TABLE OF CONTENTS

Section III: Sexually Transmitted Infection Screening and Treatment Guidelines

1. Introduction
2. Chlamydia
3. Condyloma Acuminata/HPV
4. Gonorrhea
5. Hepatitis B (HBV)
6. Hepatitis C (HCV)
7. Herpes Simplex Virus (HSV)
8. Human Immunodeficiency Virus (HIV)
9. Syphilis
10. Trichomoniasis

SEXUALLY TRANSMITTED INFECTIONS AND HIV SCREENING INTRODUCTION

The Maryland Family Planning and Reproductive Health Program Sexually Transmitted Infection Treatment Guidelines are meant to serve as templates that family planning delegate agencies may use and or adapt as desired for their clinic protocols, client education, consent, forms and other documents. All clients must receive thorough and accurate counseling on STIs including Human Immunodeficiency Virus (HIV). Evaluation and management of STIs should be offered to both women and men. Clients must be informed of state policies concerning mandatory STI reporting and partner notification requirements.

All delegate agencies must follow the most current Centers for Disease Control and Prevention (CDC) Sexually Transmitted Diseases Treatment Guidelines (CDC Guidelines) and their local health department and/or Maryland State Department of Health and Mental Hygiene, Infectious Disease and Environmental Health Administration reporting requirements. Information on reportable disease is available on the Infectious Disease and Environmental Health Administration's (IDEHA) website at:

http://ideha.dhmh.maryland.gov/SitePages/what-to-report.aspx

The most current Centers for Disease Control and Prevention (CDC) Sexually Transmitted Diseases Treatment Guidelines may be accessed from the CDC's website at:

http://www.cdc.gov/std/treatment/

The Maryland Family Planning and Reproductive Health Program collaborate with the Infectious Disease and Environmental Health Administration's Center for Sexually Transmitted Infections in the development of STI screening and treatment guidelines for delegate agency family planning providers.

Chlamydia
(*C. trachomatis)*

I. INTRODUCTION

Chlamydial genital infection is the most prevalent STI in the United States and prevalence is highest in persons aged ≤25 years. Important sequelae can result from *C. trachomatis (Ct)* infection in women, the most serious of which include Pelvic Inflammatory Disease (PID), ectopic pregnancy, and infertility.

Asymptomatic infection is common among both men and women. Annual screening of all sexually active women aged 24 years and under is recommended, as is screening of older women with risk factors (infected partner, symptoms, history of STI or multiple partners in the last year).

II. HISTORY AND EVALUATION

A. History may include:
   1. Previous C. *trachomatis* infection
   2. Recent change in sexual partner
   3. Partner with symptoms of *C.trachomatis*
   4. Lack of STI protection (condom use)
   5. Report of multiple sexual partners
   6. Symptoms of C. trachomatis
   7. Infected partner

B. Symptoms may include (Note: men and women with *C. trachomatis* infection may not have symptoms until the infection is advanced. Symptoms may also be similar to that of Gonorrhea):
   1. In Women
      a. Dysuria
      b. Abdominal Pain
   2. In Men
      a. Dysuria
      b. Epididymitis
      c. Testicular Pain

C. Physical exam findings may include
   1. In women: Mucopurulent, endocervical discharge, with edema, erythema and endocervical bleeding
   2. In men: Discharge from penis

III. DIAGNOSIS

Diagnosis is made by positive urine, urethral, cervical, vaginal or rectal swab preferably using Nucleic Acid Amplification Test (NAAT).

IV. TREATMENT

A. Clients with a positive test result or patients with symptoms and/or sexual contact with confirmed positive partner should be treated following the most recent CDC Sexually Transmitted Diseases Treatment Guidelines which can be accessed at CDC website:
http://www.cdc.gov/std/treatment/default.htm
B. To maximize compliance with recommended therapies, medications for chlamydial infections should be dispensed on site, and the first dose should be directly observed.

V. SPECIAL TREATMENT CONSIDERATIONS

A. Doxycycline, ofloxacin, and levofloxacin are contraindicated in pregnant women. Azithromycin is safe and effective. Repeat testing 3 to 4 weeks after completion of therapy with the following regimens is recommended for all pregnant women to ensure therapeutic cure. Pregnant women diagnosed with a chlamydial infection during the first trimester should not only receive a test 3-4 weeks after completion of treatment to document chlamydial eradication, but be retested 3 months after treatment to evaluate for re-infection.
B. Of note is that non-pregnant clients do not need a "test of cure" testing (see "Follow-up" section below).

VI. CLIENT EDUCATION/COUNSELING

A. Sexual partner and any sexual contacts in the last 60 days preceding onset of symptoms or diagnosis must be informed of possible infection and provided with written materials about the importance of seeking evaluation for any symptoms suggestive of complications (e.g., testicular pain in men and pelvic or abdominal pain in women).
B. Timely treatment of sex partners is essential for decreasing the risk for re-infection.
C. Patients should be instructed to abstain from sexual intercourse until they and their sex partners have completed treatment. Abstinence should be continued until 7 days after a single-dose regimen or after completion of a multiple-dose regimen.
D. Provide a medication information sheet
E. Provide STI education and information
F. Provide current educational information on C. trachomatis
G. Provide contraceptive information, as indicated
H. Encourage consistent and correct condom use to prevent STIs

VII. FOLLOW-UP

A. Except in pregnant women, test-of-cure (i.e., repeat testing 3–4 weeks after completing therapy) is **not** advised for persons treated with the recommended or

alterative regimens, unless therapeutic compliance is in question, symptoms persist, or re-infection is suspected.

B. Clients that had a chlamydial infection should be retested approximately 3 months after treatment to ensure that they are not re-infected. If retesting was not done at 3 months, clinicians should retest whenever the client next presents for medical care in the 12 months following initial treatment.
C. The following patients should be referred to the medical director or other provider as appropriate:
    1. Clients with multiple re-infections
    2. Pregnant clients – (refer to prenatal care)

VIII. REPORTING

Maryland law requires provider and laboratory reporting of all cases of chlamydial infection. Reporting instructions and forms can be accessed via the Maryland DHMH Infectious Disease and Environmental Health Administration (IDEHA) website: http://ideha.dhmh.maryland.gov/SitePages/Home.aspx

REFERENCES:

1. CDC: Sexually Transmitted Disease Treatment Guidelines, 2010

2. DHMH Infectious Disease and Environmental Health Administration: Diseases, Conditions, Outbreaks, & Unusual Manifestations Reportable by Maryland Health Care Providers http://ideha.dhmh.maryland.gov/what-to-report.aspx

CONDYLOMATA ACUMINATA

I. INTRODUCTION

Condylomata acuminata or genital warts usually are caused by human papillomavirus (HPV) type 6 or 11. HPV infections of the genital tract are the most common sexually transmitted viral infections in the United States.

Genital warts are usually asymptomatic and can be found most commonly at the introitus in women, under the foreskin of the uncircumcised penis, and on the shaft of the circumcised penis. Genital warts can also occur at multiple sites in the anogenital epithelium or within the anogenital tract (e.g., cervix, vagina, urethra, perineum, perianal skin, and scrotum).

