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Managing sexually transmitted infections: Beyond the 2015 guidelines

Abstract: Guidelines for the prevention and management of sexually transmitted infections (STIs) are updated periodically while new science is continuously developed. Advanced practice registered nurses implement clinical decisions based on current guidelines and evidence. This article provides recent updates on managing STIs.

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Despite efforts to improve access to evidence-based reproductive healthcare services, outcomes of sexually transmitted infection (STI) prevention efforts in the United States continue to lag behind other developed countries.[1-3] Some progress in STI prevention and treatment services can be attributed to the Patient Protection and Affordable Care Act, which provides coverage for STI services for adolescent and young adult women up to 26 years of age. However, health disparities continue to exist regarding STI prevalence rates. Populations most burdened by STIs include 15- to 19-year-old adolescents, 20- to 24-year-old women, older adults, special populations (such as some transgender individuals), those who are incarcerated, and the homeless.[1,2]

Recommendations on STI prevention and management are frequently updated by the CDC, United States Preventive Services Task Force (USPSTF), and the World Health Organization (WHO).[1,2,4,5] STI guidelines are not based on race or ethnicity, but in some cases, they are based on age, gender, culture, and sexual preference.[6,7] For example, chlamydia is the most common reportable STI in the United States, whereas the human papillomavirus (HPV) is the most common STI in women.[1,2]

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Keywords: men who have sex with men, MSM, prevention, reproductive health, sexual assault, sexually transmitted infections, STI, transgender

This article provides updates from the current STI prevention and management literature published since the 2015 CDC STI treatment guidelines were issued. Only those infections for which information has been updated since the most recent CDC guidelines are included. Notable updates include:

- treatment regimens for *Neisseria gonorrhea* and genital warts
- use of nucleic acid amplification (NAAT) test
- update of HPV vaccine recommendation and counseling messages
- managing the care of transgender individuals
- hepatitis C annual testing in those with HIV infections
- retesting to detect repeat infections
- recognition and treatment of urethritis/cervicitis caused by *Mycoplasma genitalium* (*M. genitalium*).

STI prevention

Primary prevention. To prevent the onset of STIs, active strategies of technology, behavior counseling, prevention education, and vaccination should be implemented before sexual debut.[1,2,8,9] Research supports high intensity behavioral counseling and motivational interviewing to augment information provided in pamphlets, handouts, and videos.[10-12] Primary prevention also includes anticipatory guidance for parents of adolescents.

Secondary prevention. Screening is an important secondary prevention strategy and should include the use of age- and gender-appropriate, nonjudgmental strategies.[1,13,14] During STI screening and treatment, nonjudgmental acknowledgment of adolescent, youth, and older adult engagement in behaviors that place them at high risk for STIs is a critical component of communication.[12-14] Respect and compassion are important to elicit accurate and pertinent information during screening and treatment of STIs.[1,12-14]

The USPSTF, CDC, and WHO provide screening recommendations for viral and bacterial STIs.[1,3-5] The USPSTF recommends a combined approach to screening, which includes attention to individual's sexual history for behaviors that indicate increased risk.[4,5] The CDC and WHO use an approach based on systematic review of the literature for individual disease or infection and population (national and global).[1,2]

The use of clinical prediction rules is an approach that is growing momentum. Clinical prediction rules combine an individualized risk assessment and population approach to STI screening, which is similar to measures used to predict and manage several chronic diseases.[6,7] Falasinnu and colleagues assessed differences in impact of individual-based and population-based approaches on over 35,000 individuals being screened for gonorrhea and chlamydia.[6,7] Results indicated that this method would result in the detection of more cases of STIs while reducing the need for screening.

Viral STIs

HPV. It is widely accepted that high-risk HPV is a cancer-causing STI.[15-17] The oncogenic high-risk genotypes 16 and 18 cause most of the cervical, vulvar, vaginal, anal, penile, and oropharyngeal cancers and cancer precursors.[1,16,17] Low-risk genotypes 6 and 11 cause external genital warts, which are mostly benign in nature; however, these warts tend to cause great emotional distress.[1,2,16,17]

HIV. The current recommendation for HIV prevention is preexposure prophylaxis (PrEP).[18-20] PrEP is an oral daily fixed-dose combination of two drugs: tenofovir disoproxil fumarate and emtricitabine.[1,18,20] The drugs are recommended for use in HIV discordant heterosexual couples and men who have sex with men (MSM).[1,20]

