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Human Immunodeficiency Virus, Other Sexually Transmitted Infections, and Sexual and Reproductive Health in Lesbian, Gay, Bisexual, Transgender Youth

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INTRODUCTION

Given estimates that more than 5% of the population identifies as lesbian, gay, bisexual, transgender (LGBT), or questioning, pediatricians are likely to care for LGBT youth at some point during practice. As health care providers, pediatricians are uniquely positioned to serve as expert guides to adolescents and young adults (AYA) navigating their sexuality and sexual health. By providing support and accurate information, pediatricians can positively influence those youth struggling with their sexuality, particularly those who are LGBT. It is important to understand that although this population may face unique challenges, pediatric providers can help ensure that they grow up to have healthy sexual and reproductive lives.

SEXUAL HEALTH AND REPRODUCTIVE HEALTH INEQUITIES AMONG LESBIAN, GAY, BISEXUAL, AND TRANSGENDER YOUTH

Epidemiology

Data demonstrate that LGBT youth are more likely than their heterosexual counterparts to experience a wide array of health inequities, many of which predispose them to an increased

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risk of sexually transmitted infections (STIs) and human immunodeficiency virus (HIV).¹ They are often subject to stigmatization, isolation, and societal and parental rejection. It is likely that these health inequities arise from individual, interpersonal, and structural stigma, which promote barriers to care (see Mark L. Hatzenbuehler and John E. Pachankis' article, "Stigma and Minority Stress as Social Determinants of Health Among LGBT Youth: Research Evidence and Clinical Implications," in this issue).²

LGBT youth also face significantly different sexual health outcomes related to sexual assault, STIs, HIV, and teen pregnancy. They are at significantly higher risk of sexual assault and abuse than their heterosexual peers.³ In addition, according to Youth Risk Behavioral Surveillance data, compared with heterosexual youth, LGBT youth are more likely to be sexually active, to have earlier sexual debut (before age 13), and have 4 or more sexual partners.⁴ Compared with heterosexual youth, LGBT youth were about half as likely to have used a condom at last intercourse (35.8% vs 65.5%). These behaviors may partly explain why although the overall incidence rates of gonorrhea, chlamydia, and syphilis have decreased among adolescents in the last 15 years, they have increased among adolescent men who have sex with men (MSM).⁵ Adolescent MSM have also been disproportionately affected by HIV. Although MSM accounted for only 4% of the male population in the United States in 2010,⁶ they represented 78% of new HIV infections among men and 68% of total new infections. Over the past decade, HIV incidence in young MSM of color has increased by 87%.⁷ Young transgender women (YTW) are particularly vulnerable to HIV. A review of studies estimated that HIV prevalence for transgender women was nearly 50 times as high as that of other adults.⁸

Although providers need to be aware of the epidemiology of STIs in LGBT youth, they should use caution in making assumptions about their patient's sexual practices. It is important to remember that the high STI rates in LGBT youth are not necessarily due to an increased number of partners or frequency of sex. For MSM, the anatomy and immunology of the rectal mucosa lead to a higher biologic susceptibility to STIs and HIV. Racial disparities also play a role in the increased incidence of HIV in young men and transgender women of color who have sex with men. Although rates of unprotected anal intercourse are similar between African American and other MSM, African American MSM are more likely to experience structural barriers such as unemployment, lack of health insurance, incarceration, or lower educational attainment levels that may act as barriers to care and thus increase the risk of HIV.⁹ Similarly, it is important to remember that for LGBT youth, sexual behavior does not necessarily align with reported sexual attraction and identity, which are other aspects of sexual orientation that may change over time. For example, many women who have sex with women (WSW) have current or past male partners, and data show they may be less likely to use effective contraception and are at increased risk for pregnancy.¹⁰

Health care providers, equipped with knowledge and expertise, have the opportunity to mitigate these sexual health inequities with each valuable patient encounter. Please see Scott E. Hadland and colleagues' article, "Caring for LGBT Youth and Families in Inclusive and Affirmative Environments," in this issue, for review of appropriate terminology used to describe gender identity and sexual orientation.

APPROACH TO SEXUAL AND REPRODUCTIVE HEALTH CARE FOR LESBIAN, GAY, BISEXUAL, TRANSGENDER YOUTH

It is the health care provider's responsibility to openly discuss matters of sexual health, including sexual orientation, sexual behavior, and gender identity, with patients. If they do not, they risk losing valuable opportunities both to provide a safe and accepting setting for youth to voice concerns and questions and to intervene for those youth in crisis. It is also important to recognize that some LGBT youth may be reluctant to openly discuss matters of sexual health and sexuality without first establishing a trusting relationship with their provider. It may take repeated visits before addressing sexual health in detail. The urgency of this discussion will, in part, be directed by the patient's complaint; if a patient presents for suspected STI, then discussion regarding sexual risk may be accelerated. Providers must keep in mind that it is not the role of the clinician to identify LGBT youth, but rather simply provide an open, accepting setting if they wish to discuss sexual health.

Discussing Sexual Health and Sexuality

Confidentiality—Every effort should be made to maintain confidentiality with the patient at all levels of care from front desk staff to parental access to protected information. Clinicians should familiarize themselves with their region's laws and statutes regarding a minor's access to confidential sexual health services and be prepared to discuss these with patients and parents. Detailed information regarding individual state policies can be found at the Guttmacher Institute¹¹ (http://www.guttmacher.org/statecenter/spibs/spib_MASS.pdf).

It is essential that clinicians meet with their adolescent patients without a parent present to best allow for open communication. When discussing confidentiality with a patient, it may be helpful to use the word "private" instead of "confidential," because teens may misinterpret the word confidential to denote "confidence."¹² For example, you might say: "I am using the word 'confidential,' which is another way of saying 'private,' and what this means is that I will do my best not to spread your business around to your parents or anyone else." During this conversation with the young person, in order to maintain trust, it is also important to be explicit about the limits of privacy. As mentioned above, this includes being familiar with your region's laws regarding privacy so that you can communicate them clearly. Generally, professional ethics, law, and regulation may limit nonemancipated or nonmature minors' privilege of confidentiality and require clinically appropriate reporting to ensure safety when a patient is in imminent danger (for example, in cases of child abuse, suicidal or homicidal intent, or life-threatening substance abuse). These exceptions are distinct from areas in which confidentiality may be protected by ethics and locally applicable law and regulation, such as matters of consensual sex, contraception, diagnosis and treatment of STIs, and other matters of sexual and reproductive health.¹² When uncertain, clinicians should consider seeking child protective, ethical, and/or legal consultation to help guide them.

Setting the stage for nonjudgment, respect, and honesty—Providers can set the tone of comfort by outlining 3 basic tenets of care with the patient: a nonjudgmental approach, respect, and honesty.¹² Patients should understand your role: to guide and help

them to transition into being self-advocates. Many LGBT youth may expect to be judged given their past experiences with other health care providers and authority figures. It is helpful to remind them that you will serve them in a nonjudgmental way. You may ask patients what they prefer to be called with the parents in the room, and again when they are alone. Last, youth should understand that you will provide them with honest and accurate information.

Taking a sexual history—When taking a sexual history, use language that is inclusive and ask questions that are open-ended and nonjudgmental. For example, use gender-neutral language when inquiring about potential partners. In addition, providers should remember sexuality is a multidimensional and fluid construct, which may evolve throughout the course of adolescence. Sexual identity and sexual behavior are not synonymous, and providers should take caution not to make assumptions that identity predicts behavior. Providers can use the Attraction, Behavior, Orientation framework as a guide in sexual history taking (Box 1). Consider asking youth if they have questions about any sexual behaviors, regardless of whether they have experienced them. When tailoring questions to youth regarding sexual experiences, remember that sexual orientation or attraction does not predict sexual behavior. WSW can engage in sexual behavior leading to pregnancy, so should be asked about their need for contraception. HIV testing for MSM should be approached in the same manner as it would for any at-risk adolescent and should not be the sole focus of care. Remember that sexual practices may not be dissimilar for heterosexual, gay, lesbian, and bisexual youth.¹³ For example, although a youth may identify as heterosexual, it does not necessarily mean that he or she does not engage in anal sex. In fact, 44% of heterosexual men and 36% of heterosexual women admitted to having had anal sex at least once in their lives according to a recent report.¹⁴

It is important to do a complete review of symptoms, asking concretely about symptoms of STIs. Youth may not offer these symptoms unless expressly asked about them. Providers should ask about vaginal or penile discharge, abdominal or back pain, dysuria, vomiting, dyspareunia, after-coital bleeding, genital lesions, and anorectal symptoms consistent with proctitis such as rectal discharge or bleeding, tenesmus, or pain during anal intercourse. Ask about menstrual and STI histories, as well as history of forced or coercive sex. Providers should ask about any new partners in the last 3 months as a gauge of whether patients need more frequent STI testing.

