Preventive Care for Men Who Have Sex With Men

Stephen McMullan, MD; Therese Anderson, MD; and Nadine Elhage, DO

Mayo Clinic Florida, Jacksonville, Florida

Men who have sex with men (MSM) is an inclusive term used to refer to phenotypic males who have insertive or receptive sex (penile-anal or penile-oral) with other phenotypic males, including people who are transgender or have other gender identities. MSM may report their sexual orientation as homosexual, bisexual, heterosexual, or something else, but this stated sexual orientation may not align with their sexual attraction or behaviors. Several health conditions disproportionately affect MSM compared with age-matched heterosexual men, including HIV infection, anal cancer, syphilis, and depression. Clinicians should use culturally sensitive questions to obtain a comprehensive sexual history and assess sexual risk. MSM should receive regular screening for HIV, hepatitis B and C, gonorrhea, chlamydia, and syphilis. Vaccinations for hepatitis A and B and human papillomavirus should be offered. MSM may benefit from preexposure prophylaxis to prevent HIV infection, postexposure prophylaxis to reduce the risk of HIV transmission, and counseling on safer sexual practices. Screening for anal cancer associated with human papillomavirus may be performed by digital anal rectal examination, although the optimal screening strategy has yet to be determined. Clinicians should also consider more frequent screenings for mental health issues in the MSM population because the rates of depression, suicide, substance use, and other psychosocial issues are higher than those of the general population. (Am Fam Physician. 2024;109(4):324-332. Copyright © 2024 American Academy of Family Physicians.)

Men who have sex with men (MSM) is an inclusive term used to refer to phenotypic males who have insertive or receptive sex (penile-anal or penile-oral) with other phenotypic males, including people who are transgender or have other gender identities. MSM is a term more commonly used in research settings, and most patients will use different language to describe their sexual orientation and behaviors. MSM comprise an estimated 3.8% to 6.4% of the U.S. population; however, this is likely underreported. Patients may report their sexual orientation as homosexual, bisexual, heterosexual, or something else, but this stated sexual orientation may not align with their sexual attraction or behaviors.

Sexually transmitted infections (STIs) that disproportionately affect MSM include HIV, anal cancer associated with human papillomavirus (HPV), and syphilis.³⁻⁵ MSM also experience disparities in terms of mental health and suicide risk,⁶ access to health care,⁷ and self-reported physical and

See related editorial at https://www.aafp.org/pubs/afp/issues/2023/0900/editorial-hiv-prep.html.

This clinical content conforms to AAFP criteria for CME. See CME Quiz on page 305.

Author disclosure: No relevant financial relationships.

mental health.⁸ This review aims to update the primary care physician with recommendations and guidelines relevant to the preventive care of MSM (*Table 1*^{7,9-14}).

Communication

Discussing sexual orientation and gender identity with patients can improve the physician-patient relationship and lead to better care. Table 2 outlines supportive ways to inquire about sex partners and sexual orientation, practices, preferences, and risk. Materials and questionnaires that are sensitive to the needs of this population can be found on the Centers for Disease Control and Prevention (CDC) website and in the Joint Commission LGBT Field Guide.

Obtaining a comprehensive sexual history is critical to providing optimal care. This history can be obtained through direct questioning from the physician or other health care professionals. It can also be obtained from standard intake forms in the electronic health record or via printouts provided to the patient. Consider regular assessments of clinic signage, patient questionnaire wording, and staff training that could contribute to a negative experience for MSM. The Joint Commission provides guidance to establish a safe and welcoming environment for sexual and gender minority patients.

SORT: KEY RECOMMENDATIONS FOR PRACTICE

Clinical recommendation	Evidence rating	Comments
Ensure that MSM of all ages have received the hepatitis A and B vaccines. 18-20	В	Multiple high-quality randomized controlled trials showing reduced seroconversion after exposure
Use shared decision-making based on risk regarding human papillomavirus vaccination for MSM 27 to 45 years of age. ²²	С	Expert opinion based on limited evidence of benefit
Offer preexposure prophylaxis to all qualifying MSM to reduce the risk of HIV infection. ^{34,36}	В	Well-designed randomized controlled trials showing reduced risk of HIV seroconversion
Consider digital anal rectal examination each year in HIV-positive MSM who are 35 years or older. 51-53,55	С	Moderate-quality evidence showing improved pathologic outcomes
Consider digital anal rectal examination every 2 to 5 years in MSM who are 50 years or older. ⁵⁵	С	Expert opinion, observational studies of low quality
Consider more frequent screenings for depression in MSM. ⁵⁷⁻⁵⁹	С	Expert opinion based on increased prevalence in MSM compared with the general population

MSM = men who have sex with men.

A = consistent, good-quality patient-oriented evidence; B = inconsistent or limited-quality patient-oriented evidence; C = consensus, disease-oriented evidence, usual practice, expert opinion, or case series. For information about the SORT evidence rating system, go to https://www.aafp.org/afpsort.

