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Joint British association for sexual health and HIV/British HIV association guidelines for the sexual and reproductive health of people with HIV 2026

Laura Waters[1,2,*], Emily Lord[3], Nicola Mackie[4], Jane Ashby[1], Chitra Babu[5], Tristan J. Barber[2,6], Rageshri Dhairyawan[7], Adam Freedman[8], Jessica Gaddie[7], Yvonne Gilleece[9,10], Carole Gilling-Smith[11], Sharon Jay[10,12], Deirdre Lyons[4], Margaret Kingston[13], Pank Sethi[14], Alison Wright[6], Tara Suchak[15], Shema Tariq[1,2] and Michael Yates[15]

Abstract

These guidelines are an update to the 2008 UK guidelines for the management of sexual and reproductive health of people living with HIV. The writing group has followed updated British Association for Sexual Health and HIV (BASHH) guideline methodology, notably using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) system for assessing evidence and making recommendations. We have made significant changes to the recommendations which are summarised below.

Keywords

HIV, reproductive, sexual health, conception, contraception, transmission

Important changes in the 2026 guidelines

Cervical screening update
Practical guidance regarding conception advice and fertility screening
New section on undetectable = untransmittable (U=U)
Updated section on pre-exposure prophylaxis (PrEP) for conception
Contraception considerations
New section on menopause
New section on intimate partner violence (IPV)
Updated section on sexual dysfunction
Considerations for transgender people

Methods

The guidelines writing group utilised the updated version of the BASHH Framework for guideline development and assessment available at https://www.bashh.org/_userfiles/pages/files/resources/2020_guidelines_framework.pdf. This framework includes use of the GRADE system for assessing evidence (https://www.gradeworkinggroup.org/).

[1]Central and North West London NHS Foundation Trust, London, UK
[2]Institute for Global Health, University College London, London, UK
[3]Oxford University Hospitals NHS Foundation Trust, Oxford, UK
[4]Imperial College Healthcare NHS Trust, London, UK
[5]The Northern Contraception, Sexual Health and HIV Service, Manchester University NHS Foundation Trust, Manchester, UK
[6]Royal Free London NHS Foundation Trust, London, UK
[7]The Royal London Hospital, Barts Health NHS Trust, London, UK
[8]National AIDS Trust, London, UK
[9]Brighton and Sussex Medical School, Brighton, UK
[10]University Hospitals Sussex NHS Foundation Trust, Brighton, UK
[11]The Agora Gynaecology and Fertility Centre, Brighton, UK
[12]HIV Pharmacy Association, Newcastle Upon Tyne, UK
[13]BASHH Clinical Effectiveness Group Editor, London, UK
[14]UK Community Advisory Board, London, UK
[15]Chelsea and Westminster Hospitals NHS Foundation Trust, London, UK

*At time most of the work was undertaken; now employed by Gilead Sciences.

Corresponding author:
Margaret Kingston, BASHH Clinical Effectiveness Group Editor, London, UK.
Email: margaret.kingston@mft.nhs.uk

The writing group included representatives of BASHH, the British HIV Association (BHIVA), clinicians with expertise who applied or were invited to join the writing group, members of the broader multidisciplinary team (nursing, pharmacy, health advisor, psychology and trainee representatives) and a community representative elected by the UK Community Advisory Board and a community representative from National AIDS Trust.

The writing group determined the PICO (population, intervention, comparison, outcome) questions which then formed the basis for the literature search:

> Population = adults with or at risk of HIV considering reproductive/contraceptive options;
> Intervention = options for conception (e.g. unprotected sexual intercourse [UPSI], PrEP, sperm washing), other assisted reproduction options including surrogacy and adoption, contraceptive options, sexual dysfunction and fertility;
> Comparison = no intervention, different interventions;
> Outcome = good sexual and reproductive health, no onward HIV transmission.

Keywords were identified by the writing group and the electronic database searches were conducted based on a PI (population, intervention) framework (HIV AND all interventions). A combination of index headings (where available) and text word (title/abstract) searching was used.