Physical Examination

When approaching the physical examination with LGBT youth, consider whether it is necessary to perform the genital examination on first encounter. It may be helpful to establish a therapeutic alliance with a patient over subsequent encounters. Although no data exist on the percentage of trans youth who have undergone gender affirmation surgery, it is likely that most transmen and transwomen, particularly youth, have not undergone gender affirmation surgery, especially given that the official standard of the 2 organizations that provide standards of care for transgender individuals (World Professional Association for Transgender Health and the Endocrine Society) recommend to defer genital surgery until the transitioning individual has reached 18 years of age. Most transgender patients, therefore,

still have their natal sexual organs, which can be a great source of dysphoria and discomfort for the patient. Therefore, when performing genital examinations in these patients, the clinician should be aware that this experience may be particularly stressful because they may not identify with their anatomy (ie, examining the testicles of a transgender person who was born a boy, but identifies as a woman). Always prepare the patient by describing exactly what you are going to do and why you are doing it. Place patients in control by letting them know that you will discontinue the examination at any point if they wish. For transgender patients, physical examination for cancer screening should be dictated by the anatomy of the patient, and not gender identity. Routine testicular examinations should be performed for transgender women who have not had their testicles removed. Cervical cancer screening should be performed for transgender men according to guidelines. Anal STI screening should be performed for those youth who have anal intercourse regardless of sex, sexual orientation, or gender identity.

SEXUALLY TRANSMITTED INFECTIONS IN LESBIAN, GAY, BISEXUAL, TRANSGENDER YOUTH

Among LGBT youth, clinicians should be vigilant about screening for STIs to decrease patient morbidity, prevent secondary STI transmission, and to decrease the risk of HIV acquisition.

STIs, particularly genital ulcerative disease, serve as key risk factors for HIV infection in AYA. Genital ulcer disease in HIV-infected individuals can increase the risk of transmission due to increase in HIV viral shedding; conversely, in HIV-uninfected individuals, disruption of the mucosal barrier and increased number of antigen-presenting cells increase the risk of HIV acquisition.^{15–17} Clinicians should at minimum follow existing guidelines for STI and HIV screening for LGBT youth and increase frequency of screening in the setting of symptoms or high-risk behavior.

Human Immunodeficiency Virus in Adolescents

Although the overall incidence of HIV infection in the United States has plateaued in recent years, the rates of new infection are increasing among AYA, particularly among young MSM of color. Despite ongoing HIV prevention outreach and education efforts, AYA aged 13 to 29 accounted for 26% of all new infections in the United States in 2010.¹⁸ Specifically, young black MSM are facing the steepest increases in new infection; the rates of new infection in this population increased by 87% in the last decade (Fig. 1). Compared with adults, young MSM are less likely to be aware of their positive HIV status (~49% vs 80% of adults), initiate HIV care, start antiretroviral therapy (ART), or achieve a suppressed viral load, which leads to increased morbidity among youth living with HIV.¹⁹

Early identification of infection and initiation of treatment can lead to health benefits on the public and individual level. In particular, clinicians should maintain a high index of suspicion for acute HIV infection (AHI) when evaluating adolescents with nonspecific febrile illnesses or mononucleosis-like syndrome as well as in adolescents with a recent high-risk exposure or STI. An estimated 50% to 89% of patients with AHI are symptomatic

and most commonly present with fever, lymphadenopathy, pharyngitis, rash, myalgias, mucocutaneous ulcers, or headache.^{20,21} Clinicians should be familiar with the appropriate HIV tests to capture AHI (Table 1).

Human immunodeficiency virus testing—Because of the numerous individual and public health benefits of early recognition and treatment of HIV, the Centers for Disease Control and Prevention (CDC), American Academy of Pediatrics (AAP), and US Preventative Services Task Force (USPSTF) all recommend routine screening of sexually active adolescents (see Table 1). The AAP also encourages testing of all youth by the age of 16 to 18 regardless of sexual report, because many youth may underreport sexual activity.²² In 2014, the CDC updated their recommendations regarding laboratory testing for HIV infection,²³ recommending initial testing with a US Food and Drug Administration (FDA)-approved antigen/antibody combination (fourth-generation) assay that detects both HIV-1 and HIV-2 antibody as well as HIV-1 p24 antigen. This assay has increased sensitivity in detecting early HIV infection, because the p24 antigen is expressed during acute infection when antibodies are not yet detectable. Positive fourth-generation assays should be confirmed by an immunoassay for HIV-specific antibodies. Rapid blood or oral fluid–based antibody-based tests have the advantage of results delivery at the point of care. However, these third-generation assays may miss those patients in acute infection. For patients with substantial concern for AHI, a nucleic acid amplification test (NAAT) in the form of a quantitative or qualitative HIV RNA assay has the highest sensitivity for diagnosing patients within the “window” period.

Delivering results and linkage to care—Delivering negative HIV results is an opportunity for counseling regarding STIs and HIV infection, and connection to prevention services, such as HIV pre-exposure prophylaxis (PrEP). Positive results should be discussed with the patient in person and not over the telephone. It is important to convey a message of hope, while not diminishing the sadness and fear that may accompany the diagnosis. With early initiation of ART, AYA with HIV can be expected to lead long, healthy, and productive lives. Providers should assess for patient safety and establish a plan for close follow-up. Every effort should be made to immediately link the patient to a care team with adolescent HIV expertise so that ART can be started. Recent data from the START trial has demonstrated that immediate initiation of ART, irrespective of CD4⁺ cell counts and viral loads, can reduce the risk of serious AIDS-related events (such as AIDS-related cancer), serious nonrelated AIDS events (such as cardiovascular, renal, and liver disease), and overall mortality compared with patients in which ART was deferred.²⁴ In addition, initiation of treatment during AHI may reduce the size of the latent viral reservoir.²⁵ Providers should be aware of resources for treatment in their area and can contact local health departments to facilitate linkage to care.

Chlamydial Infections

Chlamydia is the most common reported bacterial STI in the United States and is highly prevalent among young women and MSM. Rectal and pharyngeal chlamydia prevalence rates among screened MSM have been reported to be 3% to 10.5%²⁶ and 0.5% to 2.3%,²⁷ respectively. WSW are at substantial risk for chlamydia infection as well; one study

estimated that *Chlamydia trachomatis* infection was higher in women reporting same sex sexual behavior.²⁸ Because screening programs have been shown to reduce rates of pelvic inflammatory disease (PID), the CDC recommends routine annual screening for all sexually active women less than 25 years of age.²⁹ Because of their high risk of infection, the CDC also recommends that MSM be screened at least annually for urethral infection as well as rectal infection in men who have had receptive anal intercourse (Table 2).

Chlamydial infection in men having sex with men—Although there are many manifestations of chlamydia, it is important to remember that most infections are asymptomatic. *C trachomatis* is the most common cause of non-gonococcal urethritis in men, typically presenting with watery, scant urethral discharge and dysuria. Epididymitis is typically characterized by unilateral testicular pain, swelling, and tenderness. Chlamydial proctitis occurs primarily in MSM who engage in receptive anal intercourse. Symptoms typically include diarrhea, rectal pain or bleeding, tenesmus, and rectal discharge. However, rectal chlamydia is commonly asymptomatic. When evaluating MSM with rectal symptoms, it is important to also consider lymphogranuloma venereum (caused by *C trachomatis* serovars L1–L3), which may cause a proctocolitis, often mimicking inflammatory bowel disease. It is imperative to recognize proctitis because it is associated with an up to 9-fold risk of HIV acquisition,³⁰ and a diagnosis of proctitis in MSM warrants evaluation for HIV and other STIs. Patients should be treated empirically while awaiting diagnostic results (Table 3).

