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Dermatologic Care for Lesbian, Gay, Bisexual, and Transgender Persons. Part II. Epidemiology, Screening, and Disease Prevention

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Abstract

Lesbian, gay, bisexual, and transgender (LGBT) persons face important health issues relevant to dermatologists. Men who have sex with men (MSM) are at higher risk of certain infectious diseases, including HIV, syphilis and other sexually transmitted diseases (STDs), methicillin-resistant *Staphylococcus aureus* infections, and invasive meningococcal disease, and might be at higher risk of non-infectious conditions, including skin cancer. Recommendations for preventive health care, including screening for HIV and other STDs, sexual health-related vaccinations, and HIV pre-exposure prophylaxis, differ for MSM compared with non-MSM. Women who have sex with women experience disparities in STDs, including chlamydia and HPV. Transgender patients have unique, and often unmet, dermatologic needs during gender transition (also called gender affirmation), related to hormonal therapy and gender-affirming surgery. Familiarity with LGBT health issues and disease-prevention guidelines can enable dermatologists to provide medically appropriate and culturally competent care to LGBT persons.

Keywords

Sexual minority; Lesbian; Gay; Bisexual; Transgender; LGBT; Dermatology; HIV; Sexually transmitted diseases; Skin cancers; Indoor tanning; Dermal fillers; Cross-sex hormone; Gender affirmation

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Classifications

Epidemiology; Health services research; Public policy; Prevention; Public health; Endocrinology

I. Introduction

Lesbian, gay, bisexual, and transgender (LGBT) persons face important health disparities that include conditions relevant to dermatology. Knowing about those disparities, and about public-health approaches to mitigating them, can enable dermatologists to provide medically appropriate and culturally competent care to LGBT persons, including referrals to other providers if needed. Dermatologic care for LGBT patients has not been widely discussed in the literature.[1] Because many LGBT health issues relevant to dermatology relate to sexual behavior, rather than sexual orientation, this review largely focuses on behavioral categories such as men who have sex with men (MSM) and women who have sex with women (WSW). This review describes dermatology-related health concerns among MSM, WSW, and transgender persons.

II. Men Who Have Sex With Men

Key Points:

- **MSM are at higher risk than men who have sex with women (MSW) for certain infectious conditions, including HIV and other STDs, Kaposi sarcoma (KS), viral hepatitides, MRSA skin infections, and invasive meningococcal disease and might be at higher risk for certain non-infectious conditions, including skin cancer**.
- **Recommendations regarding HIV and STD screening, sexual-health-related vaccinations, and HIV pre-exposure prophylaxis (PrEP) differ for MSM compared with MSW**.
- **Recommendations for HIV non-occupational post-exposure prophylaxis (nPEP) apply to MSM**.

Compared with MSW, MSM are at higher risks for certain dermatology-related infectious diseases (Table 1). As discussed in part 1, eliciting a sexual history, including gender(s) of sex partners, can help physicians stratify patients' risk for those conditions. Eliciting a sexual history can also help physicians determine which, if any, preventive-health services their patients might need, because recommendations are in many cases different for MSM than MSW. Those preventive-health services could be provided by dermatologists, but if needed dermatologists can and should refer patients to other providers to obtain those services.

Infectious diseases

HIV—HIV disproportionately affects MSM, who accounted for 615,400 (56%) of 1.1 million persons living with HIV and 26,200 (70%) of 39,513 newly diagnosed HIV infections in the United States in 2014.[2, 3] Risk factors for HIV infection include multiple

sexual partners, unprotected intercourse (particularly receptive anal sex), co-infection with other sexually transmitted diseases (STDs), and substance use during sex.[4] Acute HIV infection can present with morbiliform eruption, lymphadenopathy, influenza-like or other signs or symptoms,[5] and cutaneous manifestations of chronic HIV infection include seborrheic dermatitis, folliculitis, psoriasis, prurigo nodularis, and other conditions.[6] Testing for acute HIV infection should include an HIV antigen/antibody immunoassay (also known as a 4th generation HIV test) and an HIV RNA test (either concurrently or if the immunoassay was negative).[3]