The Medline, Embase and Cochrane Library databases were searched for published peer-reviewed studies; the databases were searched in most cases for clinical trials and observational studies. Animal studies, case reports, letters, editorials and comments were excluded and, for most searches, reviews were excluded too.

Databases were searched from January 2018 to May/June 2021, with limited additional searches undertaken from January 2021 to August 2023. Results were limited to English language publications.

The results of the searches were sifted by reading the titles first, and then reviewing potentially relevant abstracts followed by papers in full if still potentially relevant. Finally, relevant papers were appraised.

Where relevant, authors included 'grey literature' based on their expertise and experience.

Stakeholder involvement and feedback

The draft guideline recommendations were originally presented at the BHIVA Autumn Conference in 2018. The 2018 document was reviewed by the BASHH Clinical Effectiveness Group, and comments from the group incorporated. The draft guidelines were then placed on the BASHH website and any comments received were reviewed by the authors and actioned appropriately (Appendix 2). Following a COVID-19-related hiatus, the guidelines were rewritten, reviewed by the BASHH Clinical Effectiveness Group and the BASHH public panel in November 2025, and their comments incorporated. The draft guidelines were placed on the BASHH website from 18 December 2025 to 27 February 2026; any comments received within 10 weeks were reviewed and responded to appropriately by the authors (Appendix 3). The writing group included two community representatives.

These guidelines will be updated in line with BASHH methodology, that is every 5 years with interim updates prompted by new evidence as determined by the appropriate BASHH and BHIVA committees.

Acknowledgements

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Introduction

The number of people with HIV continues to rise in the UK,[1] a function of increasingly normal life expectancy for those diagnosed and on treatment[2] and ongoing new diagnoses annually.[1] We consider access to evidence-based, open and inclusive sexual and reproductive healthcare, delivered in a way that supports autonomy, dignity and informed choice, to be a fundamental right for all people with HIV. Furthermore, HIV should not be a barrier to a healthy and fulfilling sex life, particularly now there is unequivocal evidence that the risk of HIV transmission from antiretroviral-treated individuals with viral suppression is zero.[3] In line with World Health Organization (WHO) guidance,[3] a viral load below 200 copies/mL is considered undetectable (zero risk of sexual transmission) and a viral load less than 1000 copies/mL is associated with an 'almost zero or negligible' risk of sexual HIV transmission; any individual on antiretroviral therapy (ART) with a viral load that is detectable but below these thresholds should be counselled accordingly. Of note, the WHO guidance does not specify a required duration of viral suppression. Where an individual or their partner expresses scepticism about U=U, we suggest signposting to peer support and/or staff skilled in risk counselling or consideration of joint clinical consultation where feasible.

Access to appropriate, up-to-date advice about transmission risk is an essential element of holistic HIV services. Likewise, people living with HIV should expect the same standards of reproductive, preconception, fertility and antenatal services as their HIV-negative counterparts. The risk of HIV transmission from a pregnant woman/person with HIV, if diagnosed in a timely manner and managed appropriately, is very low.[4] The BHIVA standards for people

living with HIV include recommendations for access to appropriate sexual health screening, treatment and advice, as well as reproductive health services; however, they also highlight that the impact of living with HIV, a potentially stigmatising condition, and associated sexual dysfunction and psychosexual morbidity, must not be underestimated.[5] In addition, rising rates of sexually transmitted infections (STIs) among men who have sex with men (MSM) emphasise the importance of open and rapid access to STI screening, treatment, partner notification and risk reduction advice. Transgender people are at disproportionately high risk of HIV and negative health outcomes. All clinics should be accessible and sensitive to the needs of transgender people, including access to specialised transgender services and/or information. Key considerations include appropriate cervical screening and drug–drug interactions (DDIs).

There are increasing numbers of people who are migrating to the UK with a diagnosis of HIV or who may be at higher risk of acquiring it. Individuals from diverse backgrounds may have different cultural beliefs and values related to sexual and reproductive health and may experience additional barriers to accessing healthcare services. Therefore, clinics should actively ensure that care delivered is culturally sensitive and inclusive, reflecting the needs and cultural values of people from minority ethnic communities.

