be worn for all sexual activity. Mucous membrane contact with blood, semen, pre-ejaculate secretions, vaginal secretions, saliva, urine, and feces should be avoided.

c. Though not a sexual practice, passing of bodily fluids may occur during parenteral use of drugs. Parenteral use of illicit drugs should be avoided. If the practice is continued, injection equipment should not be re-used or shared with other persons.

Testing for HTLV-III/LAV Infection

Currently available commercial assays for antibody to HTLV-III/LAV are reasonably accurate, with high positive and negative predictive values in populations or individuals at increased risk of HTLV-III/LAV infection. A large proportion of persons in high-risk groups who are seropositive by these assays have virus present in blood, and since no method is available to exclude the presence of virus, all patients who are test-positive should be presumed capable of transmitting the virus. The response of a given individual to test results is unpredictable, and it is likely that a spectrum of behavioral response will occur. For many individuals, knowledge of their potential for virus transmission will foster improved adherence to the behavioral alterations outlined above. Accordingly, screening of high-risk population groups for HTLV-III/LAV antibody or other evidence of infection has the potential to curtail spread of the virus. Such voluntary screening should be encouraged, and appropriate precautions must be taken regarding the confidentiality of test results and the potential adverse effects of testing, such as psychological stress and the effect of false-negative or false-positive results. No specific test or type of assay is endorsed. The technology for identifying HTLV-III/LAV infection is evolving, and the most accurate assay available should be employed. Most persons with positive or equivocal test results will require medical evaluation and follow-up.

Chancroid (*Haemophilus ducreyi* Infection)

Chancroid may be a more common cause of genital ulcers than is presently recognized. The diagnosis is best made by isolation of *Haemophilus ducreyi* from ulcers and/or lymph nodes.

Recommended Regimens

The susceptibility of *H. ducreyi* to antimicrobial agents differs among geographic regions, and this should be taken into account when selecting therapy.

Erythromycin 500 mg by mouth 4 times daily for 7 days

OR

Ceftriaxone 250 mg intramuscularly (IM) in a single dose

Comment: Not evaluated in the United States but probably effective

---

Alternative Regimens

Trimethoprim/sulfamethoxazole one double-strength tablet (160 mg/800 mg) by mouth twice daily for a minimum of 7 days.

Comment: The susceptibility of *H. ducreyi* to this combination of antimicrobial agents varies widely; use should be limited to areas where favorable susceptibility patterns have been established.

OR

Alternative Regimens (con't)

Trimethoprim/sulfamethoxazole 640 mg/3200 mg (4 double-dose or 8 single-dose tablets) by mouth in a single dose.

Comment: Recommended only in areas where *H. ducreyi* susceptibility to these antimicrobials has been established. Not evaluated in the United States.

OR

Amoxicillin 500 mg plus **clavulanic acid** 125 mg 3 times daily for 7 days.

Comment: Not evaluated in the United States.

Management of Sex Partners

Treat sex partners with a recommended regimen.

Follow-Up

Successfully treated ulcers are almost invariably clinically improved by 7 days after institution of therapy. If they are not, use of an alternative regimen should be considered. Clinical resolution of lymph nodes is slower than that of ulcers and may require aspiration, even during successful therapy. Fluctuant lymph nodes should be aspirated through healthy adjacent normal skin. Incision and drainage or excision of nodes will delay healing and is contraindicated.

Treatment Failures

Antimicrobial susceptibility testing should be performed on *H. ducreyi* isolated from patients who do not respond to recommended therapies. For persistent treatment failures, consultation with an expert is recommended.

Chlamydia trachomatis Infection

Chlamydia trachomatis is the most prevalent sexually transmitted bacterial pathogen in the United States today. The importance of serious complications of chlamydial infections has been established. Although laboratory tests for detection of *C. trachomatis* are becoming widely available, diagnosis and treatment of these infections are frequently based on the clinical syndrome. The following guidelines are for laboratory-documented infections caused by non-lymphogranuloma venereum strains of *C. trachomatis*.

Please also see *C. trachomatis* discussions under "Gonococcal Infections."

Treatment of Adults

For uncomplicated urethral, endocervical, or rectal infection:

Recommended Regimens

Tetracycline hydrochloride (HCl) 500 mg by mouth 4 times daily for 7 days

OR

Doxycycline 100 mg by mouth twice daily for 7 days

Alternative Regimens

(for patients in whom tetracyclines are contraindicated or not tolerated)

Erythromycin base or stearate 500 mg by mouth 4 times daily for 7 days OR **erythromycin ethylsuccinate** 800 mg by mouth 4 times daily for 7 days.

Sulfonamides are also active against *C. trachomatis*. Although optimal dosages of sulfonamides for chlamydial infection have not been defined, **sulfamethoxazole** 1.0 g by mouth twice daily for 10 days is probably effective.

Management of Sex Partners

All persons exposed to *C. trachomatis* infection should be examined for STD and promptly treated for exposure to *C. trachomatis* with one of the above regimens.

Follow-Up

When taken as directed, the tetracycline and erythromycin regimens listed above are highly effective (> 95% cure rates). Therefore, post-treatment *C. trachomatis* test-of-cure cultures may be omitted if laboratory resources are limited. Test-of-cure cultures may not become positive until 3-6 weeks after treatment. When they are positive, patients should be re-treated with one of the above regimens and any interim sex partners should be treated.

Treatment for Chlamydial Urogenital Infections During Pregnancy

Treatment should be given to women who have proven infection with *C. trachomatis;* if diagnostic tests are not performed, treatment should be given to women with mucopurulent cervicitis and to women whose sex partners have nongonococcal urethritis or nongonococcal epididymitis.

The suggested treatment is **erythromycin base** 500 mg by mouth 4 times daily for 7 days on an empty stomach OR **erythromycin ethylsuccinate** 800 mg by mouth 4 times daily for 7 days. Erythromycin stearate in the same dosage as base may also be effective, but has not been studied. For women who cannot tolerate these regimens, one-half the daily dose (250 mg base, 400 mg ethylsuccinate) 4 times daily should be used for at least 14 days. The optimal dose and duration of antibiotic therapy for pregnant women has not been established. There are no completely studied alternative regimens for women who are allergic to erythromycin or those who cannot tolerate this antibiotic. Proven treatment failures should be re-treated with erythromycin in either of the dosage schedules outlined above.

Simultaneous treatment of male sex partner(s) with tetracycline or doxycycline is an important component of the therapeutic regimen.

Pregnant women at particular risk for chlamydial infections should undergo diagnostic testing for *C. trachomatis* if possible at their first prenatal visit and during the third trimester. Important risk factors include the following: unmarried, age less than 20 years, residence in a socially disadvantaged community (e.g., inner city), and the presence of other sexually transmitted diseases.

Treatment for Established Chlamydial Conjunctivitis of the Newborn

For all cases of ophthalmia neonatorum appropriate tests should be done to rule out *Neisseria gonorrhoeae* as the cause.

The diagnosis of chlamydial conjunctivitis should be established by a laboratory test. Treatment consists of **oral erythromycin syrup** 50 mg/kg/day in 4 divided doses for 2 weeks. Topical therapy provides no additional benefit. If inclusion conjunctivitis recurs after stopping therapy, erythromycin treatment should be reinstituted for an additional 1-2 weeks.

Treatment for Chlamydial Pneumonia of Infancy

For established cases of lower respiratory disease due to *C. trachomatis*, the recommended therapy is **oral erythromycin syrup** 50 mg/kg/day in 4 divided doses for 14 days. The optimal duration for therapy has not been established.

Parents of newborn infants with chlamydial infection should be treated with one of the recommended regimens for chlamydial infection.

Enteric Infections

Treatment for proctitis, proctocolitis, and enteritis should be based on combined clinical and etiologic diagnoses. Proctitis refers to inflammation of the distal rectum and is associated with anorectal pain, discharge, and sometimes bleeding, as well as constipation or tenesmus. *N. gonorrhoeae*, herpes simplex virus, and *C. trachomatis* are the most common sexually transmitted pathogens causing acute proctitis.

Proctocolitis in homosexual men is typically associated with symptoms of proctitis plus diarrhea and may be caused by *Campylobacter jejuni*, *Shigella* species, amebiasis, and rarely *Treponema pallidum* or lymphogranuloma venereum strains of *C. trachomatis*.

Enteritis in homosexual men usually results in diarrhea without signs of proctitis or proctocolitis and is often caused by *Giardia lamblia*.

Treatment for rectal infections caused by *N. gonorrhoeae*, *C. trachomatis*, or herpes simplex virus is discussed in sections dealing with these organisms.

Campylobacter jejuni

The drug of choice for symptomatic *C. jejuni* infection is:

Erythromycin 500 mg by mouth 4 times daily for 7 days

Shigella Species

The antibiotic of choice must be based on the sensitivity pattern of the isolate. Immediate treatment, when required, may be based on local sensitivity patterns. In most areas of the United States, the usual treatment is:

Trimethoprim/sulfamethoxazole 160 mg/800 mg by mouth twice daily for 7 days

An alternative is **ampicillin** 500 mg by mouth 4 times daily for 7 days, although in many areas the resistance of shigellae to ampicillin prevents effective treatment with this drug. Amoxicillin is *NOT* an acceptable substitute.