Chlamydial infection in women having sex with women—Chlamydial infection in WSW presents in the same manner as in their heterosexual counterparts, namely with cervicitis, urethritis, PID, and perihepatitis (Fitz-Hugh-Curtis syndrome). Any young woman with symptoms of cervicitis accompanied by abdominal pain, fever, back pain, or dyspareunia should have a pelvic examination to assess for PID. Early treatment reduces the risk for complications, including infertility, tuboovarian abscess, and chronic pelvic pain (see Table 3).

Gonococcal Infections

Neisseria gonorrhea is the second most common bacterial STI. Prevalence rates of gonorrhea among MSM at STI clinics are estimated to be 15.3% with even higher rates in HIV-infected patients.³¹ Rates of gonorrhea transmission in WSW are largely unknown, and risk likely varies depending on the sexual practice with digital-vaginal, digital-anal, and/or penetrative toys presenting a route for infection via cervical secretions³² (Table 4).

Gonococcal infection in men having sex with men—Gonococcal (GC) urethritis in men most commonly presents with urethral discharge that is purulent and copious. GC may also cause epididymitis; however, most infections are caused by *C trachomatis*. Most cases of anorectal GC in both men and women are asymptomatic, but may present with the same symptoms of chlamydial proctitis detailed above. GC proctitis is indistinguishable from other organisms that cause proctitis, and like chlamydial infection, also incurs an increased risk of HIV acquisition.³⁰

Gonococcal infection in women having sex with women—Similar to infection with *C trachomatis*, infection in women can lead to urethritis, cervicitis, or PID.

Gonococcal infections of the pharynx—Pharyngeal gonorrhea is more efficiently spread by oral-penile than oral-vaginal contact. Most infections are asymptomatic. When symptoms are present, sore throat, pharyngeal exudate, and/or cervical lymphadenitis are common. Although the bacterial concentrations are lower in the pharynx, it is thought to be a reservoir for drug-resistant types.³³ GC infections of the pharynx are more difficult to eradicate than urogenital and anorectal infections. Because the CDC's Gonococcal Isolate Surveillance Project has documented rising rates of cefixime-resistant *N gonorrhoeae*, oral cephalosporins are no longer recommended for the treatment of any type of GC infection, including those of the pharynx¹⁵ (see Table 4).

Disseminated gonococcal infection—Last, DGI presents in 0.5% to 3% of patients and manifests as 2 distinct clinical syndromes: purulent arthritis or a triad of tenosynovitis, dermatitis (petechial or pustular acral lesions), and polyarthralgias. Prompt recognition of DGI is critical, because it requires prolonged parenteral treatment and can lead to joint destruction if untreated.

Bacterial Vaginosis

Bacterial vaginosis (BV) is the most common cause of vaginal discharge in women of reproductive age.³⁴ BV results from replacement of the normal *Lactobacillus* species in the vagina with high concentrations of anaerobic organisms, typically resulting in copious, malodorous discharge and vaginal irritation. Although sexual transmission of BV has not been established, sexual activity is a known risk factor for BV.³⁵

Although there are few studies in WSW, BV appears to be highly prevalent (25%–50%) in this population^{36,37} and is associated with an increased number of female sexual partners, a female partner with BV symptoms, and receptive oral sex.^{36,38,39} One randomized controlled trial in WSW demonstrated that reducing transmission of vaginal fluid through gloves and condom use for sex toys did not reduce recurrence⁴⁰; however, further research needs to be conducted to elucidate sexual transmission via WSW. BV is associated with an increased risk of HIV, STIs, and pregnancy complications, and prompt treatment is therefore indicated (Table 5).

Trichomonal Infections

Trichomonas vaginalis (TV), a flagellated protozoa, is the most common nonviral STI worldwide. Most infected persons have minimal or no symptoms, and untreated infection can last for months to years. Women typically present with malodorous, yellow-green vaginal discharge with or without vulvar irritation. In men, symptoms consist of urethritis, epididymitis, or prostatitis. It is unclear if anal receptive sex may serve as mode of transmission and a reservoir for TV, because the prevalence of trichomoniasis in MSM is low.⁴¹ However, male partners of women diagnosed with trichomonal infections should be treated, and treatment should be considered in men with persistent or treatment-resistant urethritis (Table 6). Trichomonal infection is associated with a 2- to 3-fold increased risk of

HIV acquisition,⁴² and among women with HIV, TV is associated with an increased risk for PID.⁴³

Syphilis

Among YMSM, syphilis rates continue to increase, with 2013 having the highest incidence in cases among 15 to 19 year olds since 1995.¹⁶ Syphilis, caused by the spirochete *Treponema pallidum*, may present in primary (typically a solitary painless called a chancre), secondary (disseminated findings such as maculopapular rash involving palms/soles, cutaneous lesions, and lymphadenopathy), or tertiary (cardiac, gummatous, or neurosensory impairment) stages. In addition, patients may present with central nervous system involvement (neurosyphilis), such as meningitis, cranial neuropathy, and altered mental status at any stage of the disease. Finally, asymptomatic patients may be diagnosed with latent syphilis, defined as seroreactivity without evidence of primary, secondary, or tertiary syphilis. Early latent syphilis is diagnosed in those who acquired syphilis in the year before diagnosis, as evidenced by a documented seroconversion or greater than 2 week, 4-fold or greater increase in treponemal titers, prior symptoms of primary or secondary syphilis, or a partner in the preceding year with documented syphilis. Late latent syphilis is diagnosed in asymptomatic patients if the above criteria are not met in the year before diagnosis.

Syphilis is diagnosed via 2-stage testing: a nontreponemal test (venereal disease research laboratory [VDRL] or rapid plasma reagin [RPR]), followed by a treponemal test (fluorescent treponemal antibody absorbed or passive particle agglutination). In early primary syphilis, RPR and VDRL may be negative, and definitive diagnosis requires darkfield microscopy of the lesion exudate. However, as this is often not available, patients with a chancre or a recent high-risk exposure should be treated empirically. Treatment course is dependent on clinical stage or length of latency (Table 7). Syphilis and HIV are known to be co-occurring, and a new syphilis diagnosis should prompt immediate testing for HIV.^{15,16}

Hepatitis

Hepatitis A, B, and C may all take the form of STIs in youth. Hepatitis A viral (HAV) infection is a self-limited disease primarily transmitted via the fecal-oral route, and therefore, may arise from oral-anal sexual contact. Acute HAV typically presents with fever, jaundice, nausea, and gastrointestinal (GI) upset and is treated with supportive care. Hepatitis B virus (HBV) may be transmitted through blood, seminal fluid, or vaginal fluid and can lead to either an acute and self-limited illness or chronic infection. Routine immunization against HBV in infancy has resulted in a largely immune adolescent population in the United States. However, young adults who have not been immunized, teens whose immunity has waned, or youth who engage in MSM or injection drug use (IDU) behavior remain at risk. Although hepatitis C virus (HCV) is the most common blood-borne infection in the United States, sexual transmission of HCV is uncommon among AYA. The exception to this is among MSM, particularly those with HIV, who represent a population at special risk for HCV.¹⁵ Acute HCV infection is typically asymptomatic or characterized by a mild viral syndrome. However, 60% to 70% of infected individuals will go on to develop

active liver disease. The use of latex condoms can prevent transmission of HBV and HCV¹⁵ (Table 8).

Herpes Simplex Viral Infections

Herpes simplex virus (HSV) causes persistent, life-long infection, which most commonly leads to recurrent genital ulcerative disease. Although HSV-1 historically was the cause of oral lesions, and HSV-2 the source of genital lesions, both types are now frequently identified in the oral and genital mucosa. In particular, HSV-1 has been frequently identified in the genital tract of MSM and young women.¹⁵ Adult seroprevalence of HSV-2 is approximately 18% to 22%, with many seroconversions occurring during adolescence.^{16,44} Notably, many HSV-seropositive AYA are unaware of their infection.⁴⁵ In HSV outbreaks, ulcerative lesions may appear anywhere on the genital, anal, or oral mucosa and are characterized as painful, shallow, and often multiple. They are typically associated with lymphadenopathy that may be bilateral.^{46,47} However, many patients may be asymptomatic, even with active lesions, which is the cause of many transmission events. Primary HSV infection may present with a systemic syndrome, including fever, myalgias, headache, and malaise. Recurrent episodes tend to have a milder presentation. Patients should be counseled to avoid sexual contact in the presence of active lesions due to a high degree of viral shedding and because condoms may not cover the entirety of infected mucosa. Although HSV infection is persistent and lifelong, patients may benefit from either episodic treatment at first onset of symptoms, or suppressive therapy with antivirals to reduce symptoms recurrence (Table 9).