Third sector organisations play a vital role in improving outcomes and experiences for people living with HIV. Each interaction with a clinical team represents an opportunity to provide information and signposting to third sector organisations offering a range of services including emotional and peer support. Consideration should be given to such signposting at all points of contact with individuals living with HIV.

Of note, the term 'HIV' refers to HIV-1 throughout these guidelines.

Who are these guidelines for?

These guidelines are for all people/services involved in the provision of care or advice related to the sexual and reproductive health of people with living HIV and their partners including: HIV clinics, STI screening services, reproductive health services, integrated SRH services, obstetrics/gynaecology services and community- and peer-led organisations. They may be helpful to colleagues in primary care and fertility services, and appropriate commissioners.

These clinical guidelines apply to all people with HIV, regardless of their gender assigned at birth, gender identity or sexuality, ensuring that everyone receives equitable care. To ensure clarity and accessibility in guiding treatment, the guidelines include a specific section dedicated to transgender-related SRH issues, addressing the unique needs of transgender individuals while maintaining comprehensive care for all.

What is not covered in the 2025 guidelines?

Some relevant issues may be mentioned but are covered in more detail in other guidelines accessible on the BASHH or BHIVA websites, including:

Human papilloma virus (HPV) vaccination (BHIVA immunisation guidelines);
HPV-related malignancy screening and management (European AIDS Clinical Society [EACS] cancer screening methods and treatment monitoring guidelines);
Viral hepatitis screening/vaccination (BHIVA hepatitis and BASHH hepatitis guidelines);
STI screening and management (BASHH guidelines on testing for STIs);
Sexual history taking and STI screening (BHIVA monitoring guidelines);
Post-exposure prophylaxis (PEP) (BASHH/BHIVA PEP guidelines);
PrEP (BASHH/BHIVA PrEP guidelines).

Sexually transmitted infections

Recommendations

We recommend following BHIVA monitoring guidelines for STI screening in people with HIV (GPP).
We recommend following BHIVA monitoring and EACS guidelines for viral hepatitis screening in people with HIV (GPP).
We suggest within-clinic access to STI and viral hepatitis screening for all HIV services (GPP).
We recommend that sexual history is reviewed at all routine clinic appointments (GPP).
We recommend that clinics provide appropriate verbal, written or online information about risks and recommended screening for STIs and viral hepatitis (GPP).

We recommend following the most up-to-date BHIVA and BASHH monitoring guidance with regard to appropriate STI screening.[6,7] Of note, acute hepatitis C may not be associated with a raised alanine aminotransferase (ALT) level and individuals who have had a high-risk potential exposure to hepatitis C virus (HCV) within 6 months should be offered RNA or antigen testing, at an appropriate interval, regardless of ALT level.[8]

The BHIVA Standards of Care states that 'people living with HIV should be supported to protect themselves (and others) from acquiring new sexually transmitted infections,

with access to regular screening and prevention interventions for all sexually transmitted infections.[5] We strongly support this recommendation, particularly in an era of service fragmentation secondary to divided commissioning arrangements.

The 2014 BHIVA hepatitis guidelines recommend that those without immunity should have an annual hepatitis B surface antigen test or more frequent testing if there are known and ongoing risk factors for hepatitis B virus acquisition. Although the 2014 BHIVA hepatitis guidelines have been archived, the following recommendations from these remain in line with the current EACS guidelines[9]:

> HCV antibody testing is recommended at baseline and at least annually for individuals not in an at-risk group requiring more frequent testing;
> Anti-HCV and HCV-PCR testing are recommended if transaminases are raised or following a recent high-risk exposure to an individual known to have HCV. In the case of prior spontaneous clearance or successful treatment, HCV-PCR only should be performed;
> HCV-PCR should be repeated after 1 month if initially negative and following any potential exposure;
> Individuals who have repeated high-risk exposures but persistently normal transaminase levels should be screened with anti-HCV and HCV-PCR, or HCV-PCR alone if previously successfully treated or have spontaneously cleared infection and are HCV antibody positive, at 3- to 6-monthly intervals.