Nontyphoidal *Salmonella* Species

Treatment for asymptomatic carriage or uncomplicated symptomatic infection is not generally recommended.

Amebiasis

Prior use of antidiarrheal agents or antibiotics such as tetracyclines or erythromycin may interfere with detection of the organism. Many strains of *Entamoeba histolytica* found in the intestinal tract of homosexual men are considered to be nonpathogenic and may not require treatment. However, for patients with symptomatic infection, the regimen of choice consists of a systemic drug plus a luminal amebicide:

Metronidazole 750 mg by mouth 3 times daily for 5-10 days

PLUS

Iodoquinol (Diiodohydroxyquin) 650 mg by mouth 3 times daily for 20 days. (**Diloxanide furoate*** 500 mg by mouth 3 times daily for 10 days is also effective but is available from CDC only for asymptomatic cyst passers.)

A second choice regimen is **metronidazole** alone, as above, followed by one of the luminal amebicides if clinical cure is not achieved.

The regimen of third choice is:

Paromomycin* 25-30 mg/kg/day in 3 divided doses for 7 days.

This drug is used alone. Though primarily a luminal amebicide, it has been noted to exert a superficial tissue effect.

For asymptomatic homosexual male amebic cyst passers, treatment may not be required. Severe colitis or extraintestinal amebiasis should prompt appropriate medical consultation and referral.

Giardiasis

Recommended Regimen

The drug of choice for symptomatic and asymptomatic infection is:

Quinacrine 100 mg by mouth 3 times daily for 7 days

Alternative Regimen

Metronidazole 250 mg by mouth 3 times daily for 7 days.

In the case of coexistent symptomatic amebiasis and giardiasis, metronidazole in the higher dose may be preferred.

Initial treatment of asymptomatic carriers is indicated. Re-treatment for recurrences, either from relapse or reinfection, depends on individual and epidemiologic circumstances.

*Available through CDC.

Gonococcal Infections

The following guidelines for treatment for gonococcal infection in the United States take into account several observations: the high frequency of coexisting chlamydial and gonococcal infections, increased recognition of the serious complications of chlamydial and gonococcal infections, the difficulty in diagnosing chlamydial infection, the increasing incidence of infections due to both penicillinase-producing *N. gonorrhoeae* (PPNG) and chromosomally mediated resistant *N. gonorrhoeae* (CMRNG), and published reports of the emergence of tetracycline resistant gonococci in some geographic areas. In addition, new antimicrobials which may prove to be effective in treating for gonococcal infection and coexistent chlamydial infection are becoming available in the United States. Therefore, these guidelines do not attempt to be a comprehensive list of all possible treatment regimens. Rather, they seek to provide guidance for regimens which meet general criteria of efficacy, safety, ease of administration, and relatively low cost. In addition, they reflect a consensus of public health experts' recommendations for a regimen for the treatment for gonorrhea which will effectively treat for the commonly associated, but often undetected, chlamydial infection.

Because of the changing pattern of antimicrobial resistance, periodic testing for antimicrobial sensitivity of a sample of *N. gonorrhoeae* isolates and all isolates associated with treatment failures should be an integral part of gonorrhea control programs.

Treatment of Adults

For uncomplicated urethral, endocervical, or rectal infection:

Recommended Regimens

An important concern in treatment for gonorrhea is coexisting chlamydial infection, documented in up to 45% of gonorrhea cases when adequate chlamydial cultures are performed. Concern also exists about the problem of patient compliance with multiple-day tetracycline/doxycycline regimens for gonococcal infections and for the potential selection of tetracycline-resistant isolates when incomplete doses are taken. To address these concerns, a single-dose regimen for gonorrhea should be administered just prior to a tetracycline or doxycycline regimen.

Amoxicillin 3.0 g or **ampicillin** 3.5 g by mouth OR **aqueous procaine penicillin G (APPG)** 4.8 million units IM OR **ceftriaxone** 250 mg IM. Amoxicillin, ampicillin, and penicillin (but not ceftriaxone) are accompanied by **probenecid** 1.0 g by mouth

Comment: APPG may be less desirable because of associated pain and toxicity.

PLUS

Tetracycline HCl 500 mg by mouth 4 times daily for 7 days *OR* **doxycycline** 100 mg by mouth twice daily for 7 days

OR

For patients in whom tetracyclines are contraindicated or not tolerated, the single-dose regimen may be followed by **erythromycin base or stearate** 500 mg by mouth 4 times daily for 7 days OR **erythromycin ethylsuccinate** 800 mg by mouth 4 times daily for 7 days.

Advantages

1. Provides adequate single-dose treatment for gonorrhea.
2. Effective against chlamydial infections.
3. Effective against pharyngeal gonococcal infections.

Disadvantages

1. Multiple-day, multiple-dose regimen for treatment for chlamydial infections.
2. The risk of secondary vulvovaginal candidiasis in women probably is enhanced.
3. Test-of-cure culture for gonorrhea must be delayed until 3 or 4 days after the completion of dual therapy.
4. Unknown potential for selection of resistant strains of *C. trachomatis* if compliance is poor.
5. Unknown potential for masking *C. trachomatis* infections in those who only partially comply with treatment.

Special Considerations

For women with rectal infection the above regimens are effective. Homosexual men with rectal gonococcal infection should be treated with **ceftriaxone** 250 mg IM OR **aqueous procaine penicillin G*** 4.8 million units IM PLUS **probenecid** 1.0 g by mouth. For those allergic to penicillin, use **spectinomycin** 2.0 g IM. These regimens provide adequate treatment for urethral and rectal gonococcal infection, but spectinomycin is not recommended for treatment for pharyngeal gonococcal infection. Homosexual men are less likely than heterosexual men to have coexistent chlamydial infections; therefore, routine additional tetracycline or doxycycline treatment is not recommended.

Patients who are allergic to penicillins, cephalosporins, or probenecid should be treated with **tetracycline** 500 mg by mouth 4 times daily for 7 days or **doxycycline** 100 mg by mouth twice daily for 7 days. Those patients who cannot tolerate tetracyclines may be treated with **spectinomycin** 2.0 g IM followed by **erythromycin** (except for homosexual men) as above.

All patients treated for gonorrhea should have a serologic test for syphilis. Patients with incubating syphilis (seronegative, without clinical signs of syphilis) are likely to be cured by all the above regimens except spectinomycin used alone. Patients with gonorrhea who have documented syphilis or are established sex partners of syphilis patients should be given treatment appropriate to the stage of syphilis as outlined under "Syphilis," in addition to treatment for gonorrhea.

Management of Sex Partners

Women and heterosexual men exposed to gonorrhea (e.g., within the past 30 days) should be examined, cultured, and treated prophylactically with one of the regimens which covers both gonococcal and chlamydial infections.

Homosexual men exposed to gonorrhea should be examined, cultured, and treated for gonorrhea.

*See comment on page 81S.

Follow-Up

Follow-up cultures should be obtained from the infected site(s) 3-7 days (4-7 days for patients treated with doxycycline) after completion of treatment. Cultures should be obtained from the rectum of all women who have been treated for gonorrhea, regardless of whether rectal gonorrhea was documented prior to therapy.

Treatment Failures

If gonorrhea persists after treatment with one of the non-spectinomycin regimens above patients should be treated with **spectinomycin** 2.0 g IM OR with **ceftriaxone** 250 mg IM. Recurrent gonococcal infections after treatment with the recommended schedules commonly are due to reinfection rather than treatment failure and indicate a need for improved sex-partner tracing and patient education. Since antimicrobial resistance is a cause of treatment failure, all post-treatment isolates should be tested for antimicrobial susceptibility.

Not Recommended

Although long-acting forms of penicillin (such as benzathine penicillin G) are effective in the treatment of syphilis, they have NO place in the treatment of gonorrhea. Penicillin preparations and cephalosporins ***not recommended*** for the treatment of gonorrhea include benzathine penicillin G, oral penicillin G, penicillin V, cloxacillin, dicloxacillin, cephradine, cephalothin, cephapirin, cefazolin, cephalexin, cefadroxil, and cefaclor.

Penicillin-Resistant *Neisseria gonorrhoeae*

Penicillinase-Producing *Neisseria gonorrhoeae* (PPNG)

Patients with proven PPNG infection or who are likely to have acquired gonorrhea in areas of high PPNG prevalence and their sex partners should receive **spectinomycin** 2.0 g IM, OR **ceftriaxone** 250 mg IM, both followed by **tetracycline** OR **doxycycline**, OR **erythromycin** as outlined above. To treat pharyngeal gonococcal infection due to PPNG: **Ceftriaxone** 250 mg IM OR nine tablets of **trimethoprim/sulfamethoxazole** (720 mg/3600 mg) per day in one daily dose for 5 days.