Human Papilloma Virus

Human papilloma virus (HPV) causes a wide variety of clinical syndromes in LGBT youth, based on the viral serotype and site of inoculation, including anogenital warts, cervical dysplasia, and anal dysplasia. HPV serotypes 6 and 11 are responsible for an estimated 90% of genital warts or condyloma accuminata.⁴⁸ Warts can appear throughout the anogenital region and typically present as skin-colored flat, papillary, or pedunculated lesions with a cauliflower-like appearance. Although these lesions are typically asymptomatic, they may cause itching or burning or may bleed easily when irritated.⁴⁹ The oncogenic serotypes 16 to 18 are the chief causes of cervical and anal dysplasia. Risk factors for progression of cervical and anal dysplasia in adolescents include HIV, number of sexual partners, and the presence of external warts.⁵⁰ HPV is commonly detected in WSW, and therefore, cervical cancer screening guidelines should follow population guidelines.^{7,15,51} Evidence is currently insufficient to recommend routine anal cytology for YMSM to assess for dysplasia.^{52,53} For YMSM with HIV, some practices perform yearly cytology with referral to high-resolution anoscopy for any abnormal results (atypical cells of undetermined significance, low-grade squamous intraepithelial lesion, high-grade squamous intraepithelial lesion), but guidelines do not yet recommend routine screening (Table 10).⁵⁴

SEXUAL HEALTH COUNSELING AND PREVENTION

Screening for STIs should always be done in concert with preventative counseling. In general, it is best to frame sexual health in a positive preventative health context rather than

focusing on fear-based messaging, which may be stigmatizing for youth. AYA should be counseled in how to use latex condoms during sex (oral, anal, and vaginal) to decrease the risk of HIV and STI transmission. In addition to reviewing the mechanics of condom use, discussing sexual health communication and condom negotiation strategies may increase utilization with sex partners.

Human Immunodeficiency Virus Pre-exposure Prophylaxis

HIV prevention has undergone a significant paradigm shift in recent years with the introduction of HIV PrEP. In 2012, the FDA approved the antiretroviral medication tenofovir-emtricitabine (TDF-FTC) as a one-pill-once-daily regimen to be used as part of a comprehensive HIV prevention strategy for adults.⁵⁵ In clinical trials of MSM and heterosexual adults, TDF-FTC has been shown to be 44% to 75% effective overall in preventing HIV transmission, and up to 98% effective in those with high levels of medication adherence.^{56–58} PrEP is recommended by the CDC, World Health Organization, and US Public Health Service for use as part of a combination HIV prevention strategy in individuals at substantial risk of acquiring HIV.^{55,59} Recent data from the IPERGAY trial also suggest that PrEP may be effective when used in an event-driven fashion around sexual activity. The regimen of 2 pills taken 2 to 24 hours before sexual activity and 1 pill at 24 and 48 hours after sexual activity reduced the risk of HIV acquisition by 86%.²⁴ At this time, however, there are no public health recommendations regarding event driven use.

YMSM and YTW are a key target population for PrEP. However, anyone who is at substantial risk for HIV should be considered candidates for PrEP, including patients with history of STI, multiple sexual partners, HIV serodiscordant partnerships, intravenous (IV) drug use, or transactional sex.⁵⁵ Before initiating PrEP, patients must be screened for HIV, because TDF-FTC alone is insufficient for the treatment of HIV and could lead to antiretroviral resistance in patients with undiagnosed infection (Table 11). Finally, PrEP is meant to be used as part of a combination prevention strategy along with condom promotion, partner communication, and regular HIV and STI testing. It is important for patients to understand that it takes an estimated 7 days for PrEP to reach peak efficacy in the rectal mucosa and closer to 3 weeks in the vaginal mucosa, and protective levels wane quickly during adherence lapses. If patients have a positive HIV test while taking PrEP, TDF-FTC should be immediately discontinued and confirmatory HIV testing should be sent. Additional guidance on PrEP provision is available from the US Public Health Service at <http://www.cdc.gov/hiv/pdf/prepguidelines2014.pdf>.⁵⁵

Human Immunodeficiency Virus Postexposure Prophylaxis

Although PrEP is a highly effective and long-term means of preventing HIV before exposure occurs, HIV postexposure prophylaxis (PEP) can prevent transmission in the setting of an acute exposure. Data on the efficacy of nonoccupational PEP are limited and are drawn largely from observational cohort studies of patients after sexual assault and on data from the use of occupational PEP to prevent transmission.⁶⁰ However, the routine use of occupational PEP to prevent health care workplace exposures has resulted in a dramatic decrease of reported occupational transmissions, with only one reported transmission since 1999.⁶¹ Nonoccupational PEP, as recommended by the CDC, consists of 3 antiretroviral

medications of at least 2 classes given for a fixed time interval of 28 days. Timing is an essential aspect of PEP provision and should be initiated as close as possible to the time of HIV exposure, and not after 72 hours. In general, PEP should be recommended in cases of unprotected receptive or insertive vaginal or anal intercourse, needle sharing, or blood or potentially infected fluid exposure where the source is HIV infected or of unknown HIV status (Fig. 2).^{60,62,63} PEP should be considered on a case-by-case basis for lower-risk exposures, including oral-vaginal, oral-penile, or oral-anal contact. Factors to consider in these cases, which could increase the risk of HIV transmission, include untreated HIV and high viral load in the source patient, the presence of nonintact mucosa or genital trauma in both partners, and the presence of concurrent STI in both partners.⁶³ In cases where expert consultation is needed to determine the need for PEP, clinicians can consult the 24-hour National Clinicians' Consultation Center PEpline at 1-888-448-4911.

Before initiating PEP, the exposed patient needs HIV testing to rule out undiagnosed HIV infection at baseline as well as testing for pregnancy, renal and hepatic function, and hepatitis status. However, the initiation of PEP should not be delayed while waiting for results, because efficacy decreases with time from exposure. The current recommended PEP regimen is once-daily TDF-FTC and twice-daily raltegravir given together for 28 days. TDF-FTC should not be used in the setting of renal impairment, for patients less than 13 years of age, or those with a Tanner stage less than 3. Alternate regimens are available, and for additional guidance on PEP provision, physicians can contact the National Clinicians' Consultation Center PEpline.^{60,62,63} Exposed patients should be followed frequently while on PEP, and follow-up HIV testing should be performed at 4 to 6 weeks and 12 weeks after the initial exposure with a fourth-generation antigen/antibody assay (Table 12). Patients with a history of repeated PEP use should receive counseling on starting PrEP.^{61,64}

Immunizations

In addition to condoms and HIV chemoprophylaxis, routine vaccination is a highly effective preventative health measure against HAV, HBV, and HPV. The quadrivalent HPV vaccine is recommended for all women ages 11 to 26 and men ages 11 to 21 to prevent high-risk HPV vaccination with HPV types 6, 11, 16, and 18. As MSM are at high risk of HPV-associated anal lesions and progression to anal dysplasia, HPV vaccination is routinely recommended through age 26 for MSM and men living with HIV.¹⁵ The Advisory Committee on Immunization Practices now recommends the recently licensed 9-valent HPV vaccine, which includes 5 additional cancer-associated types (31, 33, 45, 52, and 58).⁶⁵ Routine HPV vaccination has resulted in population level decreases in both oncogenic and nononcogenic strain HPV prevalence, and reduced rates of anal dysplasia in MSM.^{66,67} For minor youth, when parents or guardians are present at clinic visits, targeting vaccine messaging around preventative health benefits may increase uptake.⁶⁸ Finally, for all AYA, and MSM in particular, hepatitis vaccination can reduce potential morbidity associated with HAV and HBV, and patients should be caught up if not fully immunized.