An important part of the clinical management is helping the client understand that the disease is a lifelong infection that may recur at any time and at any anatomic site.

II. HISTORY AND EVALUATION

A. History may include:
   1. Recent change in sexual partner
   2. Partner symptoms of STIs
   3. Multiple partners
   4. Lack of STI protection (lack of condom use)

B. Symptoms may include:
   1. Painless wart-like lesions in perineal area
   2. Burning, pain or priuritis

C. Physical exam findings may include: Flat, papular, or pedunculated growths on the genital mucosa

III. DIAGNOSIS

Diagnosis is usually made based on visual inspection by clinician. Biopsy may be indicated in cases unresponsive to treatment or if there is other reason for uncertainty in the diagnosis.

IV. TREATMENT

A. Provide treatment if client has signs or symptoms consistent with condyloma acuminata following the most recent CDC STD Treatment Guidelines found at: http://www.cdc.gov/std/treatment/default.htm

B. The primary goal of treatment is the removal of symptomatic warts – removing the warts does not remove the virus. Treatment can induce wart-free periods in most clients. Secondary infection should be treated as it facilitates the growth or spread of genital warts. The persistence or recurrence of HPV disease is very common following completion of all treatment modalities. Spontaneous regression of genital warts often occurs.

V. SPECIAL TREATMENT CONSIDERATIONS

A. The safety of podofilox and imiquimod during pregnancy has not been established.
B. Clients with cervical, vaginal, anal and/or large vulvar warts should be referred for site medical director or qualified physician for consultation and management.

VI. PATIENT EDUCATION AND COUNSELING

A. All female clients with genital warts should have a Pap smear at least once a year.
B. Clients with genital warts should be made aware that they are infectious to sexual partners.
C. Examination of sex partners is not necessary, however they may be referred for examination for possible genital warts and other STIs. There is no evidence to indicate that reinfection causes recurrences.
D. The regular use of condoms is recommended to help reduce transmission.

VII. FOLLOW-UP

Recurrent lesions following apparent complete removal and spontaneous remission are common; subsequent treatment may be necessary.

REFERENCES

CDC. Sexually Transmitted Diseases Treatment Guidelines. 2010.

Gonorrhea
(*N. gonorrhoeae)*

I. INTRODUCTION

Gonorrhea is a sexually transmitted disease caused by *Neisseria gonorrhoeae*, a gram-negative, intracellular diplococcus. It most commonly involves the cervix, urethra, rectum and pharynx. Complications include pelvic inflammatory disease, ectopic pregnancy, infertility, and bartholinitis in women; prostatitis, epididymitis and proctitis in men. Gonorrhea may also invade the bloodstream leading to disseminated gonococcal infection, which is characterized by arthritis and skin lesions. If gonorrhea is transmitted to the newborn, it may result in corneal perforation and blindness.

Gonorrheal genital infection is the second most reported STI in the United States and prevalence is highest in persons less than 25 years of age. All clients found to have gonorrhea should be tested for other STIs (chlamydia, syphilis, HIV).

II. HISTORY AND EVALUATION

A. History may include:
   1. Previous gonococcal infection
   2. Recent change in sexual partner
   3. Partner with symptoms of *N. gonorrhoeae*
   4. Lack of STI protection (condom use)
   5. Report of multiple sexual partners
   6. Symptoms of gonococcal infection
   7. Reports of engaging in commercial sex work
   8. Infected partner

B. Symptoms may include (Note: men and women with *N. gonorrhoeae* infection may not have symptoms until the infection is advanced. Symptoms may also be similar to that of *C. trachomatis*):
   1. In women:
      a. Dysuria
      b. Abdominal and/or pelvic pain
   2. In men:
      a. Dysuria
      b. Epididymitis
      c. Testicular Pain

C. Physical exam findings may include
   1. In women:
      a. Mucopurulent, endocervical discharge, with edema, erythema and endocervical bleeding
      b. Tenderness, guarding or rigidity on abdominal palpation
      c. Enlargement, tenderness and/or redness of the Skene's glands, urethra and Bartholin's glands
      d. Cervical motion tenderness
   2. In men:

a. Discharge from penis
b. Pain on testicular palpation

III. DIAGNOSIS

Diagnosis is made by positive urine, urethral, cervical, vaginal or rectal swab preferably using Nucleic Acid Amplification Test (NAAT).

IV. TREATMENT

A. Clients with a positive test result or patients with symptoms and/or sexual contact with confirmed positive partner should be treated following the most recent CDC Sexually Transmitted Diseases Treatment Guidelines which can be accessed at CDC website:
http://www.cdc.gov/std/treatment/default.htm
B. Patients infected with *N. gonorrhoeae* frequently are coinfected with *C. trachomatis*so these patients should also be treated routinely with a regimen that is effective against uncomplicated genital *C. trachomatis* infection
C. To maximize compliance with recommended therapies, medications for gonoccocal and chlamydial infections should be dispensed on site, and first dose should be directly observed.

V. SPECIAL TREATMENT CONSIDERATIONS

A. Doxycycline, ofloxacin, and levofloxacin are contraindicated in pregnant women. Azithromycin is safe and effective. Repeat testing 3 to 4 weeks after completion of therapy with the following regimens is recommended for all pregnant women to ensure therapeutic cure. Pregnant women diagnosed with a gonoccocal infection during the first trimester should not only receive a test 3-4 weeks after completion of treatment to document eradication, but be retested 3 months after treatment to evaluate for re-infection.
B. Of note is that non-pregnant clients do not need a “test of cure” testing (see “Follow-up” section below).

VI. CLIENT EDUCATION/COUNSELING

A. Sexual partner and any sexual contacts in the last 60 days preceding onset of symptoms or diagnosis must be informed of possible infection and provided with written materials about the importance of seeking evaluation for any symptoms suggestive of complications (e.g., testicular pain in men and pelvic or abdominal pain in women).
B. Timely treatment of sex partners is essential for decreasing the risk for re-infection.
C. Patients should be instructed to abstain from sexual intercourse until they and their sex partners have completed treatment. Abstinence should be continued

until 7 days after a single-dose regimen or after completion of a multiple-dose regimen.

D. Provide a medication information sheet
E. Provide STI education and information
F. Provide current educational information on *N. gonorrhoeae*
G. Provide contraceptive information, as indicated
H. Encourage consistent and correct condom use to prevent STIs

VII. FOLLOW-UP

A. Except in pregnant women, test-of-cure (i.e., repeat testing 3–4 weeks after completing therapy) is **not** advised for persons treated with the recommended or alterative regimens, unless therapeutic compliance is in question, symptoms persist, or re-infection is suspected.
B. Clients that had a *N. gonorrhoeae* infection should be retested approximately 3 months after treatment to ensure that they are not re-infected. If retesting was not done at 3 months, clinicians should retest whenever the client next presents for medical care in the 12 months following initial treatment.
C. The following patients should be referred to the medical director or other provider as appropriate:
    1. Clients with multiple re-infections
    2. Pregnant clients – (refer to prenatal care)

VIII. REPORTING

Maryland law requires provider and laboratory reporting of all cases of *N. gonorrhoeae* infections. Reporting instructions and forms can be accessed via the Maryland DHMH Infectious Disease and Environmental Health Administration (IDEHA) website: http://ideha.dhmh.maryland.gov/SitePages/Home.aspx

REFERENCES:

1. CDC: Sexually Transmitted Disease Treatment Guidelines, 2010

2. DHMH Infectious Disease and Environmental Health Administration: Diseases, Conditions, Outbreaks, & Unusual Manifestations Reportable by Maryland Health Care Providers http://ideha.dhmh.maryland.gov/what-to-report.aspx

HEPATITIS B

I. INTRODUCTION

Hepatitis B is caused by infection with the Hepatitis B virus (HBV). In 2008, there were more than 4,000 incident cases in the United States. Over one million chronically infected HBV carriers are living in the Unites States. Most cases of acute viral hepatitis are asymptomatic. Some experience a flu-like illness, and a few are jaundiced.