Chromosomally Mediated Resistant *Neisseria gonorrhoeae*

Patients who fail standard treatment for gonorrhea or who have infection with penicillin-resistant strains that do not produce beta-lactamase (CMRNG) should be treated with **spectinomycin** 2.0 g IM or **ceftriaxone** 250 mg IM.

Treatment for Gonococcal Infections in Pregnancy

All pregnant women should have endocervical cultures for *N. gonorrhoeae* at the time of the first visit as an integral part of the prenatal care. A second culture for gonococci and a test for *C. trachomatis* late in the third trimester should be done on women at high risk of sexually transmitted diseases.

Recommended Regimens

Amoxicillin 3.0 g OR **ampicillin** 3.5 g by mouth OR **ceftriaxone** 250 mg IM. Aqueous procaine penicillin G 4.8 million units IM is effective but is less desirable because of associated pain and toxicity.

Amoxicillin, ampicillin, and penicillin (but not ceftriaxone) regimens are accompanied by **probenecid** 1.0 g by mouth

PLUS

Erythromycin base 500 mg OR **erythromycin ethylsuccinate** 800 mg by mouth 4 times daily for 7 days. (See also "*C. trachomatis* Infections.")

Pregnant women who are allergic to penicillin, cephalosporins, or probenecid should be treated with **spectinomycin** 2.0 g IM *PLUS* **erythromycin** as recommended above.

Refer to the sections on acute salpingitis and disseminated gonococcal infections for the treatment of these conditions during pregnancy. Tetracycline or doxycycline should not be used in pregnant women because of potential adverse effects for the fetus.

Disseminated Gonococcal Infection

Hospitalization is recommended, especially for those who cannot reliably comply with treatment, have uncertain diagnoses, or have purulent synovial effusions or other complications. Attempts should be made to exclude endocarditis or meningitis.

Several acceptable treatment schedules exist for the gonococcal arthritis/dermatitis syndrome. These include the following:

Recommended Regimens

Aqueous crystalline penicillin G 10 million units intravenously (IV) per day for at least 3 days followed by **amoxicillin** or **ampicillin** 500 mg by mouth 4 times daily to complete at least 7 days of therapy; OR

Amoxicillin 3.0 g or **ampicillin** 3.5 g each with **probenecid** 1.0 g by mouth followed by **amoxicillin** or **ampicillin** 500 mg by mouth 4 times daily for at least 7 days; OR

Cefoxitin 1.0 g IV 4 times daily for at least 7 days; OR

Cefotaxime 500 mg IV 4 times daily for at least 7 days; OR

Ceftriaxone 1.0 g IV once daily for 7 days

Except for homosexual men, patients treated with one of the above regimens should be given an additional 7 days of tetracycline, doxycycline, or erythromycin as outlined above for possible coexistent chlamydial infection.

Patients allergic to penicillins or cephalosporins may be treated with **tetracycline HCl** 500 mg by mouth 4 times daily for at least 7 days OR **doxycycline** 100 mg by mouth twice daily for at least 7 days.

For disseminated infections caused by PPNG the **cefoxitin**, **cefotaxime**, or **ceftriaxone** regimen is recommended.

Special Considerations

Although open drainage of joints other than the hip is not indicated, repeated aspiration may be necessary. Intra-articular injection of antibiotics is contraindicated.

Meningitis and Endocarditis

Meningitis and endocarditis caused by *N. gonorrhoeae* require high-dose IV penicillin therapy. Optimal duration of therapy is unknown, but most authorities treat patients with gonococcal meningitis for 10-14 days and gonococcal endocarditis for 1 month. Therapy of penicillin-allergic patients must be individualized. Treatment of PPNG- or CMRNG-related meningitis or endocarditis should be undertaken in consultation with an expert.

Gonococcal Ophthalmia in Adults

Patients should be hospitalized and treated with **aqueous penicillin G** 10 million units IV daily for 5 days. For PPNG infections, use one of the following for 5 days: **cefoxitin** 1.0 g IV OR **cefotaxime** 500 mg IV 4 times daily OR **ceftriaxone** 1.0 g IM daily. Irrigation of the eyes with saline or buffered ophthalmic solutions may be useful adjunctive therapy to eliminate discharge. All patients must have careful ophthalmologic assessment for ocular complications. Topical antibiotic preparations alone are not sufficient and are unnecessary when appropriate systemic antibiotic therapy is given.

Treatment of Infants Born to Mothers with Gonococcal Infection

Infants born to mothers with untreated gonorrhea are at high risk of infection and should be treated with a single injection of **aqueous crystalline penicillin G** 50,000 units IM OR IV for full-term infants OR 20,000 units IM or IV for low-birth-weight infants. Topical prophylaxis for neonatal ophthalmia is not adequate treatment for infections at other sites. Clinical illness requires additional treatment.

Gonococcal Ophthalmia in Neonates

Untreated gonococcal ophthalmia is highly contagious and may rapidly lead to blindness. Patients should be hospitalized and isolated for 24 hours after initiation of treatment. **Aqueous crystalline penicillin G** 100,000 units/kg/day IV in 4 divided doses should be administered for 7 days. Irrigation of the eyes with saline or buffered ophthalmic solutions may be useful adjunctive therapy to eliminate discharge. Topical antimicrobial preparations alone are not sufficient and are not required when appropriate systemic antibiotic therapy is given. Both parents of newborns with gonococcal ophthalmia must be treated. Simultaneous ophthalmic infection with *C. trachomatis* has been reported and should be considered in patients who do not respond satisfactorily.

Penicillinase-Producing *Neisseria gonorrhoeae* (PPNG)

Neonates should be treated with cefotaxime or gentamicin in appropriate neonatal doses.

Arthritis, Septicemia, and Meningitis

Patients with arthritis and septicemia should be hospitalized and treated with **aqueous crystalline penicillin G** 100,000 units/kg/day IV in 4 divided daily doses for at least 7 days. Meningitis should be treated with **aqueous crystalline penicillin G** 100,000 units/kg/day IV divided into 4 daily doses and continued for at least 10 days.

Penicillin-Resistant Strains

Experience is limited and treatment should be decided in consultation with an expert. Cefotaxime, cefoxitin, or ceftriaxone may be useful.

Gonococcal Infections of Older Children

Children who weigh 100 lbs. (45 kg) or more should receive adult regimens. Children who weigh less than 100 lbs. should be treated as follows.

Please also see section on "Sexual Abuse of Children."

For uncomplicated vulvovaginitis and urethritis:

Recommended Regimens

Amoxicillin 50 mg/kg orally with **probenecid** 25 mg/kg (maximum 1.0 g) OR **ceftriaxone** 125 mg IM. The latter regimen is recommended for proctitis and pharyngitis.

Comment: Aqueous procaine penicillin G 100,000 units/kg IM PLUS probenecid 25 mg/kg (maximum 1.0 g) by mouth is effective but should be avoided because of associated pain and toxicity.

Patients should be evaluated for coinfection with *C. trachomatis*. Follow-up cultures are necessary to ensure effective treatment.

Penicillinase-Producing *Neisseria gonorrhoeae* (PPNG)

Children should be treated with spectinomycin in appropriate doses. Ceftriaxone may be useful, but data are unavailable.

Special Considerations

Topical and/or systemic estrogen therapy are of no benefit in vulvovaginitis. Penicillin and cephalosporin regimens that are *not recommended* are listed on page 83S. All patients should have follow-up cultures, and the source of infection should be identified, examined, and treated. Child abuse should be carefully considered and evaluated (see "Sexual Abuse of Children").

Allergy to Penicillins

Children who are allergic to penicillins or cephalosporins should be treated with **spectinomycin** 40 mg/kg IM. Children older than 8 years may be treated with **tetracycline** 40 mg/kg/day by mouth in 4 divided doses for 5 days. Treatment of complicated disease must be individualized.

Viral Hepatitis

No specific therapy is available for the various types of acute hepatitis, whether sexually transmitted or not.

See "Recommendations for Protection Against Viral Hepatitis," Immunization Practices Advisory Committee, *MMWR* 1985;34(22):313-35.

Genital Herpes Simplex Virus Infection

Genital herpes infection is a viral disease which may be chronic and recurring and for which no known cure exists. The acyclovir regimens listed provide partial control of the signs and symptoms of herpetic eruptions, but do not affect the subsequent risk, frequency, or severity of recurrences after the drug is discontinued.

First Clinical Episode

A careful history should be obtained to establish that this is the patient's first episode of genital herpes.

To reduce the signs and symptoms:

Acyclovir 200 mg by mouth 5 times daily for 7-10 days, initiated within 6 days of onset of lesions

This treatment shortens the median duration of first episode eruptions by between 3 and 5 days and may reduce systemic symptoms in primary episodes.

For patients who have severe symptoms or complications which necessitate hospitalization, an alternative regimen is:

Acyclovir 5 mg/kg of body weight IV every 8 hours for 5-7 days.

This treatment shortens the median course of first episodes by approximately 7 days.

Topical acyclovir ointment has marginal benefit in decreasing virus shedding but has no significant effect on symptoms or healing time.

The above regimens are also useful for herpes simplex proctitis.