Cervical screening and HPV-related conditions

Recommendations

> We recommend cervical screening in line with NHS Cervical Screening Programme (NHSCSP) UK guidelines (Grade 1A).
> If guidance differs for people with HIV compared to the general population, the sample may be rejected as 'out of programme' if the clinical reason (i.e. HIV status) is not documented on the sample request form (GPP).
> Multifocal intraepithelial neoplasia is more common in women/people with HIV than those without HIV; symptom enquiry and external anogenital examination is advised when taking a cervical cytology sample (GPP).

At the time of writing, screening recommendations for people with HIV, as part of NHS England programme and colposcopy management,[10] are as follows:

> All individuals newly diagnosed with HIV should undergo cervical surveillance by, or in conjunction with, the medical team managing their HIV.
> Annual screening is currently recommended for all people with HIV with a cervix.
> An initial colposcopy (within the age range recommended by the NHSCSP) is currently recommended if resources permit.
> Subsequent colposcopy for any screening abnormality (abnormal cytology or persistence HPV positivity with normal cytology) should follow national guidelines.
> The age range for screening does not differ for people with and without HIV, with first call at 24.5 years and last call at 65 years.
> It is important to note the clinical diagnosis of HIV on the request form, to ensure that the laboratory will not reject the sample as being 'out of programme'.

There is a risk that women/people will not receive annual invitations if their HIV status has not been shared with the GP; this risk, and possible mitigators (such as sampling within HIV services), should be discussed. Where there is clinical concern, women/people under the age of 25 can be referred to gynaecology or colposcopy services. Of note, current UK recommendations (and hence the recommendations in these guidelines) differ from EACS guidance; EACS recommends cervical screening from the age of 21 years at 1- to 3-years intervals with either cytology or HPV testing.[9] Note that the NHCSP guidelines are likely to be updated towards the end of 2026 and the most recent version should be followed.

High-risk HPV (hrHPV)

HPV is a double-stranded DNA virus from the *Papillomaviridae* family and HPV infection is responsible for approximately 5% (695,000 cases) of all new cancer cases worldwide, primarily in women (625,600 cases).[11] There are 14 hrHPV types including HPV16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66 and 68. Two of these, HPV16 and 18, are responsible for most HPV-related cancers (70%). hrHPV can cause cervical, vaginal, vulval, peri-anal, anal canal, oropharyngeal and penile cancers. Persistent hrHPV infections account for 95% of cervical cancers.

Incidence and persistence of HPV is higher in people with HIV. Of note, much of the evidence regarding the epidemiology and natural history of HIV-associated infection/cancer is from Africa so may not be generalisable to a UK setting. In a systematic review from 2023,[12] the prevalence of HPV overall, and HPV16/18 specifically, and risk factors for hrHPV were assessed in women in Nigeria. The pooled prevalence of HPV was 25%, and 71% in women with HIV. As expected, age at first coitarche,

multiple partners and smoking were significant associated factors.

A cross-sectional study from Southern Ethiopia found that 35% of women with HIV were hrHPV positive.[13] The relative risk of hrHPV positivity was 3-fold higher in women with a history of STI and 2-fold higher in women who had more than one lifetime sexual partner. Women with a CD4 count <200 cells/mm^3 had a 3-fold higher prevalence of hrHPV than those with a CD4 count ≥200 cells/mm^3 and women with a viral load greater than 50 copies/mL had a 3-fold higher risk than those who were virally suppressed.

Cervical cancer

Cervical cancer is the fourth commonest cancer in women worldwide and surpassed maternal mortality as the leading cause of death globally in young women in 2020 (604,000 new cases worldwide and 342,000 deaths). Of new cases and deaths worldwide, 90% occurred in low- and middle-income countries.[14] The WHO has a global strategy to reduce the incidence of cervical cancer to less than four per 100,000 by 2030 by achieving: (i) 90% HPV vaccine uptake in girls by the age of 15; (ii) screening of 70% of women with a high-performance test by 35 years of age and again by 45 years of age; and (iii) treatment coverage of 90% for women with cervical disease.[15]

Women with HIV are six times more likely to develop cervical cancer compared to women without HIV[16] and an estimated 5% of all cervical cancer cases globally are attributable to HIV.[17] In Southern Africa, 63% of 5341 HIV-attributable cervical cancers occurred in women less than 45 years of age, compared to only 17% of 6901 non-HIV-attributable cervical cancers,[18] thus demonstrating that this is a disease of young women.