FAMILY PLANNING

Another important aspect of providing sexual health care for LGBT youth involves discussing current and future family planning intentions. Providers should not make assumptions about pregnancy or fertility intentions or prevention among LGBT youth. Although some WSW may have never had male sexual contact, the majority (53%–97%) have previously had male partners, with 5% to 28% reporting male partners in the past year.^{15,69} In addition, LGBT youth are no less likely to plan for parenthood, and inquiring about family planning intentions allows providers another opportunity to better understand how patients visualize their futures and sense of family. For youth living with HIV, family planning conversations may be an opportunity to introduce discussion of PrEP for serodiscordant partners.

Providing safe and effective contraception is an essential preventative health task for youth at risk of pregnancy. When discussing methods, providers should start discussion with the long-acting reversible contraceptive methods, because they are the most efficacious.⁵¹ With contraceptive efficacy of greater than 99% with both perfect and typical use, the intrauterine devices (IUDs) and contraceptive implant (Nexplanon) are top-tier choices for AYA.⁵¹ Utilization of IUDs has historically been low in adolescents, due both to access issues and to provider concerns regarding perceived associated risk of PID. In fact, the rate of PID in IUD users is low, and this risk can be essentially eliminated by screening for gonorrhea and chlamydia at the time of insertion. In addition, the contraceptive implant is a slow-release progestin-based device that is inserted into the upper arm and can provide 3 years of highly effective contraception.^{51,70–72}

Injectable medroxyprogesterone acetate (Depo Provera), combined hormonal oral contraceptives, contraceptive patch, and contraceptive ring, although less efficacious (typical use efficacy 91%–94%), may be more attractive to youth who do not want to commit to long-term method use. For transgender men, Depo Provera, continuously cycled combined hormonal contraceptives, and progestin-based IUDs (Mirena, Skyla) are all effective options for menstrual suppression as well. It is also important to note that for transmen-identified youth who are on GnRH agonists or masculinizing hormone therapy (testosterone), these medications may not completely suppress ovulation and may be teratogenic, and therefore, additional contraceptive options may be required. Before prescribing contraception, patient and family past medical histories should be reviewed for any comorbidities that may affect method selection (ie, personal or family history of coagulopathy for estrogen-based methods). In addition, medications should be reviewed for interactions that may decrease contraceptive efficacy, such as ART.⁷²

Counseling for all methods should emphasize the importance of ongoing condom use to prevent HIV and STIs. In addition, discussion and provision of emergency contraception in the form of levonorgestrol (Plan B) or ulipristal acetate (Ella) can reduce the risk of unintended pregnancy after unprotected sex. When taken within 96 hours, these methods can significantly reduce unintended pregnancy, with failure rates of 0.9% to 2.1% for ulipristal and 0.6% to 3.1% for levonorgestrol, respectively. Advance provision of emergency contraception increases the likelihood of use in the event of unprotected intercourse, without

increasing sexual risk behavior.^{73–75} Additional guidance on contraceptive method selection and usage can be found through the US Medical Eligibility Criteria for Contraceptive Use <http://www.cdc.gov/reproductivehealth/unintendedpregnancy/usmec.htm>, as well as the US Selected Practice Recommendations (US SPR) for Contraceptive Use <http://www.cdc.gov/reproductivehealth/unintendedpregnancy/usspr.htm>.

For LGBT youth who have only same sex partners or who may have impaired fertility due to gender-affirming treatments, providers should not make assumptions about desires for childbearing, because LGBT youth may have needs for family planning similar to their cisgender and heterosexual counterparts. Childbearing options include assisted reproductive technologies, surrogacy, and adoption, and referrals to appropriate subspecialists may be made.^{76–78} Specifically, for transgender youth considering gender-affirming hormone therapy, understanding family planning intentions is essential before proceeding with hormones because both feminizing and masculinizing therapies may irreversibly impair fertility. Fertility-preserving options, including oocyte cryopreservation and sperm banking, may be available, but must be undertaken after puberty and before starting cross-gender hormones (for further discussion, see Annelou L.C. de Vries and colleagues' article, "What the Primary Care Pediatrician Needs to Know about Gender Incongruence and Gender Dysphoria in Children and Adolescents," in this issue).⁷⁹ Also, although some assume that taking testosterone will prevent pregnancy, there are reports of cases of pregnancy among people either on or who have recently stopped testosterone.

SUMMARY

Health care providers can make a critical impact on the lives of LGBT patients by providing supportive, comprehensive sexual and reproductive health care. Counseling youth on sexual development, screening for and treating STIs, diagnosing HIV and linking youth to care, providing sexual health preventative care such as vaccines and PrEP, and delivering reproductive health care including contraception are all ways providers can improve individual patient outcomes, while also creating substantial public health benefit. By offering youth-centered, gender- and sexuality-affirming sexual health services, providers can begin to mitigate many of the health care inequities faced by LGBT youth.

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KEY POINTS

- Although lesbian, gay, bisexual, transgender (LGBT) youth face many sexual health inequities, including increased risk of human immunodeficiency virus (HIV), sexually transmitted infections (STIs), and pregnancy, providers have the opportunity to help young people to grow up to become sexually healthy adults.
- Pediatricians can support the development of healthy sexual identities and behavior by discussing sexual orientation and behavior in a nonjudgmental, respectful, and confidential manner.
- It is imperative to screen for HIV and recognize symptoms of acute HIV infection among all adolescents, but special attention should be paid to young men who have sex with men and young transgender women who are disproportionately affected; early diagnosis, linkage to, and retention in care with effective treatment improves both patient-specific and public health outcomes.
- LGBT youth, like their heterosexual counterparts, are at risk for syphilis, gonorrhea, chlamydia, trichomonas, and human papilloma virus (HPV), and providers should be familiar with the recommendations for screening of these STIs.
- Providers should offer sexual health preventive services, including safer sex counseling, HIV pre-exposure and postexposure prophylaxis, and vaccination for hepatitis A, B, and HPV, as well as discussion of sexual transmission of hepatitis C by HIV-infected men who have sex with men.

Box 1**Sexual history questions using the attraction, behavior, orientation framework****Sexual attraction**

- Have you ever had a crush or been romantically involved with a boy or girl? Do you know if you are sexually attracted to men, women, or both?
- Are you dating someone? If so, tell me about this person and what that relationship is like.

Sexual behavior

- Have you ever done anything sexually, like kissing, or touching in areas below the waist with a girl or boy?
- Do you have sex with men (boys), women (girls), or both?
- Do you or have you had vaginal sex? Oral sex? Anal sex?
- For anal sex: does your partner put his penis in your anus or vice versa or both?
- How many partners have you had in the last 6 months?
- How do you protect yourself against sexually transmitted diseases and pregnancy?
- Do you use condoms for anal or vaginal sex? If so, how many times out of 10 do you use them?
- Do you have sex with anyone other than your boyfriend or girlfriend? If so, how often are you using condoms?
- Has anyone ever forced you to do something sexually that you did not wish to do?
- Have you ever needed to trade sex for money, drugs, or a safe place to stay?
- Have you ever been diagnosed with gonorrhea, chlamydia, syphilis, herpes, HIV, or another STI?
- Do you use recreational drugs when you have sex? Crystal meth? Alcohol? Cocaine? Others?

Sexual orientation and disclosure

- How would you describe your sexual orientation? For example, do you consider yourself gay, straight, lesbian, bisexual, or queer, or are you not sure or do not wish to label it?
- Have you ever talked to anyone in your family or your friends or any other adult besides me about “coming out”? How did they react?

- It is normal for people to sometimes be confused about their sexual feelings and experiences. Do you have any questions you would like to ask me about this?

Data from Dowshen N, Hawkins L, Arrington-Sanders R, et al. Sexual and gender minority youth. In: Ginsberg K, editor. Reaching teens: strength based communication strategies to build resilience and support healthy adolescent development. Elk Grove (IL): AAP Press; 2014. p. 531–8.

Fig. 1. HIV diagnoses among MSM age 13 to 24 by race and ethnicity, 2005 to 2014. (From Centers for Disease Control and Prevention. CDC Fact Sheet: Trends in U.S. HIV Diagnoses, 2005–2014 February. 2016.)