TABLE 1

Helpful Definitions in the Care of Men Who Have Sex With Men

Term	Definition	Term	Definition
Sexuality	A person's sexual behavior, values, needs, preferences, and preferred modes of expression	Gender 	Overall feelings and attitudes a society associates with a person's biological sex
Sexual identity	A person's action of claiming through recognition, acceptance, or self-labeling their sexual orientation as it relates to the self	or self-labeling their	A person whose gender identity and gen- der expression are consistent with their sex assigned at birth
Sexual orientation	A person's self-identified sexual and romantic attractions; distinctly sepa-	Transgender	A person whose gender identity or gender expression differs from their sex assigned at birth
	rate from a person's gender identity and expression	Gender expression	A person's appearance, behavior, or characteristics as defined in society as normative for masculine or feminine
Bisexual	Emotionally/sexually attracted to men and women	I expression	
Gay	Emotionally/sexually attracted to other men; it can also be a broader term for people attracted to people of the same sex or gender identity as themselves	Gender identity	A person's basic sense of being a man, woman, or other gender
		Sexual minority	A person whose emotional/sexual attraction, orientation, or characteristics differ from those of a heterosexual person
Heterosexual	Emotionally/sexually attracted to someone of the opposite gender (e.g., a man attracted to a woman)	Sexualized drug use	The use of any illicit substance before or during sexual intercourse
Pansexual	Emotionally/sexually attracted to people of all gender identities, not necessarily related to a specific gender identity	Chemsex	Use of specific illicit substances planned before or during sex to prolong, facilitate, sustain, or intensify the encounter; can involve more than two participants

Information from references 7 and 9-14.

General Health Care

Standard preventive care recommendations include routine laboratory work, immunizations, and screenings for cancer, depression, hypertension, tobacco use, and unhealthy alcohol use.16 Additional care for MSM may include offering supplementary immunizations and STI screening, updating sexual history and risk profile, offering preexposure prophylaxis (PrEP) and counseling on postexposure prophylaxis options for HIV prevention, identifying candidates for anal cancer screening, updating mental health screenings, and reviewing the patient's social determinants of health.

IMMUNIZATIONS

MSM should receive the standard immunizations recommended by the current CDC-endorsed Advisory Committee on Immunization Practices (ACIP) schedule. For MSM, there are additional risk-based recommendations for hepatitis A, hepatitis B, and HPV vaccines¹⁷ (Table 3¹⁸).

ACIP recommends the hepatitis A vaccine series for all MSM older than 19 years who have not previously received it. 19 For MSM older than 60 years, the hepatitis B vaccine should be offered as a two- or three-dose series. 20 ACIP recommends the HPV vaccine for all patients through age 26 years, with an emphasis on immunization before the patient's first sexual activity. HPV can cause anal, oropharyngeal, and penile cancer, which can be prevented by vaccination. 21 Due to the

reduced effectiveness in older patients (due to prior exposure to the HPV strains in the vaccine), the ACIP recommends shared clinical decision-making regarding HPV vaccination for MSM between 27 and 45 years of age.²²

STI Prevention

Strategies to help MSM reduce the risk of STIs include discussion about PrEP, education about condom use and the risk associated with douching before receptive anal sex, and frequent testing for STIs (*Table 4*^{7,14,23-30}). Rates of consistent condom use, defined as proper use at every sexual encounter,

TABLE 2

Sexual History Taking Examples for Men Who Have Sex With Men

Topic	Examples
Introduction of questions	"I ask questions about sexual history of all my patients at least once a year; are you ok if we begin?"
	"It is common for people to change their sexual behavior over time."
	"This conversation may help guide recommendations to help you stay healthy, including the prevention of sexually transmitted infections."
Sexual orientation	"What are the typical genders of your preferred sex partners?" "Who do you find yourself sexually attracted to?"
Sex partners	"Is your sex partner a long-term partner? Are you both monogamous?"
	"Do you know if your sex partners are having sex with other people?"
Sexual activity	"Have you been sexually active in the past year?"
	"How many different sex partners have you had in the past 2 months? The past 12 months?"
Sexual risk	"Have you ever had a sexually transmitted infection like HIV, gonorrhea, syphilis, herpes, or chlamydia? If so, did you receive treatment?"
	"Have you ever been exposed to any of those diseases that you knew about?"
	"Do you use condoms when you have sex? How often?"
	"Do you use alcohol or drugs when you have sex? How often?"
	"Do you have any concerns about staying safe sexually?"
Counseling	"Are you interested in discussing strategies to reduce your risk of sexually transmitted infections?"
	"Would you like more education about sexually transmitted infections and how to prevent them?"

Information from references 12, 14, and 15

are relatively low in the United States; a recent review of data collected by the CDC found that only 28% of MSM with HIV infection, and 29% of MSM without HIV infection, reported consistent condom use from 2012 through 2017. Obstacles to consistent condom use include physical discomfort, lack of knowledge about HIV and other STIs, substance misuse, psychological factors, and environmental factors (availability and affordability of condoms). Approximately 29% to 52% of MSM practice douching in preparation for receptive anal sex, which may increase the risk of STIs by injuring the rectal mucosa.