Effect on Recurrences of Acyclovir Treatment of First Clinical Episodes

Treatment for first episode genital herpes with IV, oral, or topical acyclovir does not affect the subsequent risk, rate, or severity of recurrences.

Recurrent Genital Herpes

Since benefit to the patient may be minimal, treatment for recurrent episodes should be limited to those patients who typically have severe symptoms and who are able to begin therapy at the beginning of the prodrome or within 2 days of onset of lesions.

Acyclovir 200 mg by mouth 5 times daily for 5 days initiated within 2 days of onset

This shortens the mean clinical course by about 1 day.

IV and topical acyclovir are not indicated for recurrences.

Suppression of Recurrent Genital Herpes Infection

Continuous treatment with acyclovir 200 mg by mouth 2-5 times daily reduces the frequency of active disease by at least 75% among patients with frequent (at least 6 per year) recurrences. The dose of acyclovir should be individualized for each patient. After cessation of acyclovir, clinical episodes recur at the same frequency. Although short-term safety has been demonstrated in persons receiving the drug for 6 months, the long-term effects of acyclovir are not yet known. Acyclovir-resistant strains of herpes simplex virus have been isolated from some persons receiving acyclovir for suppression of recurrences, but their clinical significance is unknown. The suppressive regimen is contraindicated in women who may become pregnant during treatment. The decision to initiate this form of therapy should be made after careful consideration of the cost, risks, and benefits involved.

Counseling

Patients should be told about the natural history of genital herpes infection and to abstain from sexual contact while lesions are present, even if the patient is using acyclovir. Transmission of herpes simplex virus occurs during asymptomatic periods, but the relative risk is undefined. It is unknown whether patients maintained on oral acyclovir are less likely to shed virus asymptomatically than those not taking the drug. Some consultants recommend that asymptomatic patients use condoms. Women with genital herpes infection should be advised to have yearly Papanicolau smears. Early in pregnancy, women should inform their clinician of a history of genital herpes infection in themselves or their sex partners.

Management of Sex Partners

Routine treatment of sex partners is not indicated.

Pregnant Patients

The safety of systemic acyclovir for the treatment of pregnant women has not been established. Prevention of neonatal herpes simplex virus infection is discussed below in "Prevention of Special Maternal/Neonatal Infections."

Lymphogranuloma Venereum: Genital, Inguinal, or Anorectal

Infection with a lymphogranuloma venereum (LGV) serotype of *C. trachomatis* should be treated in the following way:

Recommended Regimen

Tetracycline HCl 500 mg by mouth 4 times a day for at least 2 weeks

Alternative Regimens

The following drugs are active against LGV serotypes *in vitro* but have not been evaluated extensively in culture-confirmed cases.

Doxycycline 100 mg by mouth twice daily for at least 2 weeks; *OR*

Erythromycin 500 mg by mouth 4 times daily for at least 2 weeks; *OR*

Sulfamethoxazole 1.0 g by mouth twice daily for at least 2 weeks. Other sulfonamides can be used in equivalent dosage.

Management of Sex Partners

Sex partners of patients with LGV should be treated with one of the recommended regimens.

Patient Management and Follow-Up

Fluctuant lymph nodes should be aspirated as needed through healthy adjacent normal skin. Incision and drainage or excision of nodes will delay healing and are contraindicated.

Late sequelae such as stricture and/or fistulae may require surgical intervention.

Nongonococcal Urethritis (NGU)

Urethritis not associated with *N. gonorrhoeae* is usually caused by *C. trachomatis* or *Ureaplasma urealyticum*. NGU requires prompt antimicrobial treatment of the patient and evaluation and treatment of sex partners.

Recommended Regimens

Tetracycline HCl 500 mg by mouth 4 times daily for 7 days

OR

Doxcycline 100 mg by mouth twice daily for 7 days

Alternative Regimen

(for patients in whom tetracyclines are contraindicated or not tolerated)

Erythromycin base or stearate 500 mg by mouth 4 times daily for 7 days; *OR*

Erythromycin ethylsuccinate 800 mg by mouth 4 times daily for 7 days.

Management of Sex Partners

All persons who are sex partners of patients with NGU should be examined for STD and promptly treated with one of the above regimens.

Follow-Up

Patients should be advised to return if symptoms persist or recur.

Persistent or Recurrent NGU

Recurrent NGU may be due to failure to treat the sex partners. Patients with persistent or recurrent objective signs of urethritis after adequate treatment of themselves and their partners warrant further evaluation for less common causes of urethritis.

Prevention of Ophthalmia Neonatorum

Instillation of a prophylactic agent into the eyes of all newborn infants is recommended as required by laws in most states. None of the presently recommended approaches for prophylaxis against gonococcal and chlamydial ophthalmia neonatorum is completely effective. Silver nitrate is effective in preventing gonococcal infections but does not prevent chlamydial disease and frequently causes chemical conjunctivitis. Erythromycin is effective in preventing both gonococcal and chlamydial ophthalmia and does not cause chemical conjunctivitis, but the topical use of this drug does not prevent nasopharyngeal chlamydial infection or pneumonia. Furthermore, erythromycin prophylaxis is considerably more expensive than silver nitrate prophylaxis. Tetracycline ointment has not been as extensively evaluated as has erythromycin but appears to be as effective. Whichever type of prophylaxis is used, it should be implemented no later than 1 hour after birth—preferably immediately after delivery since delayed application may reduce efficacy.

Recommended Regimens

Erythromycin (0.5%) ophthalmic ointment, tetracycline (1%) ointment, OR **silver nitrate** should be instilled into the eyes of all neonates as soon as possible after delivery and never later than 1 hour after birth. Single-use tubes or ampules are preferable to multiple-use tubes.

The efficacy of tetracycline and erythromycin in the prevention of PPNG ophthalmia is unknown. Bacitracin is NOT recommended.

Parasitic Skin Infections

Pediculosis Pubis

Recommended Regimens

Lindane (1%) lotion or cream applied in a thin layer to the infested and adjacent hairy areas and thoroughly washed off after 8 hours

OR

Lindane (1%) shampoo applied for 4 minutes and then thoroughly washed off. Not recommended for pregnant or lactating women.

OR

Pyrethrins and piperonyl butoxide (nonprescription) applied to the infested and adjacent hairy area and washed off after 10 minutes

Re-treatment is indicated after 7 days if lice are found or eggs are observed at the hair-skin junction. Clothing or bed linen which may have been contaminated by the patient within the past 2 days should be washed and/or dried by machine (hot cycle in each) or dry cleaned.

Management of Sex Partners

Sex partners should be treated as above.

Special Considerations

Pediculosis of the eyelashes should be treated by the application of occlusive ophthalmic ointment to the eyelid margins twice daily for 10 days to smother lice and nits. Lindane or other drugs should not be applied to the eyes.

Scabies

Adults and Older Children

Recommended Regimen

Lindane (1%) 1 oz. of lotion or 30 g of cream applied thinly to all areas of the body from the neck down and washed off thoroughly after 8 hours. Not recommended for pregnant or lactating women.

Alternative Regimens

Crotamiton (10%) applied to the entire body from the neck down nightly for 2 nights and washed off thoroughly 24 hours after the second application

OR

Sulfur (6%) in petrolatum applied to the entire body from the neck down nightly for 3 nights. Patients may bathe before reapplying and should ba[illegible]e 24 hours after the final application.

Infants, Children 10 Years or Less, and Pregnant and Lactating Women

Crotamiton (10%) as noted above OR **Sulfur (6%) in petrolatum** as noted above.

Management of Sex Partners

Sex partners and close household contacts should be treated as above.

Special Considerations

Pruritus may persist for several weeks after adequate therapy. A single re-treatment after 1 week may be appropriate if there is no clinical improvement. Additional weekly treatments are warranted only if live mites can be demonstrated.

Clothing or bed linen which may have been contaminated by the patient within the past 2 days should be washed and/or dried by machine (hot cycle in each) or dry cleaned.

Acute Pelvic Inflammatory Disease (PID) (Endometritis, Salpingitis, Parametritis, and/or Peritonitis)

Acute PID refers to the acute clinical syndrome (unrelated to pregnancy or surgery) attributed to the ascent of microorganisms from the vagina and endocervix to the endometrium, fallopian tubes, and/or contiguous structures. Many cases of PID are caused by more than one organism.

Etiologic agents include *N. gonorrhoeae*, *C. trachomatis*, anaerobic bacteria (which include Bacteroides and gram-positive cocci), facultative gram-negative bacilli (such as *Escherichia coli*), *Mycoplasma hominis*, and rarely *Actinomyces israelii*. In the individual patient it is often impossible to differentiate among these agents. Treatment regimens should be used which are active against the broadest possible range of these pathogens.