The hepatitis B virus (HBV) is usually spread by transfer of blood or body fluids. Chronic carriers are at risk of infecting their offspring and household and sexual contacts. Infectious persons test positive for hepatitis B surface Antigen (HBsAg).

Preventing HBV transmission during early childhood is important because of the high likelihood of chronic HBV infection and chronic liver disease that occurs when children less than five years of age become infected. Testing to identify pregnant women who are hepatitis B surface antigen (HBsAg) positive, and providing their infants with immunoprophylaxis, effectively prevents HBV transmission during the perinatal period.

Pregnancy is not a contraindication to hepatitis B vaccination or hepatitis B immunoglobulin administration.

In addition to routine infant hepatitis B vaccination and the wide-scale implementation of vaccination programs for adolescents, vaccination of adults at high risk for HBV has become a priority in the strategy to eliminate HBV transmission in the United States.

Blood, sera, saliva, semen, and vaginal fluids have been shown to be infectious. Clinic staff should follow DHMH Infection Control Guidelines and standard precautions for handling blood, specimens, and instruments.

II. SCREENING, VACCINATION AND BV PROPHYLAXIS

A. Clients at risk for HBV infection should be offered screening for the presence of HBsAg (Appendix A).
B. Clients who are at risk for HBV infection (Appendix A) and who test negative are candidates for the vaccine series.
C. Vaccination may be received during pregnancy. For more information regarding perinatal HBV prophylaxis and vaccination, visit the DHMH – Infectious Disease and Environmental Health Administration, Immunization Division, Maryland Perinatal Hepatitis B Program website at http://ideha.dhmh.maryland.gov/IMMUN?maryland-perintal -hepatitis-b-program.aspx. Or contact the Maryland Perinatal Hepatitis B Prevention Program, DHMH – Immunization Division at 410-767-6679 or 410-767-5716.
D. Clients who have had sexual contact with acutely infected persons should receive HBV immunoglobulin followed by the vaccine series.

III. MANAGEMENT AND CLIENT EDUCATION/COUNSELING

A. Clients who test positive (presence of HBsAg) should be referred for a medical evaluation which includes liver function profile and complete hepatitis work-up. These clients may be candidates for treatment.
B. Clients who test positive should receive education and counseling on the implications of the chronic carrier state, and on the means to prevent transmission to sexual contacts and household members. If the client is pregnant, she should be referred to prenatal care and receive information on perinatal HBV prophylaxis.

IV. HEPATITIS B AND CONTRACEPTIVE MANAGEMENT

A. Combined hormonal contraception should not be given to clients with active viral hepatitis or to women who remain positive for HBsAg and have abnormal liver function studies (MEC category 3/4 for initiation, category 2 for continuation).
B. Combined hormonal contraception may be considered for clients with a history of HBV infection when recommended by a medical doctor who agrees to monitor the client for evidence of complications of her chronic disease (MEC category 1 for initiation or continuation).
C. Hepatitis B is not a contraindication for other forms of contraception.

V. REPORTING

Maryland law requires provider and laboratory reporting of all cases of Hepatitis B infection. Reporting instructions and forms can be accessed via the Maryland DHMH Infectious Disease and Environmental Health Administration (IDEHA) website: http://ideha.dhmh.maryland.gov/SitePages/Home.aspx

VI. FOLLOW-UP

A. Sexual contacts and household members of the woman with chronic HBV infection should be tested, and susceptible persons should receive the vaccine series.
B. Persons in high-risk occupations should receive immunization in connection with their employment (Appendix A, Nos. 6, 7, and 8).

REFERENCES

1. Sexually Transmitted Diseases Treatment Guidelines. 2010

2. US Medical Eligibility Criteria for Contraceptive Use, 2010. Adapted from the World Health Organization Medical Eligibility Criteria for Contraceptive Use, 4th Edition. MMWR, May 28, 2010; Vol 59.

3. National Center for Infectious Diseases. Interpretation of the Hepatitis B Panel. 2006.

4. Cunningham FG et al. Williams Obstetrics. 22nd Ed., McGraw-Hill, New York, 2005

5. Hatcher RA et al. Contraceptive Technology. 19th Revised Edition. Ardent Media, Inc., New York, 2007.

6. National Center for Health Statistics. Health, United States, 2010: With Special Feature on Death and Dying. Hyattsville, MD. 2011. Library of Congress Catalog Number 76–641496 For sale by Superintendent of Documents U.S. Government Printing Office Washington, DC 20402

7. Tierney LM Jr. et al. Current Medical Diagnosis and Treatment. 44th Ed., McGraw-Hill, New York, 2005

APPENDIX A

RISK FACTORS FOR HEPATITIS B

1. History of injection drug use
2. History of sexually transmitted diseases, especially HIV
3. Household contact with an HBV carrier
4. Multiple sexual partners
5. Sexual partners including bisexual men and intravenous drug users
6. Work in a health care or public safety field
7. Work or residence in an institution for the developmentally disabled
8. Work or residence in a detention facility
9. Receipt of blood components for medical indications, especially hemodialysis patients
10. Immigrants/refugees or travelers from areas of high HBC endemicity

APPENDIX B

INTERPRETATION OF THE HEPATITIS B PANEL

TESTS	RESULTS	INTERPRETATION
HBsAg anti-HBc anti-HBs	negative negative negative	susceptible
HBsAg anti-HBc anti-HBs	negative positive positive	immune due to natural infection
HBsAg anti-HBc anti-HBs	negative negative positive	immune due to hepatitis B vaccination
HBsAg anti-HBc IgM anti-HBc anti-HBs	positive positive positive negative	acutely infected
HBsAg anti-HBc IgM anti-HBc anti-HBs	positive positive negative negative	chronically infected
HBsAg anti-HBc anti-HBs	negative positive negative	four interpretations possible*

*

1. May be recovering from acute HBV infection.
2. May be distantly immune and test not sensitive enough to detect very low level of anti-HBs in serum.
3. May be susceptible with a false positive anti-HBc.
4. May be undetectable level of HBsAg present in the serum and the person is actually a carrier.

HEPATITIS C

I. INTRODUCTION

Hepatitis has many causes including chemical and infectious agents. The viral agents are now listed from hepatitis A to hepatitis G.

The hepatitis C virus (HCV) was first identified as a distinct virus in 1988. It is the most prevalent of all the bloodborne viruses. HCV used to be the primary causative agent of post-transfusion hepatitis and remains the most frequent cause of endstage liver disease requiring transplant.