HIV

According to the CDC, MSM accounted for 68% of new HIV cases in the United States in 2020.3 Although there was a 17% reduction in total new cases in 2020 during the COVID-19 pandemic, this decrease in identified cases was likely due to decreased access to clinical care and shortages of HIV testing supplies.³ Multiple organizations, including the World Health Organization, CDC, and U.S. Preventive Services Task Force, recommend screening MSM for HIV at regular intervals with a fourth-generation immunoassay (enzyme-linked immunosorbent assay with p24 antigen and HIV antibodies).37,29

PrEP is recommended for MSM at increased risk of HIV infection³⁴ (Figure 1³⁴⁻³⁶). Approximately 34% of sexually active MSM in the United States are eligible for PrEP; however, only 25% of those eligible have been prescribed medication.37 Oral emtricitabine/tenofovir disoproxil fumarate (Truvada), emtricitabine/tenofovir alafenamide (Descovy), and injectable cabotegravir (Apretude) are acceptable for PrEP. 35,38 PrEP should be offered to MSM who have high-risk sexual exposure, defined as sex within the past 6 months with a partner who has HIV infection with an unknown or detectable viral load, a personal history of bacterial STI in the past 6 months, or a history of inconsistent condom use with a partner whose HIV status is unknown.^{34,36} On-demand dosing, commonly prescribed as the "2-1-1" method (two pills 2 to 24 hours before intercourse, one pill 24 hours after the initial dose, and one pill 48 hours after the initial dose), can be offered; however, this dosing method is neither approved by the U.S. Food and Drug Administration nor endorsed by the CDC.34

Postexposure prophylaxis can be offered after a sexual encounter with a partner whose HIV status is positive or unknown. It should be initiated within 72 hours. Oral emtricitabine/tenofovir disoproxil fumarate taken once

Immunization Recommendations for Men Who Have Sex With Men			
Immunization	Recommended age	Recommended dosing*	
Hepatitis A	All individuals 18 years and younger All MSM 19 years and older if not previously vaccinated	Two-dose series at least 6 months apart	
Hepatitis B	All individuals 18 to 59 years of age All MSM 60 years and older if not previously vaccinated	Two- or three-dose series depending on formulation available	
Human papillomavirus	All individuals 26 years and younger For MSM 27 to 45 years of age, clinicians should use shared clinical decision-making	Complete two- or three-dose series depending on age and HIV status:	
		15 years or older at initial vaccination: three doses, the second being 1 to 2 months later, and the third being 6 months later	
		9 to 14 years of age at initial vaccination and received one dose at least 5 months before: one additional dose	
		9 to 14 years of age at initial vaccination and received two doses at least 5 months apart: series complete; no additional dose needed regardless of age	
Meningococcal serotypes A, C, W, Y	MSM when it has been more than 5 years since completion of primary series [corrected]	One booster dose†	
Meningococcal serotype B	MSM when it has been more than 1 year since completion of primary series	One booster dose†	

^{†—}Refer to the Centers for Disease Control and Prevention routine schedule for individual formulations and dosing recommendations.18

Information from reference 18.

daily with raltegravir (Isentress) or dolutegravir (Tivicay) for 28 days is the recommended treatment course.³⁹ The National Clinician Consultation Center provides physicians with direct access to infectious disease specialists and resources for patients who may not be able to afford these medications.³⁹

OTHER SEXUALLY TRANSMITTED INFECTIONS

MSM are currently the group at highest risk for syphilis in the United States, and the estimated prevalence of the infection in this group is 5% to 10%. One-third of MSM with syphilis have no symptoms. Syphilis infection in MSM is associated with coinfection with HIV (likely due to higher-risk sexual behaviors). Reported barriers to

syphilis testing include sociodemographic factors, depression, unwillingness to disclose sexual behavior, and health insurance status.⁵

MSM are also at risk of acquiring hepatitis A, B, and C.⁷ Hepatitis C has a global prevalence of 1.5% in MSM who are HIV negative and 6.3% in MSM who are HIV positive. For MSM who use or have a history of using intravenous drugs, the rates of hepatitis C are 45.6% and 30.2%, respectively.⁴¹

HPV is responsible for 88% of anal cancer in MSM, with most cases involving the high-risk strains HPV 16 or HPV 18. 42,43 An anal HPV screening program in Italy found that 89% of MSM screened positive for HPV DNA, with 86.5% of those screened having at least one high-risk type. 44