Hospitalization and Inpatient Treatment

Hospitalization of patients with acute PID is indicated when (1) the diagnosis is uncertain, (2) surgical emergencies such as appendicitis and ectopic pregnancy cannot be excluded, (3) a pelvic abscess is suspected, (4) the patient is pregnant, (5) the patient is a prepubertal child, (6) severe illness precludes outpatient management, (7) the patient is unable to follow or tolerate an outpatient regimen, (8) the patient has failed to respond to outpatient therapy, or (9) clinical follow-up within 72 hours of starting antibiotic treatment cannot be arranged. Many experts recommend that all patients with PID be hospitalized for treatment. Special consideration for hospitalization should be given to adolescents because their compliance with therapy is unpredictable and the long-term sequelae of PID are particularly severe in this group.

Rationale for Selection of Antimicrobials

The treatment of choice is not established. No single agent is active against the entire spectrum of pathogens. Several antimicrobial combinations do provide a broad spectrum of activity against the major pathogens *in vitro*, but none have been adequately evaluated for clinical efficacy in PID.

Examples of Combination Regimens with Broad Activity Against Major Pathogens in PID

Regimen A

Doxycycline 100 mg IV twice daily PLUS **Cefoxitin** 2.0 g IV 4 times daily

Continue drugs IV for at least 4 days and at least 48 hours after the patient improves. Then continue doxycycline 100 mg by mouth twice a day to complete 10-14 days total therapy.

Regimen B

Clindamycin 600 mg IV 4 times daily PLUS **Gentamicin** 2.0 mg/kg IV followed by 1.5 mg/kg 3 times daily in patients with normal renal function

Continue drugs IV for at least 4 days and at least 48 hours after patient improves. Then continue clindamycin 450 mg by mouth 4 times daily to complete 10-14 days total therapy.

Ambulatory Treatment

When the patient is not hospitalized, the following regimen is recommended.

Recommended Regimens

Cefoxitin 2.0 g IM OR **amoxicillin** 3.0 g by mouth OR **ampicillin** 3.5 g by mouth OR **aqueous procaine penicillin G*** 4.8 million units IM at 2 sites OR **ceftriaxone** 250 mg IM. Each of these regimens except ceftriaxone is accompanied by **probenecid** 1.0 g by mouth

FOLLOWED BY

Doxycycline 100 mg by mouth twice daily for 10-14 days

Tetracycline HCl 500 mg 4 times daily may be substituted for doxycycline but is less active against certain anaerobes and requires more frequent dosing; these are potentially important drawbacks in the treatment of PID.

Treatment with penicillin, ampicillin, amoxicillin, or a cephalosporin alone is not recommended

Comment: Cefoxitin or ceftriaxone (or equivalently effective cephalosporins) plus doxycycline (or tetracycline) provide activity against *N. gonorrhoeae*, including PPNG, and *C. trachomatis*. PPNG-associated PID is not adequately treated with the combination of doxycycline with either amoxicillin, ampicillin, or aqueous procaine penicillin. Single doses of penicillin or cephalosporin antibiotic followed by oral tetracycline may not provide sustained activity against many strains of chromosomally mediated resistant *N. gonorrhoeae* or the facultative or anaerobic organisms involved in PID. No data are available on therapy for PID caused by CMRNG. These patients should be followed in consultation with an expert.

*See comment on page 81S.

Management of Sex Partners

All male sex partners of patients with PID should be examined for STD and promptly treated with a regimen effective against uncomplicated gonococcal and chlamydial infection.

Acute Pelvic Inflammatory Disease in Children

PID in prepubertal children is rare. Data on effective treatment are not available. Adolescents should receive a regimen that treats both *N. gonorrhoeae* and *C. trachomatis* and may receive one of the regimens recommended for adults. Prepubertal children may receive either:

Cefuroxime 150 mg/kg/IV daily OR **ceftriaxone** 100 mg/kg/IV daily

PLUS

Erythromycin 40 mg/kg/day in 4 doses IV OR **sulfasoxazole** 100 mg/kg/day in 4 doses IV OR in children older than 7 years **tetracycline** 30 mg/kg/day in 3 doses IV.

Continue the IV regimen for at least 4 days and at least 2 days after patient shows marked improvement. Thereafter continue the erythromycin, sulfasoxazole, or tetracycline orally to complete at least 14 days of therapy.

Follow-Up

All patients treated as outpatients should be clinically reevaluated within 72 hours. Those not responding favorably should be hospitalized. A culture for test-of-cure should be done 4-7 days after completion of therapy as appropriate for pathogens initially isolated.

Intrauterine Device (IUD)

The IUD is a risk factor for the development of PID. Although the exact effect of removing an IUD on the response of acute salpingitis to antimicrobial therapy and on the risk of recurrent salpingitis is unknown, removal of the IUD is recommended soon after antimicrobial therapy has been initiated. When an IUD is removed, contraceptive counseling is necessary.

Syphilis

Early Syphilis

Recommended Regimen

Early syphilis (primary, secondary, or latent syphilis of less than 1 year's duration) should be treated with:

Benzathine penicillin G 2.4 million units total IM at a single session

Penicillin-Allergic Patients

Patients who are allergic to penicillin should be treated with:

Tetracycline HCl 500 mg by mouth 4 times daily for 15 days

Tetracycline appears to be effective, but has been evaluated less extensively than penicillin. Patient compliance with this regimen may be difficult, so special care should be taken to encourage optimal compliance.

Penicillin-allergic patients who cannot tolerate tetracycline should have their allergy confirmed. For these patients there are two options:

1. If compliance and serologic follow-up can be assured, administer **erythromycin** 500 mg by mouth 4 times a day for 15 days.
2. If compliance and serologic follow-up cannot be assured, the patient should be managed in consultation with an expert.

Syphilis of More Than 1 Year's Duration

Recommended Regimen

Syphilis of more than 1 year's duration (latent syphilis of indeterminate or more than 1 year's duration, cardiovascular, or late benign syphilis), except neurosyphilis, should be treated with:

Benzathine penicillin G 2.4 million units IM once a week for 3 successive weeks (7.2 million units total)

The optimal treatment schedules for syphilis of greater than 1 year's duration have been less well established than schedules for early syphilis. In general, syphilis of longer duration requires more prolonged therapy.

Therapy is recommended for established cardiovascular syphilis although antibiotics may not reverse the pathology associated with this disease.

Penicillin-Allergic Patients

There are no published clinical data which adequately document the efficacy of drugs other than penicillin for syphilis of more than 1 year's duration. Cerebrospinal fluid (CSF) examinations should be performed before therapy with these regimens.

Patients who are allergic to penicillin should be treated with:

Tetracycline HCl 500 mg by mouth 4 times daily for 30 days. Patient compliance with this regimen may be difficult, so care should be taken to encourage optimal compliance.

Penicillin-allergic patients who cannot tolerate tetracycline should have their allergy confirmed. For these patients there are two options:

1. If compliance and serologic follow-up can be assured, administer **erythromycin** 500 mg by mouth 4 times daily for 30 days.
2. If compliance and serologic follow-up cannot be assured, the patient should be hospitalized and managed in consultation with an expert.

Cerebrospinal Fluid Examination

CSF examination should be performed in patients with clinical symptoms or signs consistent with neurosyphilis. This examination is also desirable for patients with syphilis of greater than 1 year's duration to exclude asymptomatic neurosyphilis.

Neurosyphilis

Published studies show that a total dose of 6-9 million units of penicillin G over a 3- to 4-week period results in a satisfactory clinical response in approximately 90% of patients with neurosyphilis. Regimens employing benzathine penicillin in standard doses or procaine penicillin in doses under 2.4 million units daily do not consistently provide treponemicidal levels of penicillin in CSF, and several case reports document the failure of such regimens to cure neurosyphilis.

Drug Regimens

Potentially effective regimens, none of which has been adequately studied, include:

Aqueous crystalline penicillin G 12-24 million units IV/day (2-4 million units every 4 hours) for 10 days, followed by **benzathine penicillin G** 2.4 million units IM weekly for 3 doses

OR

Aqueous procaine penicillin G 2.4 million units IM daily **plus probenecid** 500 mg by mouth 4 times daily, both for 10 days, followed by **benzathine penicillin G** 2.4 million units IM weekly for 3 doses

OR

Benzathine penicillin G 2.4 million units IM weekly for 3 doses

Penicillin-Allergic Patients

Patients with histories of allergy to penicillin should have their allergy confirmed and should be managed in consultation with an expert.

Syphilis in Pregnancy

Evaluation of Pregnant Women

All pregnant women should have a nontreponemal serologic test for syphilis, such as the VDRL or rapid plasma reagin (RPR) test, at the time of the first prenatal visit. If a woman is suspected of being at high risk for syphilis, a second nontreponemal test should be performed during the third trimester. Cord blood should be tested for syphilis antibody, and the results used as a baseline for follow-up.

Seroreactive patients should be evaluated promptly. This evaluation should include a history and physical examination, as well as a quantitative nontreponemal test and a confirmatory treponemal test.

If the treponemal test is nonreactive and there is no clinical or epidemiologic evidence of syphilis, treatment is unnecessary. Both the quantitative nontreponemal test and the confirmatory test should be repeated within 4 weeks. If there is clinical or serologic evidence of syphilis or if the diagnosis of syphilis cannot be excluded with reasonable certainty, the patient should be treated as outlined below.