The hepatitis C virus can be transmitted by blood, sexual and perinatal routes. Since 1992, blood and blood products have been screened for HCV, and transfusion associated transmission is now very rare. Currently, intravenous drug use is the most common route of blood borne transmission. Other risk groups for HCV include hemodialysis patients, sexual contacts of infected persons, persons with multiple sex partners, infants born to infected mothers and health care workers.

The incubation period for HCV is eight to nine weeks. About one third of newly infected people are asymptomatic. When present, symptoms include fatigue, jaundice, nausea and vomiting and abdominal pain. Chronic HCV infection develops in 70% - 80% of infected persons, which is often a subclinical disease and can lead to cirrhosis and hepatocellular carcinoma after decades of recurrent attacks on the liver. More than 4 million people in the US are believed to have been infected with HCV.

HCV infection occurs among people of all ages, but the greatest incidence of new infection occurs in those in their twenties and thirties. Alcohol worsens the outcome, possibly by increasing viral replication or by increasing the susceptibility of liver cells to further injury from HCV.

Alpha interferon, with or without Ribaviron, is the treatment most widely used for HCV. Patient adherence is critical to success of treatment of HCV as side effects, especially depression cause discontinuation in up to 15% of patients.

Current guidelines to reduce the risk of health care workers becoming infected with bloodborne diseases are especially important for the prevention of occupationally transmitted HCV because: it is the most prevalent of bloodborne viruses in the United States; it remains asymptomatic in most infected persons for long periods of time, decreasing the likelihood of clinical recognition; it can be transmitted by needle-stick; and there is no vaccine or postexposure prophylaxis for HCV. The strategy is to treat all clients as though they have blood-borne disease that can be infectious to others. The principles of Standard Precautions serve to protect the client as well.

II. SCREENING

A. The diagnosis of hepatitis C is based on the presence of serum antibody (anti-HCV). Target amplification techniques such as PCR are used to measure HCV

RNA levels (viral load). Currently available tests require clinical interpretation, as they do not distinguish between new infection, chronic infection, severe infection, or resolved infection. Individuals should be evaluated for the severity of liver damage because this virus is known to have irregular pulses of activity and inactivity.

B. Clients at high risk should be offered screening for HCV (Appendix).

III. MANAGEMENT AND CLIENT EDUCATION/COUNSELING

A. Clients found to test positive for serum antibody (anti-HCV) should be referred for medical evaluation and possible treatment.
B. To protect their liver from further harm, HCV-positive individuals should be advised to avoid using alcohol and taking new medication (including over-the-counter and herbal supplements) until they have consulted their physician.
C. HCV-positive individuals should be vaccinated against hepatitis A and hepatitis B if they are not immune.
D. To reduce transmission to others, these HCV-positive individuals should be advised not to share any personal items that may have blood on them (e.g., toothbrushes and razors).

IV. HEPATITIS C AND CONTRACEPTIVE MANAGMENT

A. Combined hormonal contraception should not be given to clients with active viral hepatitis (MEC category 3/4 for initiation, category 2 for continuation).
B. Combined hormonal contraception can be considered for clients with chronic HCV or who are carriers (MEC category 1 for initiation or continuation).
C. HCV is not a contraindication for other forms of contraception.

V. REPORTING

Maryland law requires provider and laboratory reporting of all cases of Hepatitis B infection. Reporting instructions and forms can be accessed via the Maryland DHMH Infectious Disease and Environmental Health Administration (IDEHA) website: http://ideha.dhmh.maryland.gov/SitePages/Home.aspx

VI. FOLLOW-UP

A. Sexual contacts and household members of the woman with chronic HBV infection should be tested, and susceptible persons should receive the vaccine series.

REFERENCES

1. Sexually Transmitted Diseases Treatment Guidelines. 2006

2. ACOG. Precis: Primary and Preventive Care. 3rd Ed., 2004

3. Recommendations for Prevention and Control of Hepatitis C Virus (HCV) Infection and HCV-Related Chronic Disease. MMWR, Vol.47, RR-19, October 16,1998.

4. US Medical Eligibility Criteria for Contraceptive Use, 2010. Adapted from the World Health Organization Medical Eligibility Criteria for Contraceptive Use, 4th Edition. MMWR, May 28,2010; Vol 59.

5. MC Ghany et al. Diagnosis, management, and treatment of Hepatitis C: An update . Hepatology April, 2009.

6. Tierney LM Jr. et al. Current Medical Diagnosis and Treatment. 44th Ed., McGraw-Hill, New York, 2005

7. NIH. Management of hepatitis C: 2002 NIH Consensus State of the Science Statements. 2002 Jun 10-12; 19(3) 1-46.

APPENDIX

GUIDELINES FOR HCV SCREENING

In 2004, the USPSTF issued its recommendations on screening for hepatitis C virus (HCV) infection. On the basis of its review of the evidence, the Task Force recommended against routine screening for HCV infection in asymptomatic adults who are not at increased risk (a grade "D" recommendation) and found insufficient evidence to recommend for or against routine screening for HCV infection in high-risk adults (a grade "I" recommendation).

High-risk adults include:

- Persons who have injected illegal drugs, including those who injected one or a few times many years ago and do not consider themselves as drug users
- Persons who received tattoos in prison
- Persons with selected medical conditions, including
  - Persons who received clotting factor concentrates produced before 1987
  - Persons who were ever on chronic (long-term) hemodialysis
  - Persons with persistently abnormal alanine aminotransferase levels
- Prior recipients of transfusions or organ transplants, including
  - Persons who were notified that they received blood from a donor who later tested positive for HCV infection
  - Persons who received a transfusion or blood or blood components before July 1992
  - Persons who received an organ transplant before July 1992

Routine testing for HCV infection should be performed on the following individuals based on a recognized exposure:

- Health care, emergency medical, and public safety workers after needlesticks, sharps, or mucosal exposures to HCV-positive blood
- Children born to HCV-positive women

Persons for whom routine HCV testing is not recommended unless they have risk factors for infection:

- Health care, emergency medical, and public safety workers
- Pregnant women
- Household (nonsexual) contacts of HCV-persons
- The general population

Persons for whom routine HCV testing is of uncertain need:

- Recipients of transplanted tissue (e.g., corneal, musculoskeletal, skin, ova, sperm)
- Intranasal cocaine and other noninjecting illegal drug users
- Persons with a history of tattooing or body piercing
- Persons with a history of multiple sex partners or sexually transmitted diseases
- Long-term steady sex partners of HCV-positive persons

Source: U.S. Preventive Services Task Force. Screening for hepatitis C in adults: recommendation statement. *Ann Intern Med* 2004; 140(6):462-4.

HERPES SIMPLEX VIRUS

I. INTRODUCTION

Herpes genitalis is a sexually transmitted disease caused by the herpes simplex virus (HSV), a DNA virus that has two serotypes: HSV-1 and HSV-2. HSV-1 is responsible for virtually all cases of oral herpes and for approximately 50% of the first episode of genital infections. HSV-2 is the principle serotype that causes recurrent or subclinical genital infection. Genital herpes infections may be classified as primary, nonprimary, and recurrent.