Screening topic	Centers for Disease Control and Prevention recommendation	U.S. Preventive Services Task Force recommendation
Behavioral counseling for risk reduction	No recommendation	Recommended for all sexually active adolescents and for adults who are at increased risk for sexu- ally transmitted infections (grade B)
Genital herpes	Type-specific serologic tests can be considered if infection status is unknown for MSM with previously undiagnosed genital tract infection	Routine serologic screening for genital herpes simplex virus infection in asymptomatic adolescents and adults is not recommended (grade D)
Gonorrhea and chlamydia	Screen sexually active MSM at least annually at sites of contact (urethra, rectum, oropharynx [gonorrhea only]) regardless of condom use; screen every 3 to 6 months if at increased risk	Current evidence is insufficient to assess the balance of benefits and harms of screening for chlamydia and gonorrhea in men (grade I)
Hepatitis B	Screen those with behavioral exposures to hepatitis B; test for surface antigen, core antibody, and surface antibody	Screen adolescents and adults at increased risk for infection (grade B)
Hepatitis C	Screen all adults 18 years and older at least once	Screen adults 18 to 79 years of age (grade B)
HIV	Screen sexually active MSM at least annually if HIV status is unknown or negative and the patient or their sex partner(s) have had more than one sex partner since most recent HIV test	Screen adolescents and adults 15 to 65 years of age; younger adolescents and older adults who are at increased risk of infection should also be screened (grade A)
Human papillomavirus	Screen with a digital anal rectal examination; data are insufficient to recommend for or against routine anal cancer screening with anal cytology	Recommendation in progress; draft research plar published December 2022
Syphilis	Screen sexually active MSM at least annually	Screen asymptomatic, nonpregnant adolescents and adults who are at increased risk (grade A)

FIGURE 1

Is the patient eligible for PrEP?

They have had anal penetrative sex in the past 6 months and one of the following:

Sex partner with a positive or unknown HIV status

STI in the past 6 months Unreliable condom use

No

Counsel on safe sex practices:

Use condoms regularly and appropriately Request HIV status of partner Avoid rectal douching Test regularly if high-risk exposure or new sex partner Can consider discussing PrEP

and prescribe if requested

Discuss starting PrEP:

Use shared decision-making, patient preference, cost factors, and medication availability as part of treatment planning Obtain HIV antigen/antibody test* result within 1 week of initiating medication

Verify there are no signs of clinical HIV infection Perform testing for STIs (hepatitis B and C, syphilis, gonorrhea, chlamydia), renal

function panel, and baseline lipids

If CrCl < 30 mL per minute per

1.73 m², consider CAB injections



Prescribe no more than a 90-day supply CrCl must be > 30 mL per minute per 1.73 m² for F/TAF treatment CrCl must be > 60 mL per minute per 1.73 m² for F/TDF treatment

Every 3 months:

Obtain HIV antigen/antibody test*
Obtain HIV-1 RNA assay†
Perform screening for bacterial STIs‡
Assess adherence and tolerance

Every 6 months:

Assess CrCl rate if patient is older than 50 years Perform bacterial STI screening‡

Every 12 months:

Assess CrCl rate

For patients using F/TAF, check lipid panel and trend weight

At each follow-up visit:

Assess adherence and encourage this as the best strategy

Reassess risk and need for PrEP

First dose: 600 mg intramuscularly Second dose: 600 mg intramuscularly 4 weeks after the first dose Subsequent dosages: 600 mg intramuscularly every 8 weeks

Before second dose:

Obtain HIV antigen/antibody test*
Obtain HIV-1 RNA assay†

Before each subsequent dose:

Obtain HIV antigen/antibody test*
Obtain HIV-1 RNA assay†

Every 4 months beginning with third injection:

Perform bacterial STI screening‡

At each follow-up visit:

Assess adherence and encourage this as the best strategy Reassess risk and need for PrEP

CAB = cabotegravir (Apretude); CrCl = creatinine clearance; F/TAF = emtricitabine/tenofovir alafenamide (Descovy); F/TDF = emtricitabine/tenofovir disoproxil fumarate (Truvada); PrEP = preexposure prophylaxis; STI = sexually transmitted infection.

*—Fourth-generation HIV enzyme-linked immunosorbent assay test including p24 antigen and HIV antibodies

†—Can perform qualitative HIV-1 RNA testing for cost-effectiveness instead of quantitative testing

‡-For syphilis, gonorrhea, and chlamydia.

Flowsheet for preexposure prophylaxis for men who have sex with men.

Information from references 34-36.

The CDC recommends that MSM be tested for urethral and rectal infections of chlamydia and gonorrhea each year if there is exposure at these sites. Annual testing should also include the oropharynx for gonorrhea but not for chlamydia, because the number of such infections at this site is low.³⁰ If a patient is on PrEP and considered high risk, the testing interval should increase to every 3 to 6 months.³⁰

Mpox has been more prevalent in the gay and bisexual population, with total U.S. estimates of more than 30,000 cases since its resurgence in 2022. ⁴⁵ The peak incidence was in August 2022 and has since remained low. ⁴⁵ Two vaccines are available on a limited basis for patients with high-risk exposure. ^{45,46}

Anal Cancer Screening

Anal cancer incidence has been increasing since 1970 and is estimated to be 1.9 new cases per 100,000 people per year.⁴⁷ MSM (particularly those who participate in anal receptive sex) are at increased risk, and MSM with HIV infection have the highest risk.⁴⁸ HPV infection is the most common cause of anal cancer as well as its precursor, high-grade squamous intraepithelial lesions (HSIL), also known as anal intraepithelial neoplasia.⁴⁹

The Anal Cancer HSIL Outcomes Research (ANCHOR) study evaluated the effectiveness and safety of treating HSIL vs. active monitoring without treatment in preventing the progression to anal cancer in people with HIV; it found that treatment of HSIL reduced the rate of progression by 57%. This study may impact future screening and treatment recommendations.