Patients for whom adequate treatment for syphilis in the past is documented need not be re-treated unless there is clinical, serologic, or epidemiologic evidence of reinfection such as darkfield-positive lesions, a fourfold titer rise of a quantitative nontreponemal test, or history of recent sexual exposure to a person with syphilis.

Recommended Regimens

For patients at all stages of pregnancy who are not allergic to penicillin, penicillin should be used in dosage schedules appropriate for the stage of syphilis as recommended for the treatment of nonpregnant patients.

Penicillin-Allergic Patients

For patients at all stages of pregnancy who have documented allergy to penicillin:

1. If compliance and serologic follow-up can be assured, administer erythromycin in dosage schedules appropriate for the stage of syphilis as recommended for the treatment of nonpregnant patients. Infants born to mothers treated during pregnancy with erythromycin for early syphilis should be treated with penicillin.
2. If compliance and serologic follow-up cannot be assured, the patient should be hospitalized and managed in consultation with an expert.

Tetracycline is not recommended in pregnant women because of potential adverse effects on the fetus.

Follow-Up

Pregnant women who have been treated for early syphilis should have monthly quantitative nontreponemal serologic tests for the remainder of the current pregnancy. Women who show a fourfold rise in titer should be re-treated. Treated women who do not show a fourfold decrease in titer in a 3-month period should be re-treated. After delivery, follow-up is as outlined for nonpregnant patients.

Congenital Syphilis

Congenital syphilis may occur if the mother has syphilis during pregnancy. If the mother has received adequate penicillin treatment during pregnancy, the risk to the infant is small. However, all infants should be examined carefully at birth, at 1 month, and every 3 months for the first 15 months, and then every 6 months until nontreponemal serologic tests are negative or stable at low titer. If a serologic test is positive at 3 months, the infant should be treated for congenital syphilis.

Infected infants are frequently asymptomatic at birth and may be seronegative if the maternal infection occurred late in gestation. Infants should be treated at birth if maternal treatment was inadequate or unknown or did not include penicillin, or if adequate follow-up of the infant cannot be ensured.

Infants with congenital syphilis should have a CSF examination before treatment to provide a baseline for follow-up. Regardless of CSF results, children should be treated with a regimen effective for neurosyphilis.

Symptomatic or Asymptomatic Infants with Congenital Syphilis

Recommended Regimens

Aqueous crystalline penicillin G 50,000 units/kg IM or IV daily in two divided doses for a minimum of 10 days

OR

Aqueous procaine penicillin G 50,000 units/kg IM daily for a minimum of 10 days

In asymptomatic infants whose mothers were treated adequately with a penicillin regimen during pregnancy, treatment is not necessary if follow-up can be ensured. In asymptomatic infants whose follow-up cannot be ensured, many consultants choose to treat the infant with benzathine penicillin 50,000 units/kg IM in a single dose. It is recognized that data on the efficacy of this regimen in congenital neurosyphilis are lacking; therefore, if neurosyphilis cannot be excluded, the aqueous crystalline penicillin or procaine penicillin regimens are recommended. Only penicillin regimens are recommended for neonatal congenital syphilis.

After the neonatal period, penicillin therapy for congenital syphilis should be with the same dosages used for neonatal congenital syphilis. For larger children, the total dose of penicillin need not exceed the dosage used in adult syphilis of more than 1 year's duration. After the neonatal period, the dosage of tetracycline for congenital syphilis in patients who are allergic to penicillin should be individualized but need not exceed dosages used in adult syphilis of more than 1 year's duration. Tetracycline should not be given to children less than 8 years of age.

Follow-Up and Re-Treatment

All patients with early syphilis and congenital syphilis should be encouraged to return for repeat quantitative nontreponemal tests at least 3, 6, and 12 months after treatment. In these patients, quantitative nontreponemal test titers will decline to nonreactive or low-titer reactive within a year following successful treatment with penicillin. Serologic test results decline more slowly in patients treated for disease of longer duration. Patients with syphilis of more than 1 year's duration should also have a repeat serologic test 24 months after treatment. Careful follow-up serologic testing is particularly important in patients treated with antibiotics other than penicillin. Examination of CSF should be planned as part of the last follow-up visit after treatment with alternative antibiotics.

All patients with neurosyphilis must be carefully followed with periodic serologic testing, clinical evaluation at 6-month intervals, and repeat CSF examinations for at least 3 years.

The possibility of reinfection should always be considered when re-treating patients with early syphilis. A CSF examination should be performed before re-treatment unless reinfection and a diagnosis of early syphilis can be established.

Re-treatment should be considered when:

1. Clinical signs or symptoms of syphilis persist or recur;
2. There is a fourfold increase in the titer of a nontreponemal test; or
3. An initially high-titer nontreponemal test fails to decrease fourfold within a year.

Patients should be re-treated with the schedules recommended for syphilis of more than 1 year's duration. In general, only one re-treatment course is indicated because patients may maintain stable, low titers in nontreponemal tests or may have irreversible anatomical damage.

Management of Sex Partners

Patients who have been exposed to infectious syphilis within the preceding 3 months and other patients who, on epidemiologic grounds, are at high risk for early syphilis should be treated as for early syphilis. Every effort should be made to establish a diagnosis in these cases.

Trichomoniasis

Recommended Regimen

Metronidazole 2.0 g by mouth in a single dose

Alternative Regimen

Metronidazole may be administered in a dose of 250 mg by mouth 3 times daily for 7 days.

Asymptomatic Women

Asymptomatic women with trichomoniasis should be treated the same as symptomatic women.

Treatment Failures

Resistance of *Trichomonas vaginalis* to metronidazole has been observed, but is rare. Patients who fail treatment should be re-treated with the same regimen. Persistent failures should be managed in consultation with an expert. Metronidazole 2 g by mouth daily for 3 days has been successful in patients infected with *T. vaginalis* strains mildly resistant to metronidazole, but experience with this regimen is limited.

Treatment in Pregnancy

Metronidazole is contraindicated in the first trimester of pregnancy and should be avoided throughout pregnancy. Clotrimazole 100 mg intravaginally at bedtime for 7 days may produce symptomatic improvement and some cures. Other local treatments may be used for symptomatic relief but have low cure rates. Lactating women may be treated with metronidazole 2.0 g by mouth in a single dose, but breast-feeding should be interrupted for at least 24 hours after therapy.

Management of Sex Partners

Male sex partners of women with trichomoniasis should be treated with 2.0 g metronidazole by mouth in a single dose and should be examined for coexistent STD.

Neonatal Trichomonal Infections

Infants with symptomatic trichomoniasis or with persistent urogenital trichomonal colonization beyond the fourth week of life can be treated with metronidazole 10-30 mg/kg daily for 5-8 days.

Trichomonal Infection of Older Children

Children with trichomonal infection should be treated with metronidazole 15 mg/kg by mouth daily divided into 3 doses for 7-10 days.

Please also see "Sexual Abuse of Children."

Genital and Anal Warts (Condylomata acuminata)

The treatment of genital and anal warts has not been well studied. No treatment is completely satisfactory. Genital and anal warts are caused by human papilloma virus (HPV) and have recently been linked to the development of squamous cell genital cancers. For these reasons, atypical or persistent warts should be biopsied. A Pap smear is recommended for all women with genital warts. Cervical warts should not be treated until the result of the Pap smear is available to guide therapy. While podophyllin is widely used in the treatment of genital and anal warts, some consultants feel that cryotherapy, when available, is preferable to podophyllin.

External Genital/Perianal Warts

Recommended Regimens

Cryotherapy, e.g., liquid nitrogen or carbon dioxide (dry ice)

OR

Podophyllin 10% in compound tincture of benzoin. Apply carefully to each wart, avoiding normal tissue. Wash off thoroughly in 1-4 hours. Some consultants use a longer period, but this must be individualized after patient tolerance and compliance have been established. Repeat once or twice weekly. If warts do not regress after 4 applications of podophyllin, alternative treatments are indicated.

Podophyllin should not be used during pregnancy.

Alternative Regimens

Electrosurgery

Surgical removal

Women with external genital warts often have coexistent vaginal or cervical warts. At a minimum, a Pap smear is indicated for detection of cervical warts or other cytologic abnormalities. Colposcopy in consultation with an expert should be considered.

Vaginal/Cervical Warts

Vaginal/cervical warts are often found only by Pap smear or colposcopy.

Women with vaginal/cervical warts should be examined by an experienced colposcopist. Treatment of vaginal/cervical warts is complicated and should be carried out in consultation with an expert. Current therapies include:

Cryotherapy

5-Fluorouracil

Podophyllin 10% in compound tincture of benzoin may be used for vaginal warts only if great care is taken to ensure that the treated area is dried before removing the speculum. Because podophyllin is absorbed and toxic, use of large amounts should be avoided. Podophyllin is NOT RECOMMENDED for cervical warts.