Syphilis—Incidence of primary and secondary syphilis, from *Treponema pallidum* infection, increased from 2.1 cases per 100,000 persons in 2000 to 8.7 cases in 2016, with MSM accounting for 81% of all male cases in 2016.[7] Ocular syphilis and neurosyphilis can develop during any stage of syphilis infection, presenting with cognitive dysfunction, motor or sensory deficits, ophthalmic or auditory symptoms, cranial nerve palsies, symptoms or signs of meningitis or stroke, and uveitis or other ocular manifestations (e.g., neuroretinitis and optic neuritis).[3] More than 200 cases of ocular syphilis were reported in 2014–2015, mostly affecting HIV-positive MSM.[8] Symptomatic neurosyphilis developed in 2.1% and 0.3%, respectively, of HIV-positive and HIV-negative MSM diagnosed with syphilis in Los Angeles in 2001–2004.[9] All patients diagnosed with syphilis, regardless of stage or HIV status, should be asked about neurologic and ocular symptoms and should undergo a neurological exam, including cranial nerve examination.[3] Patients with ocular or neurologic complaints should additionally receive ophthalmologic or neurologic evaluation and lumbar puncture with cerebrospinal fluid examination.[8]

Gonorrhea and Chlamydia—Infections from *Neisseria gonorrhea* and *Chlamydia trachomatis* may affect the pharynx, rectum, and/or urethra.[10, 11] In one study, approximately 70% and 85% of gonorrhea and chlamydia infections in asymptomatic MSM were detected in the pharynx or the rectum rather than the urethra, underscoring the importance of screening at all three sites, if exposed, rather than only the urethra.[12] Urethral gonorrhea typically presents with discharge and dysuria, and can disseminate hematogenously to infect the skin and joints.[13] Lymphogranuloma venereum (LGV) outbreaks, caused by *C. trachomatis* serovars L1–L3, have been reported among MSM in North America and Europe.[14–16] Unlike the classic presentation of urogenital ulcer and suppurative inguinal lymphadenopathy, most LGV cases presented as proctocolitis without lymphadenopathy.[15, 17, 18]

MRSA—Clusters of multidrug-resistant, community-associated, methicillin-resistant *Staphylococcus aureus* (MRSA) infections have occurred among MSM, mostly affecting skin and soft tissue in the buttocks, genitals, or perineum.[19–22] Most MRSA infections are caused by the USA300 clone, which confers resistance to quinolones, mupirocin, tetracycline, and clindamycin.[19] Transmission can occur by direct skin-to-skin contact during sex; risk factors include nasal and perianal colonization, illicit drug use, multiple sexual partners, and prior MRSA infection.[20–22]

Genital herpes—Genital herpes, mostly caused by herpes simplex virus type 2 (HSV-2), is characterized by recurrent, painful ulcers. HSV-2 seroprevalence is higher among MSM than heterosexual men.[23] HSV-2 infection can increase HIV acquisition risk among MSM by 70%.[24] However, suppressive treatment of HSV-seropositive, HIV-negative MSM with acyclovir did not decrease risk of HIV acquisition, although it decreased genital ulcer incidence by 47%.[25]

HPV—Human papillomavirus (HPV) infection, which disproportionately affect MSM (Table 1), can cause anogenital warts, and pre-malignant and malignant anal and penile lesions, and oropharyngeal cancer.[329] Compared with heterosexual men, MSM have higher prevalence of anal,[26] penile,[26] and oral[27] HPV infection, including infection with high-risk HPV types. According to the Centers for Disease Control and Prevention (CDC), patients with perianal warts might benefit from digital anal examination or referral for standard or high-resolution anoscopy to detect intra-anal warts.[3] However, improvements in morbidity or mortality associated with detection and treatment of intra-anal warts have not been shown. Anal cancer incidence among MSM is comparable – and among MSM living with HIV greater than – cervical cancer incidence among women before widespread screening with cervical Papanicoulau smears.[28] Patients with perianal warts might benefit from digital anal examination or referral for standard or high-resolution anoscopy to detect intra-anal warts.[3] However, according to CDC, evidence is insufficient to recommend routine anal cancer screening among MSM, including HIV-positive MSM, although some institutions do perform that screening, particularly for HIV-positive MSM, using anal Papanicoulau smears and high-resolution anoscopy.[3]