Screening guidelines for MSM differ based on HIV status. Several organizations have screening recommendations for people with HIV who are MSM (*Table 5*⁵¹⁻⁵⁴), although most are based on expert opinion or low-quality data. Based on expert opinion with limited data, the International Anal Neoplasia

Anal Cancer Screening Guidelines for Patients With HIV Infection				
Organization	Current recommendation			
American Society of Colon and Rectal Surgeons	Anal cytology may be considered in high-risk populations, including MSM and patients with HIV infection $$			
	High-resolution anoscopy can be used for screening in high-risk populations if performed by clinicians with appropriate training*			
Infectious Diseases Society of America and HIV Medicine Association	Annual digital anal rectal examination			
	Anal Pap test for patients with HIV who have a history of receptive anal intercourse and anyone with genital warts (if access to appropriate referral for follow-up, including high-resolution anoscopy, is available)			
New York State Department of Health AIDS Institute	Baseline and yearly inquiries about anal symptoms, visual inspection of perianal region, digital anal rectal examination, and annual Pap test for all HIV-positive MSM 35 years and older			
U.S. Department of Health and	No national recommendations for standardized anal cancer screening			
Human Services Office of Infectious Disease and HIV/AIDS Policy	Annual digital anal rectal examination			
MSM = men who have sex with men; Pa	p = Papanicolaou.			
*—See reference for further details abou	it management of results. ⁵⁴			

Society additionally recommends that MSM who test negative for HIV have a digital anal rectal examination every 2 to 5 years starting at 50 years of age. 55 Abnormal findings on examination include hard, irregular lumps or ulcerations; small granular changes causing localized thickening of tissue; and any palpable areas that are not reducible. Such findings should prompt a high-resolution anoscopy performed by an experienced physician or a colorectal surgery referral. 55

Other screening modalities include anal Papanicolaou test with cytologic testing and high-resolution anoscopy, but both methods rely on clinician experience. 56

Mental Health and Psychosocial Issues

MSM are more likely to experience victimization, threats of violence, social isolation, intimate partner violence, homelessness, poverty, and increased perceived stressors compared with age-matched heterosexual men. According to recent global meta-analyses, the pooled prevalence of depression in MSM with HIV infection was 43% to 47% and was significantly higher than that of MSM without HIV (odds ratio = 1.46).^{57,58} One study concluded that in the United States, the prevalence of depression among MSM varied from 17.2% to 33%.^{6,57} A younger age at first sexual encounter, homelessness, and substance misuse are associated with the highest rates of suicide attempts in the MSM population.⁵⁹ Other factors associated with an increased risk

of suicidality include bullying, parental abuse, and victimization. ⁵⁹ More frequent screening for depression in MSM is reasonable. ⁵⁷⁻⁵⁹

A minority of MSM use illicit substances to enhance their sexual experience; this practice is known as chemsex. Physicians should periodically screen MSM for chemsex participation and offer risk reduction counseling. ¹³ Chemsex has been associated with increased rates of depression, anxiety, and other substance use in the MSM population. ⁶⁰ Motivational interviewing and cognitive behavior therapy techniques may reduce high-risk alcohol use among MSM. ⁶¹

This article updates previous articles on this topic by Knight and Jarrett 14 and Knight 62

Data Sources: A PubMed search was completed in Clinical Queries using the key terms men who have sex with men, men having sex with men, preventive care, and primary care. The search included meta-analyses, randomized controlled trials, large clinical trials, and systematic reviews. The Agency for Healthcare Research and Quality Effective Healthcare Reports, the Cochrane database, DynaMed, and Essential Evidence Plus were also searched. Whenever possible, if studies used race and/or gender and/or sexual orientation as patient categories, but did not define how these categories were assigned, they were not included in our final review. If studies that used these categories were determined to be essential and therefore included, limitations were explicitly stated in the manuscript. Search dates: February 2 to 6, 2023, and February 14, 2024.

The Authors

STEPHEN McMULLAN, MD, is an assistant professor in the Department of Family Medicine and an associate program director of the Family Medicine Residency Program at the Mayo Clinic Florida, Jacksonville.

THERESE ANDERSON, MD, is a clinical instructor in the Department of Family Medicine at the Mayo Clinic Florida.

NADINE ELHAGE, DO, is a resident in the Family Medicine Residency Program at the Mayo Clinic Florida.

Address correspondence to Stephen McMullan, MD, Mayo Clinic College of Medicine and Science, 4500 San Pablo Rd., Jacksonville, FL 32081 (mcmullan.stephen@mayo.edu). Reprints are not available from the authors.