A. Primary infection represents the individual's first exposure to HSV and is characterized by constitutional symptoms and multiple painful vesicles on the vulva, vagina, and/or cervix. Lesions may occur between 2 and 14 days following exposure to infectious virus. These lesions tend to resolve within 3 weeks. Shedding of the virus from the lower genital tract of women occurs during the first 3 months after primary genital lesions have healed, although subclinical (asymptomatic) viral shedding can continue indefinitely.
B. A nonprimary herpes episode is a HSV infection that does not behave clinically like a symptomatic primary infection. There are fewer systemic manifestations, less pain, a briefer duration of viral shedding and a more rapid resolution than primary herpes. These episodes may be the result of an initial HSV-2 infection in the presence of partially protective HSV-1 antibodies.
C. Recurrent herpes infections typically produce minimal constitutional symptoms, fewer lesions, and more rapid resolution. Recurrent herpes is caused by reactivation of latent viral infection and is manifested by a characteristic prodrome followed by a limited vesicular eruption. Shedding of the virus from the genital tract without symptoms or signs of clinical lesions (subclinical shedding) is episodic and last on the average of 1.5 days. Subclinical shedding makes this viral STD difficult to control and prevent.

Neonatal HSV infection is one of the most significant sequelae of HSV infection in an adult woman. Most neonatal HSV infection is the consequence of delivery of a neonate through an infected birth canal. The virus either invades the uterus following membrane rupture or contacts the fetus at delivery. Neonatal infection may be localized to the skin, eye, and mouth; involve the central nervous system or be disseminated.

Studies indicate a 30-50% risk of neonatal infection with a primary maternal infection near the time of delivery, but low risk (<1%) among women with recurrent maternal infection at term, or for those who acquire genital herpes during the first half of pregnancy. Neonatal mortality is 30% with disseminated disease and 4% with CNS disease. Approximately 20% of survivors of neonatal herpes have long-term neurologic sequelae.

II. DIAGNOSIS

A clinical diagnosis of HSV infection may be confirmed by viral culture from skin lesions. However, there is a false-negative rate of 25% in primary infections. Culture of vulvar lesions has a low sensitivity, particularly in recurrent outbreaks or as lesions begin to heal.

A. CDC guidelines recommend confirming the diagnosis of HSV with laboratory testing (culture or PCR or serology).
B. CDC guidelines recommend determination of HSV serotype (HSV – I or HSV – 2) to aid in counseling.
C. Clients with a new diagnosis of (or suspicion for) a STI should be offered concurrent STI screening.

III. TREATMENT

A. Clients with a positive test result or patients with symptoms and/or sexual contact with confirmed positive partner should be treated following the most recent CDC Sexually Transmitted Diseases Treatment Guidelines which can be accessed at CDC website: http://www.cdc.gov/std/treatment/default.htm
B. Systemic antiviral drugs partially control the symptoms and signs of herpes episodes when used to treat first clinical episodes and recurrent episodes or when used as daily suppressive therapy. However, these drugs neither eradicate latent virus nor affect the risk, frequency, or severity of recurrences after the drug is discontinued.

IV. SPECIAL TREATMENT CONSIDERATIONS

A. The decision to use suppressive therapy depends on the frequency and severity of recurrent episodes. Therapy management must be individualized and should be assessed yearly. Prolonged therapy may be warranted.
B. Once-daily valacyclovir suppressive therapy significantly reduces the risk of transmission of genital HSV among heterosexual HSV-2 discordant couples.
C. When exposed to HIV, HSV-2 seropositive persons are at increased risk for HIV acquisition. Patients should be informed that suppressive antiviral therapy does not reduce the increased risk for HIV acquisition associated with HSV-2 infection
D. Acyclovir treatment late in pregnancy reduces the frequency of cesarean sections among women who have recurrent genital herpes by diminishing the frequency of recurrences at term
E. No data support the use of antiviral therapy among HSV seropositive women without a history of genital herpes.

V. MANAGEMENT AND CLIENT COUNSELING/EDUCATION

A. Advise the client to abstain from sexual contact during the prodromal period and
B. while lesions are present.
C. Advise the client to use latex condoms during asymptomatic periods to avoid
D. transmission of the virus.

E. Clients with HSV should inform their current partners that they have HSV and inform
F. future partners before initiating a sexual relationship.
G. Sex partners of HSV-infected persons should be advised that they might be infected even if they have no symptoms.
H. Reproductive-aged clients should be counseled regarding the risks of neonatal herpes, including the recommendation to avoid exposure to HSV in pregnancy and possible need for chemoprophylaxis in pregnancy.

VI. FOLLOW-UP

The client should be educated that if she becomes pregnant she should inform her obstetric health care provider of her past history of HSV.

REFERENCES

1. Sexually Transmitted Diseases Treatment Guidelines. 2010

2. ACOG. Health Care for Adolescents. 2003

3. Hatcher RA et al. Contraceptive Technology. 19th Revised Edition. Ardent Media, Inc., New York, 2007

4. ACOG. Management of Herpes in Pregnancy. Practice Bulletin #82, June 2007

5. ACOG. Gynecologic Herpes Simplex Virus Infection. Practice Bulletin #57, November 2004

6. Corey L, Wald A, Patel R et al. Once-Daily Valacyclovir to Reduce the Risk of Transmission of Genital Herpes. N Engl J Med. 2004;350: 11-20

HUMAN IMMUNODEFICIENCY VIRUS (AIDS/HIV TESTING)

I. INTRODUCTION

HIV is an RNA retrovirus that causes a chronic illness characterized by destruction of CD4 lymphocytes; over the course of years, the immune system is no longer able to replace these cells, and immune suppression leads to illness and death. The asymptomatic period between infection and immune suppression varies. With effective therapies, newly diagnosed individuals may have healthy lives lasting more than 25 years prior to progression to Acquired Immunodeficiency Syndrome (AIDS).

AIDS is one of the leading causes of death among women of reproductive age. The etiologic agent of AIDS is the human immunodeficiency virus (HIV). The transmission of HIV is by three primary routes: intimate contact with bodily secretions of infected individuals, exposure to blood or blood products infected with HIV, and perinatally from an infected mother to her fetus or infant. In women, the use of intravenous drugs, sexual contact with an infected partner and exposure to blood or body fluids from an infected person are the typical routes of transmission.

The state of Maryland has one of the highest rates of HIV/AIDS in women in the United States. In addition, perinatal HIV transmission is the most common route of HIV infection in children and is now the source of almost all AIDS cases in children in the United States. With early diagnosis of infected mothers and use of antiretroviral therapy, the transmission of HIV from mother to infant can be reduced to 2% or less. Although HIV is disproportionately found in the African-American and Hispanic communities and among poor, urban families, it is present across the state, in rural as well as urban areas, affluent as well as impoverished families.

Strategies available for dealing with HIV infection are primary prevention, through education that leads to changes in behavior, and secondary prevention through the identification of infected individuals and selected drug therapy to retard/prevent progression of the HIV infection.