Meningococcal disease—Outbreaks of invasive *Neisseria meningitides* infections occurred in MSM, disproportionately affecting HIV-positive MSM, in New York, Los Angeles, Chicago, Toronto, and Europe in 2001–2015.[30–33] Early symptoms include nonspecific influenza-like illness followed by retiform purpura, hemorrhagic bulla, and disseminated intravascular coagulation. Rapid diagnosis and treatment are critical, given the high case-fatality rate of 42%.[31]

KS, caused by human herpesvirus-8 (HHV-8), disproportionately affects MSM outside endemic regions, and HHV-8 seroprevalence among MSM ranges from 8–38%.[34–38] In addition to its association with advanced HIV infection, KS has also been reported in HIV-positive MSM with high CD4 counts and low HIV viral loads and in HIV-negative MSM.[39, 40]

Viral hepatitides—MSM accounted for 10% and 20% of incident hepatitis A virus and hepatitis B virus infections in U.S. adults.[41] Hepatitis A and B virus infections can present as jaundice and urticaria.[42] Hepatitis A virus is transmitted by fecal-oral route, which can include oral-anal intercourse.[43, 44] Cutaneous manifestations of hepatitis C virus infection can include lichen planus, mixed cryoglobulinemia, leukocytoclastic vasculitis, and porphyria cutanea tarda.[42] Hepatitis C virus is most commonly transmitted by shared injection drug use, but can also be transmitted by sexual intercourse; risk factors among HIV-positive MSM include mucosally traumatic sex and having sex while using methamphetamine.[45]

Non-infectious diseases

Skin cancer and indoor tanning—Skin cancer and indoor tanning might be more common among MSM.[46–50] In national and California surveys from 2001 to 2013, gay and bisexual men were twice as likely as heterosexual men to report having had non-melanoma skin cancers.[47] In those surveys, indoor tanning and frequent indoor tanning were 2 to 6 times more common among gay and bisexual men than heterosexual men.[46–48] MSM may also have lower rates of sun protective clothing use despite higher rates of skin cancer screening examinations and sunscreen use.[46] Higher prevalence of body image dissatisfaction and psychological distress among MSM have been proposed as possible mediators for increased indoor tanning.[51] Targeted behavioral counseling and public health interventions may be warranted to reduce indoor tanning and skin cancer risks among MSM.[51]

"Poppers" dermatitis—Volatile alkyl nitrites, commonly called "poppers," are used by some MSM as recreational inhalants to induce a brief rush with vasodilation, euphoria, smooth muscle relaxation, and sexual arousal.[52] "Poppers" are often sold as "video head cleaners" and "room odorisers."[52] "Poppers" dermatitis presents as an eczematous eruptions around the nasal orifices, perioral region, cheeks, or upper chest from either irritant or allergic contact dermatitis due to amyl nitrite or admixed fragrances.[53] A yellowish crust is commonly present due to the xanthoproteic reaction from nitric acid.[53] Identification of dermatitis in specific areas (e.g., in areas corresponding to jean pockets or socks where small glass vials of poppers can be carried, or on the penis onto which poppers were spilled) requires careful history taking and high clinical suspicion.[53, 54] Chemical leukoderma in the perinasal region, acrocyanosis, and methemoglobinemia have been reported with chronic use.[55–57] Life-threatening hypotension can occur if "poppers" are used concurrently with phosphodiesterase-5 inhibitors, such as sildenafil.[58]