Fig. 2.

Algorithm for evaluation for HIV PEP. (*Adapted from* Kuhar, DT, Henderson DK, Struble KA, et al. Updated US Public Health Service guidelines for the management of occupational exposures to human immunodeficiency virus and recommendations for postexposure prophylaxis. *Infect Control Hosp Epidemiol* 2013;34(9):875–92; and New York State Department of Public Health. HIV prophylaxis after non-occupational exposure. 2013. Available at: <http://hivguidelines.org/clinical-guidelines/post-exposure-prophylaxis/hiv-prophylaxis-following-non-occupational-exposure/>. Accessed August 12, 2016.)

Table 1

Screening, diagnosis, and treatment of human immunodeficiency virus infection

Screening & Diagnosis of HIV			
Specimen Source	Test	Time to Positivity (d)	Screening Frequency
Blood Blood/oral fluid	HIV Ag/Ab test ^a	~15–30	<ul style="list-style-type: none"> At least annually if sexually active All who seek treatment or evaluation for STIs All 13–64 y (opt-out)^c
	HIV rapid immunoassay ^b	~22–35	
Blood	HIV RNA Qualitative or Quantitative assay	~10	If symptoms of AHI
Treatment			
ART is now recommended for all adolescents and adults living with HIV, irrespective of CD4 ⁺ cell count or viral load, to reduce the risk of disease progression and secondary transmission of HIV.			

^aFourth-generation assay detects HIV-1 and -2-specific antibodies and p24-specific antigen.

^bThird-generation immunoassay detecting HIV-specific immunoglobulin M.

^cCDC recommends screening at 13 to 64 y; the USPSTF recommends screening from 15 to 65 y.

Data from Workowski KA, Bolan GA, Centers for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines, 2015. MMWR Recomm Rep 2015;64(RR-03):1–137; and Panel on Antiretroviral Guidelines for Adults and Adolescents. Guidelines for the use of antiretroviral agents in HIV-1-infected adults and adolescents. Department of Health and Human Services. Available at <http://aidsinfo.nih.gov/contentfiles/lvguidelines/AdultandAdolescentGL.pdf>.

Table 2

Screening, diagnosis, and treatment of chlamydial infections

Screening & Diagnosis					
Specimen Source	Test	Screening Frequency			Persons with HIV
		MSM	Females		
Urine	NAAT	<ul style="list-style-type: none">• At least annually if sexually active• Every 3–6 mo if at increased risk• If symptomatic			For sexually active persons, screen at initial evaluation and then at least annually thereafter
Cervix/vagina	NAAT	–		<ul style="list-style-type: none">• Yearly if sexually active• If symptomatic	For sexually active persons, screen at initial evaluation and then at least annually thereafter
Throat	NAAT or culture ^a	Not recommended			
Anus	NAAT or culture ^a	<ul style="list-style-type: none">• At least annually if sexually active• Every 3–6 mo if increased risk or symptomatic	If report receptive anal sex or if symptomatic		For sexually active persons, screen at initial evaluation and then at least annually thereafter
Treatment					
Site of Infection	Recommended Regimen		Alternative Regimens		
Uncomplicated genital/rectal/pharyngeal infections	<ul style="list-style-type: none">• Azithromycin 1 g po in a single dose or• Doxycycline 100 mg po bid × 7 d		<ul style="list-style-type: none">• Erythromycin base 500 mg po qid × 7 d or• Erythromycin ethylsuccinate 800 mg po qid × 7 d or• Levofloxacin 500 mg po qd × 7 d or• Ofloxacin 300 mg po bid × 7 d		
Pregnant women ^b	Azithromycin 1 g po in a single dose		<ul style="list-style-type: none">• Amoxicillin 500 mg po tid × 7 d• Erythromycin base 500 mg po qid × 7 d or• Erythromycin base 250 mg po qid × 14 d or• Erythromycin ethylsuccinate 800 mg po qid × 7 d or• Erythromycin ethylsuccinate 400 mg po qid × 14 d		
Lymphogranuloma venereum	Doxycycline 100 mg po bid × 21 d		Erythromycin base 500 mg po qid × 21 d		

^a Although NAAT has superior sensitivity and specificity to culture in diagnosing rectal GC and chlamydia, not all laboratory tests are Clinical Laboratory Improvement Amendment (CLIA) certified for oropharyngeal and rectal specimens.

^b Every effort to use a recommended regimen should be made. Test-of-cure follow-up (preferably by NAAT) 3 to 4 weeks after completion of therapy is recommended in pregnancy.

Data from Workowski KA, Bolan GA, Centers for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines, 2015. MMWR Recomm Rep 2015;64(RR-03):1–137.

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Table 3

Empiric treatment of pelvic inflammatory disease and bacterial sexually transmitted infections

Treatment		
Site of Infection	Recommended Regimen	Alternative Regimens
PID: Outpatient treatment	<ul style="list-style-type: none"> Ceftriaxone 250 mg intramuscularly (IM) in a single dose OR Cefoxitin 2 g IM AND Probenecid 1 g po in a single dose OR Other parental third-generation cephalosporin PLUS Doxycycline 100 mg po bid $\times$ 14 d^a $\pm$Metronidazole 500 mg po bid $\times$ 5 d 	
PID: Parenteral treatment ^b	<ul style="list-style-type: none"> Either Cefotetan 2 g IV every 12 h OR Cefoxitin 2 g IV every 6 h PLUS Doxycycline 100 mg po or IV every 12 h^a OR Clindamycin 900 mg IV q 8 h PLUS Gentamicin 2 mg/kg IV or IM loading dose followed by 1.5 mg/kg every 8 h^c 	<ul style="list-style-type: none"> Ampicillin/Sulbactam 3 g IV q 6 h PLUS Doxycycline 100 mg po or IV q 12 h
Cervicitis	<ul style="list-style-type: none"> Azithromycin 1 g po in a single dose OR Doxycycline 100 mg po bid $\times$ 7 d^a 	
Nongonococcal urethritis	<ul style="list-style-type: none"> Azithromycin 1 g po in a single dose OR Doxycycline 100 mg po bid $\times$ 7 d^a 	<ul style="list-style-type: none"> Erythromycin base 500 mg po qid $\times$ 7 d OR Erythromycin ethylsuccinate 800 mg po qid $\times$ 7 d OR Levofloxacin 500 mg po qd $\times$ 7 d OR Ofloxacin 300 mg po bid $\times$ 7 d
Epididymitis	<p>Likely due to gonorrhea or chlamydia</p> <ul style="list-style-type: none"> Ceftriaxone 250 mg IM in a single dose PLUS Doxycycline 100 mg bid $\times$ 10 d Likely due to enteric organisms (men who practice insertive anal sex)^d Ceftriaxone 250 mg IM in a single dose 	

Treatment		
Site of Infection	Recommended Regimen	Alternative Regimens
	PLUS	
	• Levofloxacin 500 mg po daily $\times$ 10 d ^c	
	OR	
	• Ofloxacin 300 mg po bid $\times$ 10 d ^c	
Proctitis	• Ceftriaxone 250 mg IM in a single dose	
	PLUS	
	• Doxycycline 100 mg bid $\times$ 7 d ^d	

^aContraindicated for pregnant and nursing women.

^bDiscontinue IV therapy 24 h after patient improves clinically and continue with oral therapy for a total of 14 d.

^cMay use gentamicin single daily dosing of 3–5 mg/kg.

^dIf gonorrhea is documented, change to a medication regimen that does not include a fluoroquinolone.

Data from Workowski KA, Bolan GA, Centers for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines. MMWR Recomm Rep 2015;64(RR-03):1–137.