II. HIV DISEASE

A. HIV disease is a progression of immune system damage leading to illness and/or death due to opportunistic infections, wasting, or neoplasms.
B. The time it takes form HIV infection to the low CD4 lymphocyte count that define AIDS is called the incubation period.
C. Two to four weeks after exposure to HIV, an individual may experience an acute mononucleosis-like syndrome. Symptoms include low-grade fever, fatigue, rash, myalgia, nausea/vomiting and diarrhea. Generalized lymphadenopathy may be seen even in women who are immune competent.
D. The period of asymptomatic illness, during which time the immune system is still functioning, varies depending on when the diagnosis is made, in relation to when the infection began.
E. The median incubation period from HIV infection until development of AIDS is estimated at approximately 10 years for young adults.

F. The period from development of AIDS to HIV-related death is called the AIDS survival period.
G. Women with declining immune competence may experience persistent or frequently recurring vaginal yeast infections and have more aggressive cervical changes when HPV is present. Women who develop pelvic inflammatory disease may be more likely to develop tubo-ovarian abscesses.

III. TESTING AND DIAGNOSIS

Both the incubation period and the AIDS survival period can be prolonged with the effective use of antiretroviral therapy and bacterial prophylaxis. Early knowledge of HIV infection can optimize treatment and, by extension, the health of the individual.

All clients should be offered the HIV screening test, because a substantial percentage of infected women (up to 40% in one study) are not aware that they are at risk.

A. HIV antibodies can be detected in most individuals 6-12 weeks after exposure, many individuals are only diagnosed late in the course of infection.
B. The use of risk factors is no longer an effective way to identify who should be tested.
C. The Centers for Disease Control and Prevention recommend that HIV testing become part of routine health care for all adolescents and adults, and that all pregnant women be tested.
D. All gynecologic clients are to be offered an HIV test.
E. Education regarding HIV infection and the course of disease, risk behaviors, prevention of sexual transmission, and how the test will be performed, should be provided prior to testing.
F. HIV testing should only occur with the knowledge and consent of the person tested. Anyone has the right to refuse to be tested.
G. Standard testing procedures include:
    1. An initial screening test (enzyme immunoassay or EIA) followed by
    2. A confirmatory Western blot (WB) or an immunofluorescent assay (IFA).
H. The HIV test is only considered positive when both the EIA and the WB are positive.
I. False positive antibody tests can occur for any of several reasons, such as pregnancy antibodies or an autoimmune disease.
J. Indeterminate results are reported when the WB/IFA shows abnormalities not consistent with an HIV diagnosis. This result may indicate someone is newly infected and in the process of sero-converting, or may be a response to another health problem.
K. Indeterminate tests should be repeated, usually in 6 to 12 weeks.

IV. MANAGEMENT AND CLIENT EDUCATION/COUNSELING

A. At the initial family planning visit, all clients should receive specific education about the risk factors for acquiring HIV infection (Appendix A).
B. The test is voluntary and confidential, and should be administered only after appropriate counseling and consent.

C. Clients requesting or receiving testing should not be identified in a way that makes them unique in the clinic setting (i.e., charts flagged or clients referred to a single interviewer or location). Information regarding counseling and testing may be obtained from the AIDS Administration, Maryland State Department of Health and Mental Hygiene at 410- 767-5013.
D. If the screening test (EIA) is positive, it must be followed by a confirmatory Western Blot or an immunofluorescent assay, before the patient is given the results.
E. Clients who test negative should be provided with information on prevention of HIV infection (Appendix B).
F. Clients who are HIV-infected should be provided with counseling that includes a discussion of the risks of perinatal transmission and allows the clients to make informed reproductive choices. (Appendix C) Inform the clients that treatment is available to reduce the risk of perinatal transmission of HIV.
G. Refer HIV-positive clients to those providers who are skilled in the management and care of HIV-infected individual.

V. HIV INFECTION AND CONTRACEPTIVE MANAGEMENT

A. In HIV-positive individuals, the family planning goal is high contraceptive efficacy, with low risk of woman-to-partner HIV transmission and low risk of partner-to-woman STI transmission. This goal is met by choices such as IUD or hormonal contraceptives IN ADDITION TO male or female condoms.
B. Antiretroviral medications can increase or decrease serum levels of estrogen and progestins. Specific labeling must be reviewed to see whether additional back-up methods of contraception or different methods of contraception need to be considered.
C. The CDC Medical Eligibility Criteria should be reviewed for all women with HIV.

VI. REPORTING

Maryland law requires provider and laboratory reporting of all cases of HIV infection. Reporting instructions and forms can be accessed via the Maryland DHMH Infectious Disease and Environmental Health Administration (IDEHA) website: http://ideha.dhmh.maryland.gov/SitePages/Home.aspx

VII. FOLLOW-UP

A. Women who test positive for HIV antibody should be provided with detailed education and counseling.
B. Although a negative antibody test usually means a person is not infected, antibody tests cannot rule out infection from a recent exposure. The test should be repeated 3 and 6 months after the most recent exposure.
C. HIV infected pregnant women should be referred to a site for care that can provide appropriate therapy and testing in order to prevent perinatal transmission.
D. HIV-infected women should be advised not to breastfeed their infants, since breast milk can transmit infection to the baby.

REFERENCES

1. AIDSInfo has the most recent guidelines and recommendations: http://aidsinfo.nih.gov/

2. US Medical Eligibility Criteria for Contraceptive Use, 2010. Adapted from the World Health Organization Medical Eligibility Criteria for Contraceptive Use, 4th Edition. MMWR, May 28, 2010; Vol 59.

3. National HIV/AIDS Clinicians Consultation Center (NCCC)

4. Perinatal HIV Hotline 1-888-448-8765 http://www.ucsf.edu/hivcntr/Hotlines/Perinatal.html

5. Centers for Disease Control and Prevention cdc.gov/hiv/

APPENDIX A

RISK FACTORS FOR ACQUIRING HIV INFECTION

1. Intravenous drug use
2. Unprotected sexual activity of any kind, in heterosexual couples or men having sex with men
3. Current or previous multiple sexual partners or prostitution
4. Known sexual or needle-sharing exposure to an HIV-infected person
5. Having a partner who is also having sex with others or using intravenous drugs
6. History of or current sexually transmitted diseases, hepatitis, or tuberculosis
7. The risk of acquiring HIV from blood transfusions in the United States is minimal.

APPENDIX B

COUNSELING FOR HIV NEGATIVE INDIVIDUALS

1. Modifiable risk factors

2. Co-factors that increase risk of HIV transmission, such as infection with other STIs or sharing drug paraphernalia

3. Effectiveness of barrier contraceptives to prevent sexual transmission

4. Importance of regular testing since the test is for infection, not immunity

APPENDIX C

COUNSELING FOR HIV-POSITIVE INDIVIDUALS

1. Local resources for HIV care, and medical referral in order to institute appropriate care promptly

2. Natural history of HIV infection

3. Use of antiretrovirals to prolong healthy life span and reduce risk of transmission to a partner

4. Prevention of transmission by responsible sexual activities and/or avoidance of sharing drug paraphernalia and/or sharing potentially blood contaminated articles such as razors or toothbrushes

5. Prevention of mother to child transmission

6. Options for sexual partner notification and notification of needle-sharing partners; importance of counseling and testing for exposed individuals

7. Importance of telling health care providers about HIV status

SYPHILIS

I. INTRODUCTION

Syphilis is a chronic, systemic disease caused by a spirochete, *Treponema pallidum*. Despite availability of sensitive diagnostic tests and effective treatment, it remains a serious health problem. Syphilis has two routes of transmission: (1) sexual transmission, which accounts for the vast majority of cases, and (2) vertical transmission from mother to fetus in utero. Congential syphilis can lead to stillbirth, prematurity and to a variety of clinical complications including central nervous system damage.