Preventive Health Services

MSM-specific recommendations from CDC and/or the U.S. Preventive Services Task Force (USPSTF) for HIV and STD screening, sexual health-related vaccinations, and HIV pre-exposure prophylaxis are as follows (Table 2):

HIV and STD screening—Screening means testing for a disease in persons without signs or symptoms of that disease. Screening for HIV and other STDs, including syphilis, urethral and rectal gonorrhea and chlamydia, and pharyngeal gonorrhea, should be done annually for non-monogamous, sexually active MSM, with more frequent screening (every 3–6 months) recommended for MSM with persistent risk behaviors or if they or their sex partners have multiple sex partners.[3] One-time screening for hepatitis B virus infection is recommended for all MSM not known to be or to have been infected, or to have been vaccinated. Screening for hepatitis C virus infection is recommended for HIV-positive MSM.[3] CDC does not recommend routine screening for HSV-2 infection for MSM. USPSTF recommends screening for MSM for HIV (at least annually) and syphilis (uncertain optimal frequency; every three months appears more effective than annually).[59, 60] Both of those USPSTF recommendations have an "A" grade, meaning that there is high certainty that the net benefit

is substantial and that they must be covered by U.S. insurance companies without patients incurring out-of-pocket expenses.[61,62]

Vaccinations—MSM should receive the 4- or 9-valent HPV vaccine through age 26 (which is the same age cut-off as for women; heterosexual men should be vaccinated through age 21 and may be vaccinated through age 26);[63] hepatitis A and B vaccine if not previously infected;[3] and meningococcal vaccine if HIV-positive or if living in or traveling to cities with outbreaks (Table 3).[33, 64]

PrEP refers to chemoprevention for persons at high risk of HIV acquisition, including subgroups of MSM, heterosexually active men and women, and intravenous drug users. Notably, survey data from 2007 to 2012 showed that 24.7% of sexually active, HIV-negative MSM aged 18–59 years met CDC criteria for consideration of PrEP (Table 1).[65] The antiretroviral medicine emtricitabine-tenofovir disoproxil fumarate, taken once daily, is FDA-approved for PrEP and can reduce HIV incidence by up to 92%.[66] Concurrent safer sex practices, including condom use, are recommended while taking PrEP.[3, 67] PrEP users should be screened for HIV every 3 months and STDs at least every 6 months.[67, 68] Although one study has shown high STD rates among MSM taking PrEP,[69] another study predicted that frequent STD screening and treatment associated with receiving PrEP could result in a decline in STD incidence.[70] A national directory of PrEP providers can be found at www.preplocator.org.[71]

nPEP is indicated for HIV-negative persons following exposures that carry substantial risks of HIV acquisition. For MSM, relevant exposures include unprotected receptive anal intercourse with an untreated HIV-positive person. The 28-day course of nPEP, consisting of antiretroviral medications, must be initiated within 72 hours after exposure, making prompt referral to urgent care or an emergency department critical.[72]

III. Women Who Have Sex With Women

Key Points:

- **WSW are at risk for HIV and other STDs**.
- **Guidelines for HIV, STD, and cervical cancer screening and HPV vaccination apply to both WSW and heterosexual women**.

Dermatologic concerns among women who have sex with women (WSW) are understudied in the literature. Previously thought to be at low-risk for HIV and other STDs, WSW are at risk for acquiring HIV and STDs from current and prior female and/or male partners.[73] Few WSW employ safer sex practices since many do not face pregnancy risks and perceive themselves to be at low risk for STD acquisition.[74–76] However, transmission of HIV, genital warts, HSV, trichomoniasis, syphilis, hepatitis A virus, and bacterial vaginosis among WSW have been reported.[77, 78] Notably, women who have sex with both men and women have higher self-reported STD rates than women who have sex with men only.[73] In some settings, chlamydia prevalence (7.1% vs. 5.3%),[79] HSV-2 seropositivity (30–36% vs. 24%)[80], and bacterial vaginosis (45% vs. 29%)[81, 82] oral HPV infection (6.6% vs. 2.9%),[27] and oral high-risk HPV infections (3.6% vs. 1.2%)[27] were higher among WSW than among women who