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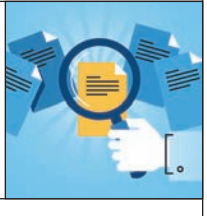


Randomized placebo-controlled trials have established risk for HIV transmission during sex, and I.V. drug use is substantially lowered for becoming infected with the HIV virus that causes AIDS when PrEP is used.[1,20] Comprehensive guidance for use of HIV seroadaptive strategies, such as serosorting (choosing sex partners with similar HIV status) and strategic positioning (avoiding insertive anal sex if HIV positive) are behaviors that some MSM practice to prevent transmission.[20] Seroadaptive strategies include:

- limiting anal sex without a condom to partners with a similar HIV status
- using a condom only with HIV serodiscordant partners
- HIV-infected partner acting as a receptive partner for anal intercourse.[20]

Sexual transmission of Zika virus[23,25]

Category	Risk
Transmission	• Most commonly from symptomatic men to female partners
Period of contagiousness	• May exceed 1 month after onset of symptoms
Body fluids affected	• Semen, saliva, blood, urine, and vaginal and cervical secretions
Presentation of infection	• May be asymptomatic or include mild symptoms such as fever, arthralgia, rashes, headaches • Guillain-Barré syndrome is a potential sequela
Risk of infection to maternal child health	• Risks include microcephaly and other severe brain defects, miscarriage, ocular or hearing defects, and others • Spontaneous miscarriage or stillbirth is possible sequela
Prevention	• Condom use if either partner has been exposed to Zika virus • Males should use condoms or abstain from sex for 6 months after onset of symptoms • Pregnant women should avoid travel to areas where Zika virus is present • Females should avoid sex for 8 weeks after onset of symptoms to avoid transmission to partners

Counseling for seroadaptive strategies include sharing knowledge that home-testing HIV kits detect antibodies, not acute HIV infection. Serosorting and other adaptive behaviors carry greater HIV risk than consistent condom use.[19,20]

Hepatitis. Sexual transmission rates of hepatitis C are higher among individuals who engage in high-risk sexual practices, group sex, and use of drugs during sex.[8,21] Screening for hepatitis C is recommended based on risk and for all individuals born between the years 1945 and 1965.[21,22] Annual hepatitis C screening and diagnostic testing with assays is recommended among MSM with HIV.[9,21,22]

Zika. Infection with the Zika virus can be sexually transmitted.[23-25] This mosquito-borne flavivirus has infected as many as 1.3 million individuals in Brazil alone.[24-27] Twenty countries or territories reported local transmission in 2018.[25-27] Most Zika virus infections are characterized by subclinical or mild influenza-like illness.[23-27] However, severe neurologic manifestations have been described, including Guillain-Barré syndrome in adults and microcephaly in babies born to infected mothers.[25,27]

Screening is not recommended to determine presence of the Zika virus.[25-27] The prevention strategy for Zika includes avoidance of exposure via mosquito bites or body fluids, especially for pregnant women and men and women of childbearing age (see *Sexual transmission of Zika virus*).[23-25] Risks to the unborn fetus include microcephaly, a severe brain defect, among other defects, such as developmental delay and vision and hearing problems.[23-27] Viral RNA has been detected in breast milk, but transmission via breastfeeding has not been reported.[27] Diagnosis remains suboptimal because lab tests are not widely available.[26]

Bacterial STIs

Gonorrhea and Chlamydia. Sexually active women under the age of 25 years should be routinely screened for gonorrhea and chlamydia, as prevalence is highest among this age-group.[2,6,7,15,28-30] However, current evidence is insufficient to assess the balance of benefit and harm of routine screening for chlamydia and gonorrhea in sexually active men.[1,28] Gonorrhea treatment and screening have experienced a paradigm shift.[29,31-34]

Fluoroquinolones are no longer recommended, and dual therapy is routinely recommended, preferably under direct observation; in addition, emerging resistance to oral cephalosporins has been documented.[1,28] Treatment for chlamydia has remained stable.[11] Men and women in the younger age-group (between 15 and 24 years) are less likely to use condoms than older men and women, increasing the risk of repeated chlamydia and/or gonorrhea infections.[6,7,12,15]