Sexual transmission occurs through exposure to *Treponema pallidum* present in open lesions of infected individuals. The majority of new reported cases of syphilis are in men who have sex with men, but rates of infection among women of reproductive age as well as cases of congential syphilis have risen in the last decade.

II. PROGRESSION OF SYHPHILIS INFECTION

A. Infection and incubation: Exposure to *Treponema pallidum* from an open lesion in an infected individual can lead to infection in nearly any site/tissue that comes in contact with infected secretions. Following inoculation, there is an incubation period that varies from 10 to 90 days (average about three weeks) before primary syphilis is apparent.
B. Primary Syphilis: Primary syphilis is characterized by a painless lesion at the site of inoculation. This primary lesion is often missed. Systemic dissemination of the spirochete quickly follows.
C. Secondary Syphilis: Weeks to a few months later, approximately 25 percent of individuals with untreated infection develop secondary syphilis a systemic illness characterized by a disseminated rash (a distinguishing characteristic of which is sores on the palms of the hands and soles of the feet), fever, headache, malaise and diffuse lymphadenopathy. Secondary syphilis is usually self-resolving.
D. Latent Syphilis: The period of time when an individual is asymptomatic, but has antibody titers consistent with infection is known as latent syphilis.
E. Late or Tertiary Syphilis: In untreated patients, syphilis infection may progress to late disease with manifestation of Central nervous system involvement (neurosyphilis), cardiovascular syphilis, gummatous syphilis (granulomatous, nodular lesions which can occur in a variety of organs) and other clinical manifestations.

III. HISTORY AND EVALUATION

A. History may include:
   1. History of other STI
   2. Recent change in sexual partner
   3. Partner with symptoms of syphilis
   4. Lack of STI protection (condom use)
   5. Report of multiple sexual partners

6. Report of illicit drug use
7. Recent incarceration
8. Reports of engaging in commercial sex work
9. Infected partner

B. Symptoms may include
   1. In Primary Syphilis
      a. Painless, one to two centimeter lesion
      b. Swollen lymph nodes
   2. In Secondary Syphilis
      a. Rash of trunk and extremities including soles of feet and plams of hands
      b. Systemic symptoms: fever, headache, malaise, anorexia, sore throat, myalgias, and weight loss
      c. Hair loss
      d. Visual changes

C. Physical exam findings may include
   1. In Primary Syphilis:
      a. Chancre of primary syphilis, a one to two centimeter ulcer with a raised, indurated margin
   2. In Secondary Syphilis
      a. Non-vesicular rash of the trunk and extremities with involvement of palms and soles
      b. Lymphadenopathy
      c. Condyloma lata – large, raised white or gray lesions in moist warm areas including mucous membranes
      d. Hepatic and renal lab abnormalities
      e. Abnormal neurologic exam

IV. SCREENING AND DIAGNOSIS

A. Any client who attends family planning clinic should be offered nontreponemal serologic screening for syphilis annually if they are at risk and especially if they meet any one of the following criteria:
   1. Persons with a sexually transmitted disease within the last year, including HIV
   2. Persons participating in exchange of sex for drugs or money or partners of persons participating in exchange of sex for drugs or money
   3. Persons participating in illicit drug use or partners of persons participating in illicit drug use
   4. History of admittance to jail or other detention facility or partner of person that has been in jail or other detention facility
   5. Sex with partner with high-risk behavior, including men having sex with men
   6. Sex with partner diagnosed with active syphilis Women exposed to syphilis through an infected partner should be tested and treated presumptively.
   7. Any skin lesions suggesting syphilis (clients with suspicious lesions should be evaluated promptly)

B. Screening in pregnant women is recommended to prevent in utero transmission of asymptomatic infection, which can lead to congenital syphilis.

C. Testing for syphilis can occur in two manners:
   1. Serologic testing:
      a. Nontreponemal tests (non-specific,used for primary screening)

i. Venereal Disease Research Laboratory (VDRL)
ii. Rapid Plasma Reagin (RPR)
iii. Toludine Red Unheated Serum Test (TRUST)

b. Treponemal tests: (usually done to confirm infection).
i. Treponemal antibody test (FTA)

2. Direct testing from clinical specimens:
   a. Darkfield microscopy
   b. Direct fluorescent antibody (DFA)
   c. Polymerase chain reaction (PCR) testing methods (investigational)

D. While direct identification of T. pallidum by either darkfield microscopy or DFA represents a definitive diagnosis of syphilis, due to the difficulties inherent in this type of testing, the mainstay of syphilis testing is serologic testing, which combined with history and symptomology provides a presumptive diagnosis.
E. A positive nontreponemal serologic test (VDRL or RPR) should be followed immediately with a treponemal antibody serologic test (FTA) to confirm the diagnosis of syphilis.
F. If the RPR or VDRL serologic test for syphilis is reactive, but the FTA is non-reactive, and there is no clinical evidence of syphilis, treatment is not indicated. In this instance, both tests should be repeated within 4 weeks.
G. The nontreponemal tests may yield false-positive results in individuals who recently experienced an acute febrile illness, recent immunization, or are pregnant. Persistent false-positive results are seen in individuals with chronic infections, autoimmune disease, or narcotic addiction. The titers are usually less than 1:8.
H. Treponemal antibody test (FTA), once positive usually remains so for life regardless of the treatment or disease activity.
I. Nontreponemal antibody titers (VDRL or RPR) tend to correlate with disease activity. A high titer (>1:16) usually indicates disease. A fourfold change in titer, equivalent to a change of two dilutions (e.g., from 1:16–1:4 or from 1:8–1:32), is considered necessary to demonstrate a clinically significant difference between two nontreponemal test results that were obtained using the same serologic test.
J. Sequential serologic tests in individual patients should be performed by using the same testing method (e.g., VDRL or RPR), preferably by the same laboratory.

V. TREATMENT

A. Clients with a positive test result (positive treponomal plus positive nontreponomal serologic test OR diagnosis via direct method) or patients with symptoms and sexual contact with confirmed positive partner should be treated immediately following the most recent CDC Sexually Transmitted Diseases Treatment Guidelines which can be accessed at CDC website:
http://www.cdc.gov/std/treatment/default.htm
B. Clients for whom there is documented evidence of adequate treatment of syphilis in the past need not be retreated unless there was insufficient follow-up or there is clinical or serologic evidence of reinfection (e.g., a four-fold titer rise in a quantitative nontreponemal test). Call STD Control at DHMH at 410-767-6690 to check on previous titers, if necessary.