have sex with men. However, many WSW believe they have less need for screening and report lower Pap smear utilization rates.[83] HPV vaccination initiation and completion rates may also be lower among lesbians than heterosexual women.[84–86] Guidelines for HIV, syphilis, chlamydia, gonorrhea, and cervical cancer screening and HPV vaccination do not differ between WSW and women who have sex with men.[3] Safer sex counseling for WSW should highlight the possibility of HIV and STD transmission and acquisition among WSW and encourage safer sex practices.[74–76]

IV. Transgender Individuals

Key Points:

- **Transgender individuals, particularly those receiving gender-affirming hormone and surgical treatments, have unique skin health needs**.
- **Dermatologists should be aware of potential complications of gender-affirming treatments and offer appropriate counseling for patients seeking those treatments**.

Transgender individuals, particularly those who undergo gender-affirmation treatments (see **Part I. Health Disparities and Approaches to Care**), experience unmet and unique dermatologic needs. Dermatologists can play important roles in transgender health by helping manage cutaneous adverse effects of hormonal and surgical treatments; performing safe and effective procedures that contribute to gender affirmation; and facilitating screening and preventive care in a welcoming environment.[87]

Transgender Men

Transgender men who receive cross-sex hormone therapy may receive testosterone through intramuscular or subcutaneous injections or transdermal patch, gel or cream.[88] Desired effects may include increases in facial and body hair, redistribution of subcutaneous fat, changes in sweat and odor pattern, deepening of voice, cessation of menses, decrease in breast size, clitoral enlargement, and reduction of gender dysphoria.[88, 89]

Common cutaneous adverse effects of testosterone treatment include acne vulgaris and androgenetic alopecia. Testosterone significantly increases sebum production, and acne on the face, back, or chest develops in 88–94% of patients within 4–6 months of testosterone initiation.[90–92] Most cases decrease in severity after 12 months of testosterone therapy and respond to topical retinoids and topical or oral antibiotics.[91, 92] Severe acne in transgender men has been successfully treated with isotretinoin.[93] In the United States, the Food and Drug Administration requires patients initiating isotretinoin to register with iPLEDGE, a Risk Evaluation and Management Strategy that aims to minimize fetal exposure to isotretinoin, which is a teratogen. iPLEDGE mandates classification of patients according to sex assigned at birth, which is not acceptable to some transgender patients; for that reason, some have advocated that iPLEDGE classify persons by pregnancy potential rather than sex or gender.[94, 93] Notably, pregnancies have been reported in transgender men who receive testosterone and are amenorrheic.[95] When considering isotretinoin for transgender patients,

clinicians should discuss contraception and pregnancy testing based on a patient's anatomy, pregnancy potential, sexual behavior, and iPLEDGE requirements.[96]

Androgenetic alopecia may be desirable for some transgender men who consider it as a masculine feature and undesirable for others. Severity correlates with duration of testosterone treatment.[89] 33% of transgender men develop mild alopecia and 31% develop moderate-to-severe alopecia after an average of 10 years of testosterone treatment.[91] In a case series, 10 transgender men with grade IV alopecia on the Norwood-Hamilton scale were treated with finasteride 1 mg daily, showed one grade improvement after a mean of 5.5 months, and reported no significant side effects after a mean of 16.2 months.[97] Optimal timing and use of selective 5α-reductase inhibitors and/or minoxidil to treat testosterone-induced alopecia in transgender men, without blocking desired secondary sex characteristics development, is not established. The Endocrine Society Clinical Practice Guidelines recommends similar alopecia treatments for transgender and cisgender men.[98]