Urethral/Meatal Warts

Accessible meatal warts may be treated with podophyllin 10% in compound tincture of benzoin (see above). Great care should be taken to ensure that the treated area is dried before contact with normal mucosa is allowed. Podophyllin must be thoroughly washed off after 1-4 hours. Treatment should be undertaken in consultation with an expert. Access to urethroscopy is important for management.

Alternative Regimen

Cryotherapy

Intraurethral warts should be suspected in men with recurrent meatal warts. Urethroscopy is necessary to diagnose this condition. Intraurethral 5% 5-fluorouracil or thiotepa may be effective for this condition but have not been adequately evaluated. Podophyllin should not be used.

Anal Warts

Anal warts accessible by anoscope may be treated with cryotherapy or podophyllin 10% in compound tincture of benzoin (see above). However, extreme care must be taken to avoid exposure of normal mucosa to podophyllin. Allow the treated area to dry before removal of the anoscope. Podophyllin must be washed off after 1-4 hours. Many consultants avoid the use of podophyllin for anal warts.

Alternative Regimen

Electrocautery

Patients with extensive anal warts should be referred for proctological evaluation.

Oral Warts

Oral warts should be treated with:

Cryotherapy (e.g., liquid nitrogen, solid carbon dioxide)

Electrosurgery

Surgical removal

Podophyllin is contraindicated for oral warts.

Other Genito-Urinary Syndromes

In Men

Acute Epididymo-Orchitis

Acute epididymo-orchitis has two forms: a sexually transmitted form usually associated with urethritis and commonly caused by *C. trachomatis* and/or *N. gonorrhoeae* and a non-

sexually transmitted form associated with urinary tract infections caused by Enterobacteriaceae or *Pseudomonas*. Urine should be examined by Gram stain and culture to exclude bacteruria in all patients, including those with urethritis. Testicular torsion is a surgical emergency that should be considered in all cases.

Sexually Transmitted Epididymo-Orchitis

Sexually transmitted epididymo-orchitis occurs in young adults and is associated with presence of urethritis, absence of underlying genito-urinary pathology, and absence of gram-negative rods on Gram stain of urine.

Recommended Regimen

Amoxicillin 3.0 g by mouth OR **ampicillin** 3.5 g by mouth OR **aqueous procaine penicillin G** 4.8 million units IM at 2 sites (each along with **probenecid** 1.0 g by mouth) OR **spectinomycin** 2.0 g IM OR **ceftriaxone** 250 mg IM

FOLLOWED BY

Tetracycline HCl 500 mg by mouth 4 times daily for 10 days

OR

Doxycycline 100 mg by mouth twice daily for 10 days

OR

(for patients for whom tetracyclines are contraindicated or not tolerated)

Erythromycin base or stearate 500 mg by mouth 4 times a day for 7 days OR **erythromycin ethylsuccinate** 800 mg by mouth 4 times a day for 7 days

Alternative Regimens

Alternative regimens have not been well studied. For epididymitis caused by PPNG, clinical experience is limited, but a 10-day course of therapy with oral **trimethoprim/sulfamethoxazole** OR parenteral **ceftriaxone, cefotaxime, cefoxitin**, or **spectinomycin** may be used.

Management of Sex Partners

Sex partners of patients with sexually transmitted acute epididymo-orchitis should be examined for STD and promptly treated with a regimen effective against uncomplicated gonococcal and chlamydial infection.

Adjuncts to Therapy

Bed rest and scrotal elevation until fever and local inflammation have subsided are recommended.

Follow-Up

Failure to improve within 3 days requires reevaluation of the diagnosis/therapy and consideration for hospitalization.

Nonsexually Transmitted Acute Epididymo-Orchitis

Management includes prompt administration of broad-spectrum antimicrobial therapy. Choice of therapy is initially dictated by the severity of infection and later by results of urine culture and sensitivity. Evaluation for underlying urinary tract disease is indicated. Adjuncts to therapy and follow-up are the same as for sexually transmitted epididymo-orchitis.

In Women

Several common genito-urinary syndromes are associated with sexual activity in women.

Bacterial Vaginosis

This syndrome consists of nonirritating, malodorous, thin, homogeneous white vaginal discharge, elevated vaginal pH (greater than 4.5), and the elaboration of fishy odor from vaginal fluid after alkalinization with 10% potassium hydroxide. Microscopic examination of vaginal fluid typically reveals the presence of small coccobacillary organisms associated with epithelial cells (so-called "clue cells"). It is now believed that several species of vaginal bacteria interact to produce the syndrome. Cultures for *Gardnerella vaginalis* are not useful and are not recommended for the diagnosis of this syndrome.

Recommended Regimen

Metronidazole 500 mg by mouth twice daily for 7 days is an effective treatment.

Alternative Regimens

Ampicillin or **amoxicillin** 500 mg by mouth 4 times daily for 7 days is less effective but may be used for pregnant patients or individuals for whom metronidazole is contraindicated.

Treatment is not recommended for male or female asymptomatic carriers of *Gardnerella vaginalis*. Treatment of male sex partners does not reduce the risk of recurrence of bacterial vaginosis in the index case.

Mucopurulent Cervicitis

The presence of mucopurulent endocervical exudate often suggests cervicitis due to chlamydial or gonococcal infection. Criteria for the presumptive diagnosis of mucopurulent cervicitis include: (1) mucopurulent secretion from the endocervix which may appear yellow or green when viewed on a white cotton-tipped swab (positive swab test); (2) greater than 10 polymorphonuclear leukocytes per microscopic oil immersion field (X 1,000) in a gram-stained smear of endocervical secretions; and (3) cervicitis, determined by cervical friability (bleeding when the first swab culture is taken) and/or by erythema or edema within a zone of cervical ectopy.

Treatment of mucopurulent cervicitis:

1. If *N. gonorrhoeae* is found on Gram stain or culture of endocervical or urethral discharge, treatment should be given as recommended for uncomplicated gonorrhea in adults.
2. If *N. gonorrhoeae* is not found, treatment should be given as recommended for chlamydial infection in adults.

Management of Sex Partners

Men exposed to women with mucopurulent cervicitis attributed to gonococcal or chlamydial infection should be evaluated for STD and treated with the same regimen as their sex partners.

Follow-Up

Follow-up cultures for *N. gonorrhoeae* or *C. trachomatis* isolated before therapy should be conducted as outlined in special sections for these organisms.

Urethral Syndrome (Dysuria-Pyuria Syndrome)

Women with dysuria, frequency, pyuria (greater than 10 leukocytes per 400X field on microscopic examination of urinary sediment), and a negative gram-stained smear of unspun urine have the acute urethral syndrome and may be infected with *C. trachomatis* or with *N. gonorrhoeae*. Cultures of the urethra or cervix are needed to identify these agents in individual patients.

Dysuria may also be due to either vaginitis or genital herpes simplex virus (HSV) infection. Patients with dysuria should be evaluated for these infections, as well as for those outlined above.

Recommended Regimens

Initial treatment of patients with dysuria-pyuria syndrome with **tetracycline HCl** 500 mg by mouth 4 times daily for 7 days or **doxycycline** 100 mg by mouth twice daily for 7 days is usually effective. Management of patients should be based on clinical response to therapy.

Vulvovaginal Candidiasis

Although not generally considered an STD, vulvovaginal candidiasis is included in these guidelines because it is frequently diagnosed in women presenting with genital symptoms. The large number of commercially available regimens attests to both the high incidence of the condition and also the lack of any obviously superior regimen.

Two classes of drugs are most commonly used to treat vulvovaginal candidiasis: the imidazoles and the polyenes. Some studies suggest that imidazoles have better clinical efficacy than the polyenes.

Examples of imidazole regimens

Miconazole nitrate or **clotrimazole** 100 mg intravaginally daily for 7 days. Cream or tablet forms are equally effective

OR

Miconazole nitrate or **clotrimazole** 200 mg intravaginally daily for 3 days

OR

Clotrimazole 500 mg tablet intravaginally as a single dose.

Example of a polyene regimen

Nystatin 100,000 unit tablets, 1 tablet intravaginally daily for 2 weeks.

Systemic therapy for uncomplicated vulvovaginal candidiasis is not indicated. No evidence exists that such treatment reduces recurrence rates, and it carries an increased risk of toxicity. Simultaneous treatment of rectal colonization does not reduce recurrence rates. Symptomatic disease in pregnancy may be more difficult to cure and should probably be treated with one of the 7-day regimens. Candidal balanitis in sex partners usually responds promptly to dermatologic anticandidal preparations.

Frequently recurrent vulvovaginal candidiasis is a difficult problem which should be managed in consultation with an expert.

Prevention of Special Maternal and Neonatal Infections

Herpes Simplex Virus

No antiviral therapy for HSV infection has been shown to be effective for pregnant patients. Well-designed studies comparing strategies for the prevention of perinatal HSV infections are unavailable. Since the optimal management is not known, physicians may choose to consult with the American College of Obstetrics and Gynecology and the American Academy of Pediatrics, which have made recommendations for surveillance and management of delivery involving women at risk for HSV infection.