Table 4

Screening, diagnosis, and treatment of gonococcal infections

Screening & Diagnosis						
Specimen Source	Test	Screening Frequency				Persons with HIV
		Male		Female		
Urine	NAAT	<ul style="list-style-type: none"> At least annually if sexually active, regardless of condom use Every 3–6 mo if at increased risk If symptomatic 		<ul style="list-style-type: none"> Yearly if sexually active If symptomatic 		For sexually active persons, screen at initial evaluation and then at least annually thereafter
Vaginal ^a	NAAT	—				
Throat		<ul style="list-style-type: none"> At least annually if sexually active, regardless of condom use Every 3–6 mo if at increased risk If symptomatic 		If report receptive oral sex and symptomatic		
Anus	NAAT or Culture ^b	<ul style="list-style-type: none"> At least annually if sexually active, regardless of condom use Every 3–6 mo if at increased risk If symptomatic 		If report receptive anal sex and symptomatic		
Treatment						
Site of Infection	Recommended Regimen			Alternative Regimens		
Uncomplicated genital/rectal infections	<ul style="list-style-type: none"> Ceftriaxone 250 mg IM in a single dose PLUS Azithromycin 1 g po in a single dose 			<ul style="list-style-type: none"> Cefixime 400 mg in a single dose^c PLUS Azithromycin 1 g po in a single dose If allergic to cephalosporins or severe penicillin allergy Gemifloxacin 320 mg po or Gentamicin 240 mg IM PLUS Azithromycin 2 g po in a single dose 		
Pharyngeal infections	<ul style="list-style-type: none"> Ceftriaxone 250 mg IM in a single dose PLUS Azithromycin 1 g po in a single dose 					
Arthritis and arthritis-dermatitis syndrome	<ul style="list-style-type: none"> Ceftriaxone 1 g IM or IV every 24 h 			<ul style="list-style-type: none"> Cefotaxime 1 g IV every 8 h 		

Treatment		
Site of Infection	Recommended Regimen	Alternative Regimens
	PLUS	OR
	<ul style="list-style-type: none"> Azithromycin 1 g po in a single dose 	<ul style="list-style-type: none"> Cefitoxime 1 g IV every 8 h
		PLUS
		<ul style="list-style-type: none"> Azithromycin 1 g po
Gonococcal meningitis and endocarditis	<ul style="list-style-type: none"> Ceftriaxone 1–2 g IV every 12–24 h 	
	PLUS	
	<ul style="list-style-type: none"> Azithromycin 1 g po in a single dose 	

^a Although vaginal swabs are preferred over urine swabs for women, the sensitivity of urine NAAT approaches that of vaginal, and ease of specimen collection makes urine testing far more feasible in clinical practice.

^b Not all laboratories are CLIA certified for oropharyngeal and rectal specimens, although NAAT has superior sensitivity and specificity in diagnosing rectal GC and chlamydia. Clinicians should be aware of their laboratory ability to assess pharyngeal NAAT.

^c Only if ceftriaxone is unavailable.

Data from Workowski KA, Bolan GA, Centers for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines, 2015. MMWR Recomm Rep 2015;64(RR-03):1–137.

Table 5

Screening, diagnosis, and treatment of bacterial vaginosis

Screening & Diagnosis			
Specimen Source	Test	Screening Frequency	
Vaginal fluid	<ul style="list-style-type: none">Microscopy w/wet mount ORAmstel’s clinical criteria (need 3 of 4): (1) homogenous, thin white discharge, (2) >50% clue cells on microscopy, (3) vaginal fluid pH >4.5, (4) fishy odor of vaginal fluid before or after addition of potassium hydroxide (whiff test)	Asymptomatic screening not recommended Test symptomatic female patients	

Treatment			
Site of Infection	Recommended Regimen	Alternative Regimens	
Vaginal ^C	<ul style="list-style-type: none">Metronidazole 500 mg po bid × 7 d ORMetronidazole gel 0.75%, 1 applicator (5 g) intravaginally, once daily × 5 d ORClindamycin cream 2%, 1 applicator (5 g) intravaginally, once daily × 7 d^b	<ul style="list-style-type: none">Tinidazole^a 2 g po daily × 2d ORTinidazole 1 g po daily × 5 d ORClindamycin 300 mg po bid × 7 d ORClindamycin ovules 100 mg intravaginally at bedtime × 3d	

^aSafety in pregnancy has not been established; pregnancy category C.

^bMay weaken latex condoms and contraceptive diaphragms.

^cTreatment of male partners has not been shown to prevent recurrence in women.

Data from Workowski KA, Bolan GA, Centers for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines, 2015. MMWR Recomm Rep 2015;64(RR-03):1–137.

Table 6

Screening, diagnosis, and treatment guidelines of trichomonal infections

Screening & Diagnosis						
Specimen Source	Test	Screening Frequency			Persons with HIV	
		M	F			
Vaginal (collected by patient or provider)	Wet mount with direct visualization of flagellated, motile, pearshaped organisms on saline wet mount microscopy OR OSOM rapid test OR Affirm nucleic acid probe test	—	•	Consider for women receiving care in high-prevalence settings (ie, STD clinics) and at high risk (ie, multiple sexual partners, history of STD)	•	For women at entry to care and at least annually thereafter
			•	If symptomatic	•	If symptomatic
Treatment						
Site of Infection	Recommended Regimen				Alternative Regimens	
All sites	•	Metronidazole 2 g po in a single dose OR			Metronidazole 500 mg po bid × 7 d	
	•	Tinidazole 2 g po in a single dose ^d				
Infection in HIV-positive women	•	Metronidazole 500 mg bid × 7d				

^aSafety in pregnancy has not been established; pregnancy category C.

Data from Workowski KA, Bolan GA, Centers for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines, 2015. MMWR Recomm Rep 2015;64(RR-03):1–137.

Table 7

Screening, diagnosis, and treatment of syphilis

Screening & Diagnosis					
Specimen Source	Test	Screening Frequency			
		Male	Female	Persons with HIV	
Blood	RPR or VDRL with reflex treponemal test	•	At least annually if sexually active	Not recommended	At first HIV evaluation and then at least annually thereafter
		•	Every 3–6 mo if increased risk		
Treatment					
Stage of Disease	Recommended Regimen	Alternative Regimens ^a			
Primary, secondary, and early latent syphilis	Benzathine penicillin G 2.4 million units in a single dose	• Doxycycline 100 mg po bid × 14 d			
		OR			
		• Tetracycline 500 mg po qid × 14 d			
		OR			
		• Ceftriaxone 1 g IM or IV qd × 10–14 d			
Late latent and latent of unknown duration	Benzathine penicillin G 7.2 million units total, administered as 3 doses of 2.4 million units IM at 1-wk intervals	• Doxycycline 100 mg po bid × 28 d			
		OR			
		• Tetracycline 500 mg po qid 28 d			
Tertiary syphilis with normal CSF	Benzathine penicillin G 7.2 million units total, administered as 3 doses of 2.4 million units IM at 1-wk intervals				
Neurosyphilis and ocular syphilis ^b	Aqueous crystalline penicillin G 18–24 million units per day, administered as 3–4 million units IV every 4 h or continuous infusion for 10–14 d	• Procaine penicillin G, 2.4 million units IM qd × 10–14 d			
		PLUS			
		• Probenecid 500 mg po qid × 10–14 d			

^a Alternates should be used only for penicillin-allergic patients. Efficacy of these therapies has not been established. Compliance these regimens is difficult, and close follow-up is essential. If compliance or follow-up cannot be ensured, or if the patient is pregnant, the patient should be desensitized and treated with benzathine penicillin.

^b Some specialists recommend 2.4 million units of benzathine penicillin G every week for up to 3 wk after completion of neurosyphilis treatment.

Data from Workowski KA, Bolan GA, Centers for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines, 2015. MMWR Recomm Rep 2015;64(RR-03):1–137.