Some transgender men undergo individualized combinations of gender-affirming "top" and "bottom" surgeries. "Top" surgery includes chest reconstruction (mastectomy, nipple-areola complex reduction and reposition, and/or chest contouring).[99–101] Prior to such surgery, many transgender men bind their chests, which flattens its appearance but can also commonly result in cutaneous side effects that including pain, swelling, itch, skin breakdown, acne, miliaria, fungal infections, contact dermatitis, and scarring.[102] "Bottom" surgery can include metoidioplasty (which alters clitoral appearance), phalloplasty, urethroplasty, hysterectomy, oophorectomy, and vaginectomy.[99–101] Surgical scars, particularly keloids from chest reconstruction, may be prominent and distressing and can be treated like other postsurgical keloids with intralesional corticosteroids, radiofrequency devices, or lasers.[99]

Transgender Women

Transgender women who receive cross-sex hormone therapy may receive estrogen through intramuscular injections, transdermal patch, orally or sublingually.[88] Ethinyl estradiol, common in oral contraceptives, is not recommended due to high risk of venous thromboembolism.[88] Anti-androgens such as intramuscular medroxyprogesterone acetate, oral progesterone, spironolactone, finasteride, or dutasteride may be used with or without estrogen.[88] Desired effects of hormone therapy include breast development, reduction of body and facial hair, redistribution of subcutaneous fat, changes in sweat and odor pattern, arrest or reversal of hair loss, decrease in sebum production, improvement in acne, and reduction in gender dysphoria.[88] Melasma from exogenous estrogens can occur.[103] Facial hair growth is often resistant to hormonal therapy, and hair removal procedures represent the most performed facial procedure among transgender women.[87] Topical eflornithine, electrolysis, photoepilation, or laser hair removal may reduce the need for shaving or depilatory use.[88]

Some transgender women may also undergo gender-affirming surgeries. "Top surgery" may include breast augmentation.[101] Speech therapy and/or vocal cord surgery may increase the vocal pitch reduce thyroid cartilage prominence.[101] "Bottom surgery" may include vaginoplasty (neovagina reconstruction) with or without penectomy and orchiectomy.[99, 101]

Transgender men or women undergoing some types of “bottom surgery” may require preoperative laser hair removal at the donor skin site; in transgender women, intra-vaginal hair growth can cause irritation, infection, formation of hairballs and calculi, and poorer satisfaction with surgical outcomes.[104] However, pre-operative donor-site electrolysis did not reduce postoperative intra-vaginal hair complications in one study.[104] Lack of hair regrowth should be confirmed 3 months after the most recent laser session before proceeding with surgery.[105] Condyloma acumintata[106–109] and carcinomas[110–115] of the neovagina have been reported; referral for internal examination can be considered, especially for patients with prior external genital warts.

Transgender women often seek feminizing facial and body contouring procedures, which can improve quality of life.[116] Many transgender women have received illicit “silicone” or “filler” injections in the buttocks, hips, breasts, face, or calves from unlicensed, low-cost “pumpers.”[88, 117–119] Injected substances have included food- or industrial-grade silicone, paraffin, petroleum jelly, lanolin, beeswax, various oils, tire sealant, cement glue, and automobile transmission fluid; volumes have ranged from 2 ounces to 8 liters.[117] Serious complications, including foreign-body granulomas, bacterial or atypical mycobacterial infections, bleeding, pain, scarring, ulceration, fistula formation, gross disfiguration, lymphedema, silicone migration or embolism, sepsis, hypersensitivity pneumonitis, and death have occurred hours to decades later.[88, 117] Treatments for filler-induced nodules include intralesional corticosteroids; topical tacrolimus; oral doxycycline, minocycline, or isotretinoin; etanercept; carbon dioxide ablative laser; or surgical excision.[120] Infection should be excluded prior to immunosuppressant use. Persons injected with “fillers” should be screened for hepatitis C virus infection.[88]

Dermatologists can provide gender-affirming injectable treatments.[87] Botulinum toxin injections can lift, shape or flatten the forehead and eyebrows, reduce appearance of periorbital rhytides, or reduce masseter hypertrophy for lower face contouring.[121] Soft tissue augmentation of the cheeks, lips, or chin can be considered.[121] High costs and lack of access to culturally competent providers represent major barriers to care.[87]