Syphilis. In 2016, an advisory was issued on ocular syphilis outbreaks in San Francisco and Seattle, primarily among HIV-positive homosexual men.[30] In addition, if these men are diagnosed with syphilis, they should be tested for HIV.[1] For rapid diagnostic testing of anti-HIV and anti-*Treponema pallidum,* a one-test device is on the horizon according to the WHO.[13,35,36] Penicillin G benzathine and penicillin G procaine were in short supply in 2016.[1]

Penicillin G procaine is the recommended treatment for congenital syphilis and an alternative treatment for neurosyphilis and ocular syphilis.[30] Penicillin G benzathine remains the first-line treatment for syphilis and is the only recommended treatment in pregnant women.[1,2] Similarly in 2016, the WHO issued new guidelines for treating chlamydia, gonorrhea, and syphilis based on emerging patterns of resistance to antibiotic therapy.[2,10,11] All individuals treated for syphilis should have follow-up serologic testing.[1]

Trichomoniasis vaginalis (T. vaginalis). The parasitic protozoal infection *T. vaginalis* is included in this section as it is conventionally discussed along with bacterial infections. The CDC guidelines recommend screening women who seek care for vaginal discharge concerns and possibly for those in high-prevalence settings.[1] Routine screening for *T. vaginalis* in asymptomatic women with HIV infection is also recommended because of the adverse reactions associated with *T. vaginalis* and HIV infection.[1]

Use of highly sensitive and specific NAAT testing is now recommended for detecting *T. vaginalis*.[1] Moreover, individuals with positive NAAT testing should be retested after treatment. Retesting 3 months after diagnosis of chlamydia, gonorrhea, or *T. vaginalis* is advised to detect repeat infection.[1]

M. genitalium. Since being isolated in 1980, *M. genitalium* has become known as a significant source of nongonococcal urethritis in men and as a significant source of cervicitis, urethritis, and upper pelvic infections in women.[32] Major symptoms in women include abdominal pain and dyspareunia. In men, urethritis and penile discharge are the most common symptoms.[32] The only way of specifically diagnosing *M. genitalium* infection is via NAAT.[1]

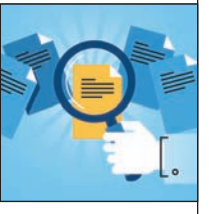
If left untreated, the disease can cause preterm birth or spontaneous abortion and/or pelvic inflammatory disease (PID).[1,33,34,35] A history of PID appears to be associated with subsequent development of noninvasive tumors of uncertain malignant potential.[34] Rasmussen and colleagues noted that women with two or more episodes of PID had twice the risk of developing these tumors.[34]

Special populations

Adolescents. With a few exceptions specific to age and service type, all 50 states and the District of Columbia allow minors to consent for their own health services for STIs.[1,35] No state requires parental consent for STI care, nor is there a requirement that providers notify parents that their adolescent minor has received STI services.[1,35] It is important to note that constraints may exist even when the minor may consent, and parental notification may differ by state.[1]

Older adults. Men and women are living longer, healthier lives and are sexual beings well into older adulthood, as reflected in a rise in STI and HIV rates in the United States and internationally among this age cohort.[36,37] Screening and education during clinical encounters should include consistent condom use as well as biological risk factors such as decreased immune response, decreased estrogen, and psychosocial changes, as these all have a role in STI prevention among older adults.[36] The CDC's routine HIV screening recommendations end at age 64 years.[1] Screening is based on sexual risk assessment in older adults over age 65 years.[1]

In 2016, the WHO issued new guidelines for treating chlamydia, gonorrhea, and syphilis based on emerging patterns of antibiotic therapy resistance.



Transgender individuals. Transgender women (also referred to as *trans women*) are a special population of individuals who were born with male anatomy but identify as women (see *Summary of updates for special populations*). Approximately 27.7% of all transgender women and 56.3% of Black transgender women in the United States are infected with HIV.[38,39]

Transgender men (also referred to as *trans men*) are individuals born with female anatomy but identify as men.[40] There is a great deal of anatomic diversity in this population, with many individuals who still have a vagina and cervix, and thus, are susceptible to diseases of the female genital tract.[41] Establishing rapport with the individual and discussing anatomical needs for screening are both important factors to ensuring the individual is appropriately screened.[29,39-41]