References

- 1. Mauck DE, Gebrezgi MT, Sheehan DM, et al. Population-based methods for estimating the number of men who have sex with men: a systematic review. *Sex Health*. 2019;16(6):527-538.
- 2. Esie P, Kang J, Flagg EW, et al. Men who have sex with men–identification criteria and characteristics from the National Health and Nutrition Examination Survey, 1999 to 2014. Sex Transm Dis. 2018;45(5):337-342.
- Centers for Disease Control and Prevention. HIV surveillance report, 2020; vol. 33. May 2022. Accessed February 15, 2023. https://www.cdc. gov/hiv/library/reports/hiv-surveillance/vol-33/index.html
- Wang Z, Yuan T, Fan S, et al. HIV nonoccupational postexposure prophylaxis among men who have sex with men: a systematic review and meta-analysis of global data. AIDS Patient Care STDS. 2020;34(5): 193-204
- 5. Turpin R, Rosario AD, Dyer T. Barriers to syphilis testing among men who have sex with men: a systematic review of the literature. Sex Health. 2020:17(3):201-213.
- Lee C, Oliffe JL, Kelly MT, et al. Depression and suicidality in gay men: implications for health care providers. Am J Mens Health. 2017;11(4): 910-919
- 7. World Health Organization. Consolidated guidelines on HIV viral hepatitis and STI prevention, diagnosis, treatment and care for key populations. World Health Organization; 2022. Accessed February 20, 2023. http://www.ncbi.nlm.nih.gov/books/NBK586603/
- 8. Elliott MN, Kanouse DE, Burkhart Q, et al. Sexual minorities in England have poorer health and worse health care experiences: a national survey. *J Gen Intern Med*. 2015;30(1):9-16.
- American Psychological Association, APA Task Force on Psychological Practice with Sexual Minority Persons. APA guidelines for psychological practice with sexual minority persons. February 2021. Accessed February 15, 2023. https://www.apa.org/about/policy/psychological-sexual-minority-persons.pdf
- National LGBTQIA+ Health Education Center, The Fenway Institute. Ready, set, go! Guidelines and tips for collecting patient data on sexual orientation and gender identity (SOGI) – 2022 update. May 5, 2022. Accessed February 15, 2023. https://www.lgbtqiahealtheducation.org/publication/ready-set-go-a-guide-for-collecting-data-on-sexual-orientation-and-gender-identity-2022-update/
- 11. The Joint Commission. Advancing effective communication, cultural competence, and patient- and family-centered care for the lesbian, gay, bisexual, and transgender (LGBT) community: a field guide. October 2011. Accessed February 15, 2023. https://www.jointcommission.org/-/media/tjc/documents/resources/patient-safety-topics/health-equity/lgbtfieldguide_web_linked_verpdf.pdf

- 12. National LGBTQIA+ Health Education Center, The Fenway Institute. Taking routine histories of sexual health: a system-wide approach for health centers. February 15, 2016. Accessed February 15, 2023. https://www.lgbtqiahealtheducation.org/publication/taking-routine-histories-of-sexual-health-a-system-wide-approach-for-health-centers/
- 13. Maxwell S, Shahmanesh M, Gafos M. Chemsex behaviours among men who have sex with men: a systematic review of the literature. *Int J Drug Policy*. 2019;63:74–89.
- 14. Knight DA, Jarrett D. Preventive health care for men who have sex with men [published correction appears in *Am Fam Physician*. 2016;94(2): 84]. *Am Fam Physician*. 2015;91(12):844-851.
- 15. Centers for Disease Control and Prevention. How do I discuss sexual health with patients? Last reviewed July 28, 2023. Accessed February 15, 2023. https://www.cdc.gov/hiv/clinicians/screening/sexual-health.html
- 16. Heidelbaugh JJ. The adult well-male examination. *Am Fam Physician*. 2018:98(12):729-737.
- 17. Murthy N, Wodi AP, McNally V, et al. Advisory Committee on Immunization Practices recommended immunization schedule for adults aged 19 years or older United States, 2023. MMWR Morb Mortal Wkly Rep. 2023;72(6):141-144.
- 18. Centers for Disease Control and Prevention. Adult immunization schedule by age. Last reviewed November 16, 2023. Accessed February 14, 2024. https://www.cdc.gov/vaccines/schedules/hcp/imz/adult.html
- Nelson NP, Weng MK, Hofmeister MG, et al. Prevention of hepatitis A virus infection in the United States: recommendations of the Advisory Committee on Immunization Practices, 2020 [published correction appears in MMWR Morb Mortal Wkly Rep. 2021;70(8):294]. MMWR Recomm Rep. 2020;69(5):1-38.
- Weng MK, Doshani M, Khan MA, et al. Universal hepatitis B vaccination in adults aged 19-59 years: updated recommendations of the Advisory Committee on Immunization Practices - United States, 2022. MMWR Morb Mortal Wkly Rep. 2022;71(13):477-483.
- 21. Saraiya M, Unger ER, Thompson TD, et al.; HPV Typing of Cancers Workgroup. US assessment of HPV types in cancers: implications for current and 9-valent HPV vaccines. *J Natl Cancer Inst*. 2015;107(6):djv086.
- Meites E, Szilagyi PG, Chesson HW, et al. Human papillomavirus vaccination for adults: updated recommendations of the Advisory Committee on Immunization Practices. MMWR Morb Mortal Wkly Rep. 2019; 68(32):698-702.
- 23. U.S. Preventive Services Task Force. Final recommendation statement: syphilis infection in nonpregnant adolescents and adults: screening. September 2022. Accessed February 14, 2023. https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/syphilis-infection-nonpregnant-adults-adolescents-screening
- 24. U.S. Preventive Services Task Force. Final recommendation statement: chlamydia and gonorrhea: screening. September 14, 2021. Accessed February 14, 2023. https://www.uspreventiveservicestaskforce.org/ uspstf/recommendation/chlamydia-and-gonorrhea-screening
- 25. U.S. Preventive Services Task Force. Final recommendation statement: hepatitis B virus infection in adolescents and adults: screening. December 15, 2020. Accessed February 14, 2023. https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/hepatitis-b-virus-infection-screening
- 26. U.S. Preventive Services Task Force. Final recommendation statement: hepatitis C virus infection in adolescents and adults: screening. March 2, 2020. Accessed February 14, 2023. https://www.uspreventiveservices taskforce.org/uspstf/recommendation/hepatitis-c-screening
- U.S. Preventive Services Task Force. Final recommendation statement: genital herpes infection: serologic screening. February 14, 2023. Accessed February 14, 2023. https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/genital-herpes-serologic-screening#bootstrap-panel-7
- U.S. Preventive Services Task Force. Final recommendation statement: sexually transmitted infections: behavioral counseling. August 18, 2020.
 Accessed February 14, 2023. https://www.uspreventiveservicestask