Cytomegalovirus

Treatment of infants with severe congenitally transmitted cytomegalovirus (CMV) disease with antiviral medications has been unsuccessful. No attempts have been made to treat CMV infections of pregnant women, as most infections go unrecognized and antiviral drugs are potentially teratogenic.

The highest risk of congenital CMV infection or disease occurs with primary maternal infection. Although most primary maternal CMV infections are asymptomatic, a few patients will present with a mononucleosis-like syndrome. Therefore, if a pregnant patient develops symptoms suggesting mononucleosis, a heterophile test should be performed. If heterophile-negative mononucleosis is diagnosed, attempts should be made to confirm CMV infection by serologic or virologic means. Only a small proportion of primary infections will be so recognized. Recognition of primary CMV infection in pregnancy will permit physicians to inform patients about the risks of continuing the pregnancy.

Group B Streptococcal Disease

The present state of knowledge about the epidemiology of group B streptococcal disease is not sufficient to recommend routine treatment of pregnant women or their sex partners or routine prophylaxis of the newborn.

Special Treatment-Related Discussions

These recommendations are limited to the management of sexually transmitted infections. Appropriate management of medical-legal aspects, potential pregnancy, and physical and psychological trauma are also an integral part of management.

There are no firm data with which to estimate the risk of a sexually assaulted person's contracting a sexually transmitted infection. Based on the prevalence of infections in the general

population, the most likely diseases for which these patients are at risk appear to be chlamydial infections, gonorrhea, genital herpes, cytomegalovirus, and trichomoniasis. If the offender is at high risk for having syphilis and hepatitis B, there is an increased risk of the victim's acquiring these diseases.

Rape

Initial examination of the rape victim should include:

- Cultures for *N. gonorrhoeae* from any potentially infected sites.
- If available, cultures for *C. trachomatis* from any potentially infected sites.
- Examination of vaginal specimens for *T. vaginalis* by wet mount and, if available, by culture.
- A bimanual pelvic examination for women.
- A serologic test for syphilis.
- A sample of serum to be frozen and saved for future testing.

The risk of infection after rape, while unknown, is thought to be low. If prophylaxis is to be administered because the physician feels it is indicated or because the patient requests it, the following should be used: **Tetracycline** 500 mg by mouth 4 times daily for 7 days or **doxycycline** 100 mg by mouth twice daily for 7 days.

Patients who are allergic to tetracycline and pregnant women should be treated with **amoxicillin** 3.0 g or **ampicillin** 3.5 g, each given with 1.0 g of **probenecid** as a single oral dose.

Patients should be seen for medical follow-up in 7 days, and the aforementioned studies repeated, except for the serologic test for syphilis. A serologic test for syphilis, 6 weeks after the incident, is important in cases of assault by individuals who are at high risk for syphilis.

Every effort should be made to establish whether the assailant is infected with an STD. Victims should receive treatment for exposure to an STD which is documented in the assailant.

Sexual Abuse of Children

Sexual abuse (including incest) of children is one aspect of the larger problem of child abuse and neglect. Diagnosis of any sexually transmitted infection in a child who is prepubertal but not neonatal raises the strong possibility of sexual abuse unless proven otherwise. The presence of an STD may be the major or only physical evidence of sexual abuse and may be asymptomatic. Therefore, particular care in the evaluation of a child for STD is appropriate.

Sexually abused children are best assessed and managed by a team of professionals who are experienced in addressing their medical, social, and psychological needs. Members of such a team commonly include a pediatrician, gynecologist, and social worker who coordinate their efforts and function as a part of the child protection services for their community.

The assessment and management of children suspected of having been sexually abused is beyond the scope of this statement (see references below). However, several common issues should be noted:

a. An internal pelvic examination is not necessarily indicated unless there is evidence of trauma or a foreign body. If an internal pelvic examination is to be performed, many children will require general anesthesia.
b. The results of cultures may be required to be legally admissible as evidence in court proceedings resulting from a diagnosis of sexual abuse. Accordingly, the physician caring

for the child is responsible for ensuring that correct procedures are used in identifying specimens and conveying them to the laboratory and that accurate identification of isolates has occurred.

c. In all states, reporting of suspected as well as confirmed cases of sexual abuse to the social services department of city, county, and/or state governments is legally mandatory.

d. The safety and welfare of the child is of paramount concern. If sexual abuse or incest has occurred or is suspected, it may be necessary to hospitalize the child pending an investigation into the safety of the household for the child.

Children with known or suspected sexual abuse should be assessed for the following infections from the following body sites:

Females

- *N. gonorrhoeae* culture from pharynx, anal canal, and vagina.
  NOTE: Endocervical cultures are not necessary.
- *C. trachomatis* culture from pharynx, vagina, and rectum.
- Trichomonas from urine and vagina.
- Herpes simplex culture from vagina, rectum, urethra, or eye area if inflammation is present.
- Serologic tests for syphilis.
- Examination for venereal warts.
- Examination for vaginitis with a wet mount for clue cells.
- Examination for pregnancy if appropriate.

Males

- *N. gonorrhoeae* culture from pharynx, rectum, and urethra.
- *C. trachomatis* culture from rectum, pharynx, and urethra.
- Herpes simplex culture from areas of genital tract which show inflammation.
- Serologic tests for syphilis.
- Examination for venereal warts.

Treatment is indicated when disease is present. Prophylactic treatment prior to diagnosis is usually not indicated unless there is evidence that the assailant is infected. Follow-up cultures and a serology are required in cases of acute assault or molestation.

References

Sgroi S. Handbook of Clinical Intervention in Child Sexual Abuse. Lexington, Massachusetts: Lexington Books, D.C. Health & Co., 1982.

White ST, Loda FA, Ingram DL, Parson A. Sexually transmitted diseases in sexually abused children. Pediatrics 1983;72:16-21.

Rimsza ME, Niggemann EH. Medical evaluation of sexually abused children: A review of 311 cases. Pediatrics 1982;69:8-14.

Neinstein LS, Goldenring J, Carpenter S. Nonsexual transmission of sexually transmitted diseases: An infrequent occurrence. Pediatrics 1984;74:67-76.

Public Health Considerations

Reducing Risk of Acquiring Sexually Transmitted Diseases

The only effective way to *prevent* acquiring sexually transmitted diseases is to *abstain* from all forms of sexual contact.

To *reduce risk* of STD, those who are sexually active should:

1. Avoid multiple partners, anonymous partners, prostitutes, and other persons with multiple sex partners.
2. Avoid sexual contact with persons who have a genital discharge, genital warts, genital herpes lesions or other suspicious genital lesions, or laboratory evidence of HTLV-III/LAV infection or hepatitis B surface antigen.
3. Avoid oral-anal sex to prevent enteric infections.
4. Avoid genital contact with oral "cold sores."
5. Use condoms and diaphragms in combination with spermicides.
6. Have a periodic examination for sexually transmitted agents and syndromes if at high risk for STD.

Reporting Sexually Transmitted Diseases

The accurate identification and timely reporting of STD is an integral part of a successful disease control effort. All clinicians, health facilities, and laboratories should report, within 48 hours, STD diagnoses and positive STD laboratory results to their local or state health departments according to established policy.

All test results are held in the strictest confidence. Before any follow-up of a positive test is conducted, STD program representatives will consult with physicians and/or health facilities to verify the diagnosis and treatment. In this way, disease trends may be accurately monitored, effective treatments maintained, and resources appropriately directed in the community.

In addition, most local health departments offer STD patient referral and follow-up services through Disease Intervention Specialists (DIS). Upon clinician request, priority patients will be followed to ensure a satisfactory medical disposition.

Management of Sex Partners

Critical in the process of controlling/preventing STD is the patient's cooperation in completing therapy, and observing follow-up requirements. The patient must also help prevent reinfection by his/her sex partner(s) by assuring that each is promptly referred, evaluated, and given any indicated therapeutic or preventive treatment. STD patient educational counseling and the management of sex partner referral by the Disease Intervention Specialist are key components of this intervention process.

Local health departments in most communities offer the services of DIS. Physicians and other community health personnel are encouraged to use DIS services to ensure complete patient therapeutic management.

Confidentiality, effective patient education, and social sensitivity are some of the problems solved by Disease Intervention Specialists. In addition, this health practitioner specializes in referring the usually asymptomatic sex partners for an STD examination and/or treatment. These asymptomatic patients frequently contribute to the infectious reservoir within the community and are the most difficult to convince that they need to be examined for STD. Patients are often ineffective in referring their asymptomatic sex partners for the needed examination. The DIS is a public health professional, trained in the skills required to be successful in dealing with asymptomatic individuals.

☆U.S. Government Printing Office: 1985-746-149/21028 Region IV

DEPARTMENT OF
HEALTH & HUMAN SERVICES
Public Health Service
Centers for Disease Control
Atlanta GA 30333

Official Business
Penalty for Private Use $300

BULK RATE
POSTAGE & FEES PAID
PHS / CDC
Permit No. G 284

S *HCRH NEWV75 8129
DR VERNE F NEWHOUSE
VIROLOGY DIVISION
CID
7-B14

X

HHS Publication No. (CDC) 85-8017