Immunizations

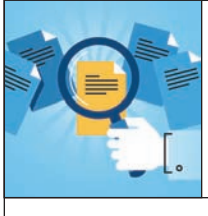
Currently, immunizations are available for three STIs: hepatitis A, hepatitis B, and HPV.[42] There are no recent changes in recommendations for the hepatitis A

Summary of updates for special populations[1,35-39]

Special population	Key points
Adolescents	• With a few exceptions specific to age and service type, minors may consent for their own health services for STIs • No parental consent is necessary for STI treatment • Parental notification of treatment is not required, however, it is important to note that constraints may exist even when the minor may consent, and parental notification may differ by state
Older adults	• Rise in STI and HIV rates internationally in older adults • Providers should screen/educate on condom use, biological risk factors for STIs, hormonal changes affecting sexual activity, and psychosocial changes of aging • Screening for HIV in those over age 65 years is based on risk assessment
Transgender individuals	• Transgender women have high rates of HIV infection • There is much anatomic diversity in the transgender population • Female-to-male transgender individuals may be susceptible to female genital tract infections depending on their anatomy • Establishing a rapport to determine appropriate screening is key

vaccine. In 2018, the CDC issued updated recommendations for the hepatitis B vaccine. These updates include:

- a universal recommendation for vaccination within 24 hours of birth for medically stable newborns of normal birthweight
- testing pregnant women for the presence of hepatitis B DNA if they are positive for hepatitis B surface antigen (HBsAg)
- serologic testing of infants whose mothers' hepatitis B status is unknown



Confidentiality requirements related to STI treatment have been recently updated to include requirements for individuals with HIV.

- single-dose revaccination of infants not responding to the initial vaccine series whose mothers are HBsAg positive
- vaccination for those with chronic liver disease
- removal of permissive language allowing delay of the birth dose until after a newborn is discharged from the hospital following birth.[43]

Recommendations for HPV vaccination were revised in 2016.[44] The CDC amended the 3-dose 9-valent HPV vaccine series to include a 2-dose series in those under the age of 15 years.[44] In December 2015, the FDA granted approval to the manufacturer of the 9-valent vaccine to extend the indication to include males 16 through 26 years of age. Evidence supporting the ongoing use of the HPV vaccine is growing.[45] After only 6 years of provider recommendation for HPV vaccination in the United States, HPV prevalence declined by 64% in adolescent females ages 14 to 19 years and by 34% in women ages 20 to 24 years.[16,45]

Confidentiality

Confidentiality requirements related to STI treatment have been recently updated to include requirements for individuals with HIV.[46] Individuals with HIV are protected against discrimination under provisions of the Americans with Disabilities Act of 1990, which assumes that individuals with HIV, whether symptomatic or asymptomatic, "have physical impairments that substantially limit one or more major life activities."[46] A number of cases of discrimination based on HIV status have been litigated within the past 3 years.[46]

Conclusion

As noted by the CDC, WHO, and FDA, the prevention, management, and treatment of STIs is an area of rapidly changing evidence requiring advance practice registered nurses (APRNs) to maintain awareness of up-to-date guidelines. APRNs are members of the primary prevention healthcare team responsible for guaranteeing confidentiality and ensuring that necessary preventive services, immunizations, and PrEP services are delivered according to guidelines and current evidence.

Without APRNs having a strong fundamental understanding of health consequences of missed or inappropriately diagnosed and treated STIs, patients can develop disease sequela. APRNs who use targeted education campaigns geared toward specific age-groups and special populations, such as adolescents, are champions for preventing and decreasing STIs.

During patient encounters, assessing each individual's risk of STIs (sexual exposures, practices) provides the APRN an opportunity for focused patient education. Furthermore, educating individuals about the signs and symptoms of STIs reinforces importance of early treatment if an infection occurs. NP

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The authors and planners have disclosed the following financial relationships related to this article:

Nancy Fugate Woods (scientific advisory board, Procter & Gamble; external advisory board, CTSA Duke University; external advisory board, CTSA University of Pittsburgh; and consultancy, University of California, Davis).

Ivy Alexander (board member, Pfizer; consultancy, Pfizer and WebMD; grants, HRSA ANA; lectures, MidlevelU, Planned Parenthood, Quinnipiac; and royalties, Jones & Bartlett Publishers, NPACE).

This article has been reviewed, and all potential or actual conflicts have been resolved.

DOI-10.1097/01.NPR.0000541464.23795.5b

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