Transgender women are at risk for HIV and STDs and should receive screening and prevention based on anatomy-specific sexual behaviors.[88] Notably, 28% of transgender women overall, and 56% of black transgender women, tested HIV-positive in the United States in 1990–2003.[122] PrEP referrals can be considered for transgender women who have sex with men, following the same criteria as for MSM (Table 2).[88] PrEP appears to be effective when taken appropriately by transgender women,[123] although substantial social and structural barriers to PrEP uptake and adherence need to be addressed.[123]

V. Conclusions

Many LGBT health concerns are relevant to dermatologists. By familiarizing themselves with those health concerns, adhering to disease prevention guidelines, and providing appropriate counseling, treatment, and preventive-health care (including referrals when necessary), dermatologists can provide medically appropriate and culturally competent care to LGBT persons.

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Abbreviations and Acronyms

LGBT	Lesbian, gay, bisexual, and transgender
MSM	men who have sex with men
HIV	human immunodeficiency virus
STDs	sexually transmitted diseases
WSW	women who have sex with women
KS	Kaposi sarcoma
PrEP	pre-exposure prophylaxis
nPEP	non-occupational post-exposure prophylaxis
LGV	lymphogranuloma venereum
MRSA	methicillin-resistant *Staphylococcus aureus*
HSV-2	herpes simplex virus type 2
HPV	human papillomavirus
CDC	Centers for Disease Control and Prevention
HHV-8	human herpesvirus-8
USPSTF	U.S. Preventive Services Task Force

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Table 1

Selected infectious diseases disproportionately affecting men who have sex with men (MSM).

Viral infections	
HIV	• MSM accounted for 70% of 39,513 new HIV cases in the U.S. in 2014.[2, 3] • Prevalence of HIV infection among MSM in the United States was estimated at 15% in 2012.[124] • HIV diagnosis from 2005–2014 declined by 18% among white MSM, but increased by 22% among black MSM and by 24% among Latino MSM.[125]
Genital herpes simplex virus	• Herpes simplex virus type 2 seroprevalence was 18.4% in MSM and 12.5% in non-MSM.[23]
HPV	• Anal cancer incidence (cases per 100,000 person-years) was 45.9 among HIV-positive MSM, 5.1 among HIV-negative MSM, and 1.5 among U.S. men overall.[28, 126] • 74% of HIV-positive and 37% of HIV-negative MSM had high-risk anal infection with HPV types 16 and/or 18.[28] • 18.2% and 12.7% of men reporting ever having had a same-sex sexual partner had oral HPV infection and high-risk oral HPV infection in 2011–2014, compared with 10.8% and 6.8% of men reporting never having had a same-sex sexual partner.[27]
Kaposi sarcoma	• Observed in MSM with advanced HIV/AIDS, in MSM with well-controlled HIV infection and in HIV-negative MSM.[39, 40]
Viral hepatitides	• MSM accounted for 10% and 20% of hepatitis A virus and hepatitis B virus infections in U.S. adults.[41] • Hepatitis C incidence in HIV-positive MSM tripled between 1991–2012.[45]
Bacterial infections	
Syphilis	• Cases of primary or secondary syphilis increased to 27,814 in 2016 from 5,979 in 2000.[3, 7] • 81% of primary and secondary syphilis cases in 2016 occurred in MSM, 47% of whom were co-infected with HIV.[7] • Black MSM had 3.5 times higher rates of syphilis than white MSM in 2014.[127]
Gonorrhea and chlamydia	• Higher rates of gonorrhea and chlamydia compared with heterosexual men, based on sentinel surveillance at STD clinics.[7] • Infections can be in the pharynx, rectum, and/or urethra, underscoring the importance of screening and/or testing at all three sites, if exposed.[12]
MRSA	• Clusters of multidrug-resistant, community-associated MRSA skin and soft tissue infections, have been reported.[19]
Meningococcal disease	• Meningitis and invasive meningococcal disease outbreaks with high fatality rate have occurred among MSM in North American and European cities.[31]