Table 8

Screening, diagnosis, and treatment of hepatitis A, B, and C

Screening & Diagnosis					
Virus	Specimen Source	Test	Screening Frequency		Persons with HIV
			Male	Female	
HAV	Blood	Hepatitis A IgM	Routine screening not recommended. MSM should be vaccinated if not immune		
HBV	Blood	Hepatitis B surface antigen (HBsAg)	All patients should be screened before initiation of HIV PrEP All adolescents should be vaccinated if not immune		All HIV-infected patients should be tested with HBsAg, hepatitis B core antibody, and hepatitis B surface antibody at entry to care
HCV	Blood	Hepatitis C antibody ^a	Annually if patient has risk factors (MSM or IDU)		Annually or as indicated by risk exposure
Treatment					
Virus	Recommended Regimen				
HAV	Supportive care only				
HBV	Patients should be referred to a physician with expertise in treatment of hepatitis C				
HCV	Patients should be referred to a physician with expertise in treatment of hepatitis C. Consult http://www.hcvguidelines.org for the most up-to-date treatment guidelines				

^aPositive HCV antibody results should be followed with a reflex HCV RNA level.*Data from Workowski KA, Bolan GA. Centers for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines, 2015. MMWR Recomm Rep 2015;64(RR-03):1–137.*

Table 9

Screening, diagnosis, and treatment of herpes simplex viral infections

Screening & Diagnosis					
Specimen Source	Test	Screening Frequency		Persons with HIV	
		Male	Female		
Blood	HSV serologies	Asymptomatic screening for HSV with serologies is not recommended due to high population seropositivity			
Lesion	Polymerase chain reaction or cell culture	If lesions present			
Treatment					
Site of Infection	Recommended Regimen				
First clinical episode of anogenital herpes	<ul style="list-style-type: none">Acyclovir 400 mg po tid × 7–10 d ORAcyclovir 200 mg po 5 × daily × 7–10 d ORValacyclovir 1 g po bid × 7–10 dFamciclovir 250 mg po tid × 7–10 d				
Established infection	Suppressive therapy ^{a,b,c} <ul style="list-style-type: none">Acyclovir 400 mg po bid^a ORValacyclovir 1 g po daily ORValacyclovir 500 mg po daily^b ORFamciclovir 250 mg po tid Episodic therapyAcyclovir 400 mg po tid × 5 d ORAcyclovir 800 mg po tid × 2d ORValacyclovir 500 mg po bid × 3d ORValacyclovir 1 g po daily × 5 d ORFamciclovir 1 g po bid × 1 dFamciclovir 500 mg once followed by 250 mg po bid × 2d				
Patients with HIV	Suppressive therapy <ul style="list-style-type: none">Acyclovir 400–800 mg po bid-tid OR				

Screening & Diagnosis				
Specimen Source	Test	Screening Frequency		Persons with HIV
		Male	Female	
	<ul style="list-style-type: none"> Valacyclovir 500 mg po bid OR Famciclovir 500 mg po bid Episodic therapy Acyclovir 400 mg po tid × 5–10 d OR Valacyclovir 1 g po daily × 5–10 d OR Famciclovir 500 mg po bid × 5–10 d 			
Pregnant women	Suppressive therapy <ul style="list-style-type: none"> Acyclovir 400 mg TID 			

^aThe goal of suppressive therapy is to reduce recurrent symptomatic episodes and/or to reduce sexual transmission. Famciclovir appears somewhat less effective for suppression of viral shedding.

^bIf HSV lesions persist or recur during antiviral treatment, drug resistance should be suspected. Obtaining a viral isolate for sensitivity testing and consulting with an infectious disease expert is recommended.

^cValacyclovir 500 mg daily may be less effective than other regimens in patients with very frequent recurrences (10/yr).

Data from Workowski KA, Bolan GA, Centers for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines, 2015. MMWR Recomm Rep 2015;64(RR-03):1–137.

Table 10

Screening, diagnosis, and treatment of human papilloma viral infections

Screening & Diagnosis of Cervical and Anal Dysplasia				
Specimen Source	Test	Screening Frequency		Persons with HIV
		Male	Female	
Cervix Anus	Cervical cytology via conventional Pap smear or liquid-based cytology (ie, thin prep) ^a	Guidelines not available	Every 3 y for women 21–29	Women should be screened within 1 y of diagnosis and then repeated 6 mo later
Treatment of HPV				
Site of Infection	Recommended Regimen			
External anogenital wart	Patient-applied			
	<ul style="list-style-type: none"> Imiquimod 5% cream^{b,c} 			
	OR			
	<ul style="list-style-type: none"> Podofilox 0.5% solution or gel^b 			
	OR			
	<ul style="list-style-type: none"> Sinecatechins 15% ointment^b Provider-administered 			
	<ul style="list-style-type: none"> Cryotherapy with liquid nitrogen or cryoprobe^d 			
	OR			
	<ul style="list-style-type: none"> Trichloroacetic acid (TCA) 80%–90% 			
	OR			
	<ul style="list-style-type: none"> Bichloroacetic aciC (BCA) 80%–90% 			
	OR			
	<ul style="list-style-type: none"> Surgical removal (scissor excision, tangential shave excision, curettage, laser or electrosurgery) 			
Mucosal genital warts ^e	<ul style="list-style-type: none"> Cryotherapy 			
	OR			
	<ul style="list-style-type: none"> TCA or BCA 80%–90% 			
	OR			
	<ul style="list-style-type: none"> Surgical removal 			

^a HPV co-testing not recommended in women <30 years of age.^b Safety in pregnancy has not been established; pregnancy category C.^c May weaken latex condoms and diaphragms.^d Do not use cryoprobe in vagina because of risk of perforation or fistula.^e Cervical and intra-anal warts should be managed in consultation with specialist.

Data from Workowski KA, Bolan GA, Centers for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines, 2015. MMWR Recomm Rep 2015;64(RR-03):1–137.

Table 11

Human immunodeficiency virus pre-exposure prophylaxis laboratory tests and visit schedule

	Baseline Visit	Every 3 mo (Minimum)	Every 6 mo (Minimum)
HIV testing ^a	X	X	–
Assess for symptoms of AHI ^b	X	X	–
Hepatitis B surface antigen, ^c hepatitis C serology	X	–	–
Hepatitis B immunization if nonimmune	X	–	–
Serum creatinine ^d	X	–	X
STI testing	X	–	X (at minimum)
Pregnancy testing	X	X	–
Assess for side effects ^e	–	X	–
Adherence counseling	X	X	–
Prevention counseling	X	X	–

^aRapid or fourth-generation assay, send HIV RNA qualitative or quantitative if concern for high-risk recent exposure with last month, or if symptoms of AHI.

^bTypically fever, rash, pharyngitis, lymphadenopathy. If present within preceding month, send HIV RNA qualitative or quantitative assay to rule out HIV infection.

^cPatients with positive HBsAg should be evaluated by a clinician experienced in treatment of HBV before initiating PrEP. TDF-FTC is also used to treat hepatitis B, and abrupt discontinuation in patients with HBV can cause fulminant liver failure.

^dTDF-FTC is contraindicated if creatinine clearance less than 60 mL/min because it has known nephrotoxic potential.

^eMost commonly nausea, GI upset, and headache.

Data from US Public Health Service. Preexposure prophylaxis for the prevention of HIV infection in the United States–2014 clinical practice guideline. Centers for Disease Control and Prevention, Department of Health and Human Services. Atlanta (GA): US Public Health Service; 2014. p. 1–67.

Table 12

Human immunodeficiency virus postexposure prophylaxis visit and laboratory testing schedule

	Baseline	Week 1	Week 2	Week 3	Week 4	Week 12
Clinic visit	X	X w/in 72 h ^f	X	X Or phone	X	X
HIV testing of exposed patient ^a	X	-	-	-	X	X
Pregnancy testing ^b	X	-	X	-	-	-
Renal and hepatic function testing ^c	X	-	X	-	X	-
STI testing ^d	X	-	X	-	-	-
Hepatitis B Surface Antigen ^e	X	-	-	-	-	X
Hepatitis C Antibody	X	-	-	-	-	X

^aPreferably with fourth-generation assay. If symptoms of AHI or high-risk encounter in preceding 6 weeks, test with qualitative or quantitative HIV RNA. Every attempt should be made to test the source patient as well and PEP can be discontinued if the source has a negative fourth-generation test with no symptoms of acute HIV or high-risk exposures in preceding 6 wk.

^bConsider emergency contraception if unprotected intercourse in previous 96 h.

^cTDF-FTC is contraindicated in patients with renal impairment.

^dGonorrhea, chlamydia, and syphilis. In cases of sexual assault or if concern for STI coinfection, treat empirically with ceftriaxone, azithromycin, and metronidazole.

^eImmunize against hepatitis B if not previously immunized.

^fTo assess side effects (typically nausea, vomiting, headache) and adherence.

Data from Refs. 60,62,63