- force.org/uspstf/recommendation/sexually-transmitted-infections-behavioral-counseling#tab2
- U.S. Preventive Services Task Force. Final recommendation statement: human immunodeficiency virus (HIV) infection: screening. June 11, 2019. Accessed February 14, 2023. https://www.uspreventiveservices taskforce.org/uspstf/recommendation/human-immunodeficiencyvirus-hiv-infection-screening
- Centers for Disease Control and Prevention. Sexually transmitted infections treatment guidelines. June 6, 2022. Accessed February 14, 2023. https://www.cdc.gov/std/treatment-guidelines/screeningrecommendations.htm
- Zhang Kudon H, Mulatu MS, Song W, et al. Trends in condomless sex among MSM who participated in CDC-funded HIV risk-reduction interventions in the United States, 2012-2017. J Public Health Manag Pract. 2022;28(2):170-173.
- Shen Y, Zhang C, Valimaki MA, et al. Why do men who have sex with men practice condomless sex? A systematic review and meta-synthesis. BMC Infect Dis. 2022;22(1):850.
- 33. Li P, Yuan T, Fitzpatrick T, et al. Association between rectal douching and HIV and other sexually transmitted infections among men who have sex with men: a systematic review and meta-analysis. *Sex Transm Infect*. 2019:95(6):428-436.
- 34. U.S. Public Health Service, Centers for Disease Control and Prevention. Preexposure prophylaxis for the prevention of HIV infection in the United States—2021 update: a clinical practice guideline. 2021. Accessed February 20, 2023. https://www.cdc.gov/hiv/pdf/risk/prep/cdc-hiv-prep-guidelines-2021.pdf
- Centers for Disease Control and Prevention. How do I prescribe PrEP? Last reviewed October 5, 2023. Accessed February 14, 2024. https://www.cdc.gov/hiv/clinicians/prevention/prescribe-prep.html
- Owens DK, Davidson KW, Krist AH, et al.; U.S. Preventive Services Task Force. Preexposure prophylaxis for the prevention of HIV infection: U.S. Preventive Services Task Force Recommendation Statement. *JAMA*. 2019;321(22):2203-2213
- 37. Kamitani E, Wichser ME, Mizuno Y, et al. What factors are associated with willingness to use HIV pre-exposure prophylaxis (PrEP) among U.S. men who have sex with men not on PrEP? A systematic review and meta-analysis. J Assoc Nurses AIDS Care. 2023;34(2):135-145.
- Landovitz RJ, Donnell D, Clement ME, et al.; HPTN 083 Study Team. Cabotegravir for HIV prevention in cisgender men and transgender women. N Engl J Med. 2021;385(7):595-608.
- 39. Centers for Disease Control and Prevention. How do I prescribe PEP? Last reviewed March 9, 2023. Accessed February 14, 2024. https://www.cdc.gov/hiv/clinicians/prevention/prescribe-pep.html
- 40. Tsuboi M, Evans J, Davies EP, et al. Prevalence of syphilis among men who have sex with men: a global systematic review and meta-analysis from 2000-20. *Lancet Glob Health*. 2021;9(8):e1110-e1118.
- 41. Jin F, Dore GJ, Matthews G, et al. Prevalence and incidence of hepatitis C virus infection in men who have sex with men: a systematic review and meta-analysis. *Lancet Gastroenterol Hepatol*. 2021;6(1):39-56.
- 42. de Martel C, Ferlay J, Franceschi S, et al. Global burden of cancers attributable to infections in 2008: a review and synthetic analysis. *Lancet Oncol.* 2012;13(6):607-615.
- 43. Wang CCJ, Sparano J, Palefsky JM. Human immunodeficiency virus/ AIDS, human papillomavirus, and anal cancer. *Surg Oncol Clin N Am.* 2017;26(1):17-31.
- 44. Garbuglia AR, Gentile M, Del Nonno F, et al. An anal cancer screening program for MSM in Italy: prevalence of multiple HPV types and vaccine-targeted infections. *J Clin Virol*. 2015;72:49-54.
- 45. Centers for Disease Control and Prevention. Mpox. Last reviewed December 11, 2023. Accessed February 14, 2024. https://www.cdc.gov/poxvirus/monkeypox/index.html