C. Treatment of the client's sexual partner is an important part of the therapeutic regimen. The partner should be referred for treatment and evaluation for other reproductive tract infections.
D. The time periods before treatment used for identifying at-risk sexual partners are a) 3 months plus duration of symptoms for primary syphilis, b) 6 months plus duration of symptoms for secondary syphilis, and c) 1 year for early latent syphilis.
E. All clients with syphilis should be offered counseling and testing for HIV infection.

VI. SPECIAL TREATMENT CONSIDERATIONS

A. Penicillin allergies: parenteral benzathine penicillin G is the recommended treatment for syphilis. There are alternative regimens but clients who are allergic to penicillin and are pregnant, HIV-infected, have evidence of tertiary syphilis or neurosyphilis require desensitization and treatment with penicillin.
B. Desensitization is also recommended for treatment of patients with early latent syphilis in whom follow-up would be difficult.
C. Treatment of penicillin allergic patients should be conducted in collaboration with specialists in obstetrics (for pregnant patients) or infectious diseases specialists (for non-pregnant patients).

VII. FOLLOW-UP

A. Quantitative nontreponemal serologic test should be repeated at the following intervals: 6, 12, and 24 months.
B. If titers increase four-fold, if an initially high titer (>1:32) fails to decrease, or if the client has signs or symptoms attributable to syphilis, the client should be evaluated for neurosyphilis and treated appropriately.
C. To prevent congenital syphilis and other pregnancy complications related to syphilis and to treatment of syphilis, coordinated prenatal care and treatment is essential. Pregnant women diagnosed with syphilis need to be referred immediately for prenatal care with prenatal care provider able to appropriately treat and manage syphilis in pregnancy.

VIII. REPORTING

Maryland law requires provider and laboratory reporting of all cases of syphilis. Reporting instructions and forms can be accessed via the Maryland DHMH Infectious Disease and Environmental Health Administration (IDEHA) website: http://ideha.dhmh.maryland.gov/SitePages/Home.aspx

REFERENCES

1. CDC: Sexually Transmitted Disease Treatment Guidelines, 2010

2. DHMH Infectious Disease and Environmental Health Administration: Diseases, Conditions, Outbreaks, & Unusual Manifestations Reportable by Maryland Health Care Providers http://ideha.dhmh.maryland.gov/what-to-report.aspx

3. ACOG. Precis: Primary and Preventive Care. 3rd Ed., 2004

4. Schuiling, K., Likis, F., Women's Gynecologic Health., Jones and Bartlett, Sudbury, MA, 2006.

Trichomoniasis

I. INTRODUCTION

Trichomoniasis ("Trich") is a common sexually transmitted disease that affects both women and men, although symptoms are more common in women. Trichomoniasis is a vaginal infection caused by a protozoan called *T. vaginalis.*

II. HISTORY AND EVALUATION

A. History may include:
   1. Previous STI
   2. Recent change in sexual partner
   3. Partner with symptoms of STI
   4. Lack of STI protection (condom use)
   5. Report of multiple sexual partners
   6. Symptoms of vaginitis including dypareunia
   7. Infected partner

B. Symptoms may include (Note: men may not have symptoms until the infection is advanced. Symptoms may also be similar to that of *C. trachomatis*):
   1. In women:
      a. Yellow-green vaginal discharge (can be diffuse and malodorous)
      b. Vulvar/vaginal pruritis, burning, irritation
      c. Urinary frequency/dysuria
      d. Postcoital spotting
   2. In men (Note: men may not have symptoms)
      a. Discharge from penis
      b. Dysuria

C. Physical exam findings may include
   1. In women:
      a. Vulvar and/or vaginal erythema and cervical bleeding
      b. Non-adherent, yellow-green vaginal discharge (can be diffuse and malodorous)
      c. Punctate cervical lesions ("strawberry patches")
      d. Enlargement, tenderness and/or redness of the Skene's glands, urethra and Bartholin's glands
   2. In men
      a. Discharge from penis

III. DIAGNOSIS

Diagnosis can be made with wet prep microscopy/amine test, point-of-care tests or culture.

A. Wet Prep Microscopy (female use only with 60-70% sensitivity)
   1. Visualization of multiple, mobile trichomonads (pear-shaped protozoa withmotile flagella moving between non-motile cells)
   2. Presence of increased quantity of WBCs

3. Positive “whiff” test (fishy amine odor from vaginal fluid mixed with 10% KOH)

B. Point-of-Care Diagnostics
   1. Positive OSOM Trich Rapid Test (vaginal swab)
   2. Positive Affirm (vaginal swab)

C. Culture testing
   1. Positive APTIMA
   2. Positive Amplicor (vaginal swab or urine)

D. Although firm diagnosis is made with visualization of motile trichomonads on wet-mount, trichomoniasis can be treated based on pap smear identification in non-pregnant clients. Client preference for/against wet mount testing should be considered and provider judgment is encouraged in these cases.

IV. TREATMENT

A. Clients with a positive test result or patients with symptoms and/or sexual contact with confirmed positive partner should be treated following the most recent CDC Sexually Transmitted Diseases Treatment Guidelines which can be accessed at CDC website:

http://www.cdc.gov/std/treatment/default.htm

B. Infection with trichomoniasis in HIV-infected women may enhance HIV transmission by increasing genital shedding of the virus. Treating trichomoniasis has been shown to reduce shedding.

V. SPECIAL TREATMENT CONSIDERATIONS

A. Vaginal trichomoniasis has been associated with adverse pregnancy outcomes (premature rupture of membranes, preterm delivery and low birth weight).
B. Treatment is recommended in pregnancy only if woman is symptomatic.
C. Breastfeeding women who are administered Metronidazole should withhold breastfeeding during treatment and for 12-24 hours after last dose. For women treated with Tinidazole, withhold breastfeeding during treatment and for 3 days after the last dose.
D. Of note is that non-pregnant, asymptomatic clients do not need a “test of cure” testing (see “Follow-up” section below).

VI. CLIENT EDUCATION/COUNSELING

A. To avoid and Antabuse-like reaction, client void alcohol during treatment with metronidazole or tinidazole (through treatment and for 24 hours after completion of metronidazole or 72 hours after completion of tinidazole).
B. Client should abstain from sexual intercourse until therapy is completed
C. Client should be informed that trichomoniasis is a sexually transmitted infection and that all sex partners should be treated
D. Provide Medication Information Sheet
E. Provide STD educational information
F. Provide current educational information on *trichomoniasis*

G. Provide contraceptive information, if requested
H. Encourage condom use consistently and correctly to prevent STIs

VII. FOLLOW-UP

A. Except in pregnant women, test-of-cure (i.e., repeat testing 3–4 weeks after completing therapy) is **not** advised for persons treated with the recommended or alterative regimens, unless therapeutic compliance is in question, symptoms persist, or re-infection is suspected.
B. The following patients should be referred to the medical director or other provider as appropriate:
    1. Clients with multiple re-infections
    2. Pregnant clients – (refer to prenatal care)

VIII. REPORTING

Trichomoniasis is not a reportable infection.

REFERENCES:

1. CDC: Sexually Transmitted Disease Treatment Guidelines, 2010

2. DHMH Infectious Disease and Environmental Health Administration: Diseases, Conditions, Outbreaks, & Unusual Manifestations Reportable by Maryland Health Care Providers http://ideha.dhmh.maryland.gov/what-to-report.aspx