MSM, men who have sex with men; HIV, human immunodeficiency virus; HPV, human papillomavirus; MRSA, Methicillin-resistant *Staphylococcus aureus,* AIDS, acquired immunodeficiency syndrome

Table 2

Recommendations from CDC and other public health agencies for HIV and STD screening in men who have sex with men.[3]

Screening	Recommendations	Comment
HIV[60, 68]	Unknown or negative HIV status, who have had (or whose sexual partner(s) have had) more than one sexual partner since the last test	Screen at least annually; consider screening every 3–6 months if risk behavior persist or if the man or his sex partner(s) have multiple partners[b,c]
Syphilis[59]	Sexually active in the past year or since the last test	
Gonorrhea and chlamydia[3]		
Urethra	Any insertive oral or anal intercourse in the past year, regardless of reported condom use	
Rectum	Any receptive anal intercourse in the past year, regardless of reported condom use	
Pharynx[a]	Any receptive oral intercourse in the past year, regardless of reported condom use	
Hepatitis B[3]	No known prior or current infection, or prior vaccination	One-time screening
Hepatitis C[3]	HIV-positive persons, including HIV-positive MSM	One-time screening; periodic screening can be considered

CDC, Centers for Disease Control and Prevention; MSM, men who have sex with men; HIV, human immunodeficiency virus; STD, sexually transmitted disease

[a] CDC recommends pharyngeal screening for gonorrhea only, but many available tests screen for both gonorrhea and chlamydia

[b] MSM receiving PrEP should receive HIV testing every 3 months and immediate testing if acute HIV infection is suspected, as well as syphilis, gonorrhea, and chlamydia testing at least every 6 months.[67, 68]

[c] Nucleic acid amplification tests rather than cultures for gonorrhea and chlamydia are preferred for all anatomic sites.[3]

Table 3

Recommendations from CDC and other public health agencies for sexual health-related vaccinations and HIV pre- and post-exposure prophylaxis in men who have sex with men.[3, 64]

Vaccination	**Indications**	**Comment**
HPV vaccination[63]	Through age 26, regardless of prior or current HPV infection status	3 doses of 4-valent or 9-valent vaccine; 2 doses if age 11–12
Hepatitis A virus vaccination[3]	No known prior or current infection, or prior vaccination	2–3 dose series depending on vaccine
Hepatitis B virus vaccination[3]	No known prior or current infection, or prior vaccination	3-dose series
Meningococcal vaccination[33, 64]	HIV-positive persons above age 2, including HIV-positive MSM	2-dose series of conjugated vaccine for serotypes A/C/W/Y
HIV Prophylaxis	**Indications**	**Comment**
Pre-Exposure Prophylaxis[67]	Adult man with: • No HIV infection • Any male sex partners in past 6 months • Non in a monogamous relationship with a recently tested, HIV-negative man AND at least one of the following: • Any anal sex without condoms (receptive or insertive) in past 6 months • Any STD diagnosed or reported in past 6 months • Is in an ongoing sexual relationship with an HIV-positive partner	Discuss and refer to PrEP providers to consider PrEP initiation, in addition to safer sex counseling to decrease risk of HIV acquisition[a]
Non-Occupational Post-Exposure Prophylaxis[72]	Exposure with substantial risk for HIV acquisition within 72 hours from a source known to be HIV-positive; for other exposures with risk, consider on a case-by-case basis	Refer immediately for evaluation and treatment; must initiate nPEP within 72 hours of exposure

HIV, human immunodeficiency virus; HPV, human papillomavirus; PrEP, pre-exposure prophylaxis; nPEP, non-occupational post-exposure prophylaxis

[a] A national directory of PrEP providers is at www.preplocator.org.[71]