- 46. Harris E. What to know about monkeypox. *JAMA*. 2022;327(23): 2278-2279.
- 47. National Cancer Institute. Cancer stat facts: anal cancer. Accessed March 2023. https://seer.cancer.gov/statfacts/html/anus.html
- 48. van der Zee RP, Richel O, de Vries HJC, et al. The increasing incidence of anal cancer: can it be explained by trends in risk groups? *Neth J Med.* 2013;71(8):401-411.
- Machalek DA, Poynten M, Jin F, et al. Anal human papillomavirus infection and associated neoplastic lesions in men who have sex with men: a systematic review and meta-analysis. *Lancet Oncol.* 2012;13(5): 487-500.
- 50. Palefsky JM, Lee JY, Jay N, et al.; ANCHOR Investigators Group. Treatment of anal high-grade squamous intraepithelial lesions to prevent anal cancer. *N Engl J Med.* 2022;386(24):2273-2282.
- Thompson MA, Horberg MA, Agwu AL, et al. Primary care guidance for persons with human immunodeficiency virus: 2020 update by the HIV Medicine Association of the Infectious Diseases Society of America [published corrections appear in Clin Infect Dis. 2022;74(10):1893-1898 and Clin Infect Dis. 2022;75(11):2052]. Clin Infect Dis. 2021;73(11): e3572-e3605.
- 52. U.S. Department of Health and Human Services. Guidelines for the prevention and treatment of opportunistic infections in adults and adolescents with HIV. Last reviewed January 11, 2023. Accessed March 2023. https://clinicalinfo.hiv.gov/en/guidelines/adult-and-adolescent-opportunistic-infection/human-papillomavirus-disease?view=full
- 53. New York State Department of Health AIDS Institute. Screening for anal dysplasia and cancer in adults with HIV. August 9, 2022. Accessed March 24, 2023. https://www.hivguidelines.org/guideline/hiv-anal-cancer/
- 54. Stewart DB, Gaertner WB, Glasgow SC, et al.; prepared on behalf of the Clinical Practice Guidelines Committee of the American Society of Colon and Rectal Surgeons. The American Society of Colon and Rectal Surgeons clinical practice guidelines for anal squamous cell cancers (revised 2018). Dis Colon Rectum. 2018;61(7):755-774.
- Hillman RJ, Berry-Lawhorn JM, Ong JJ, et al.; International Anal Neoplasia Society. International Anal Neoplasia Society guidelines for the practice of digital anal rectal examination. *J Low Genit Tract Dis.* 2019; 23(2):138-146.
- Clarke MA, Wentzensen N. Strategies for screening and early detection of anal cancers: a narrative and systematic review and meta-analysis of cytology, HPV testing, and other biomarkers. *Cancer Cytopathol*. 2018; 126(7):447-460.
- 57. Xiao L, Qi H, Wang YY, et al. The prevalence of depression in men who have sex with men (MSM) living with HIV: a meta-analysis of comparative and epidemiological studies. *Gen Hosp Psychiatry*. 2020;66: 112-119
- 58. Nouri E, Moradi Y, Moradi G. What is the global prevalence of depression among men who have sex with men? A systematic review and meta-analysis. *Ann Gen Psychiatry*. 2022;21(1):38.
- 59. Luong CT, Rew L, Banner M. Suicidality in young men who have sex with men: a systematic review of the literature. *Issues Ment Health Nurs*. 2018;39(1):37-45.
- 60. Íncera-Fernández D, Gámez-Guadix M, Moreno-Guillén S. Mental health symptoms associated with sexualized drug use (chemsex) among men who have sex with men: a systematic review. *Int J Environ Res Public Health*. 2021;18(24):13299.
- 61. Wray TB, Grin B, Dorfman L, et al. Systematic review of interventions to reduce problematic alcohol use in men who have sex with men. *Drug Alcohol Rev.* 2016;35(2):148-157.
- 62. Knight D. Health care screening for men who have sex with men. Am Fam Physician. 2004;69(9):2149-2156.