Multifocal and multicentric disease (multizonal intraepithelial neoplasia)

HPV-related intraepithelial neoplasia and carcinoma can also occur at other anatomical sites: vagina, vulva, perianus, anus and oropharynx.

The incidence of anal cancer, which is low in the general population at two per 100,000, is increased 10-fold in women with HIV aged 30–45 years old, rising to 26 per 100,000 in those over 45 years of age. Most (90%) cases of anal carcinoma are caused by HPV persistence and transformation.[19]

High-grade vulval intraepithelial neoplasia is HPV related in 95% of cases and tends to be multifocal and occurs in people aged 30–50 years. Recurrences are more common than for cervical intraepithelial neoplasia, with a 5% risk of progression to vulval cancer, over a median period of 41 months.[20] Among women with HIV, multicentricity was associated with a more rapid recurrence of disease than unicentricity ($p = 0.006$), and multifocality increased the risk of recurrence compared to unifocality ($p < 0.0001$). CD4 count but not viral load was associated with time to disease recurrence.[21]

Vaginal intraepithelial neoplasia is rare, constituting only 0.4% of female lower genital tract lesions, with an annual incidence of 0.2 to two per 100,000 women. The majority of vaginal intraepithelial neoplasia lesions are HPV related and tend to be multifocal. Risk of progression to vaginal cancer ranges from 2% to 7%.[22] In one Danish study, incidence rate of high-grade lesions (vaginal intraepithelial neoplasia 2/3; high-grade squamous intraepithelial lesion) was relatively stable during a 20-year period, but decreased by 16% in young women secondary to HPV vaccination.[23]

Multizonal intraepithelial neoplasia is more common in women with HIV than in those without HIV. Careful enquiry about symptoms and external anogenital examination are advised when taking a cervical cytology sample. In the longitudinal cohort study discussed below,[24] the incidence of vaginal intraepithelial neoplasia 2+ was 0.2 and 0.01 per 100 person-years for women with and without HIV respectively ($p = 0.001$).

Impact of effective ART

Evidence for the impact of optimal management of HIV on cervical hrHPV persistence is derived from a 2013 study[25] which investigated the long-term impact of ART in 652 women followed for a median duration of 104 months. Sustained HIV suppression for more than 40 months and a sustained CD4 count of >500 cells/mm^3 for more than 18 months were independently and significantly associated with a decreased risk of persistent cervical hrHPV infection. This is further supported by the findings of a recent scoping review of meta-analyses and systematic reviews[26] which compared three groups: HIV-negative women, optimally antiretroviral-treated women, and women not on ART with a CD4 count <200 cells/mm^3. Overall, women with HIV had a 3- to 6-fold higher risk of hrHPV infection, or of progression to high-grade squamous intraepithelial lesion and ultimately to invasive cervical cancer. These risks were even greater in women who were immunosuppressed, whereas those on effective ART for at least 24 months had a 20–35% reduced hrHPV prevalence and a lower risk of progression to high-grade squamous intraepithelial lesion and to invasive cervical cancer.

Cervical screening

In the longitudinal study mentioned above,[24] over a median of 5.6 years of follow-up, cytology was abnormal for 29% of 3700 visits among women with HIV versus 4% of 763 visits among women without HIV ($p < 0.001$). The

incidence of abnormal cervical cytology tests after hysterectomy was 14/100 person-years among women with HIV and 2/100 person-years among those without HIV ($p < 0.001$) and remained stable across time. The 5-years clearance rate of abnormal cytology was 34/100 person-years for women with HIV and 116/100 person-years for those without HIV ($p < 0.001$). In multivariate regression models, women with lower CD4 counts were more likely to have abnormal cytology and less likely to clear the abnormality.[24]

Since December 2019, cervical screening in England has been delivered using primary HPV testing with secondary cytology triage for those who are HPV positive. Primary HPV testing with secondary cytology triage was introduced in Scotland in 2020 and in Wales from 2018. Northern Ireland undertakes cytology examination first and then uses hrHPV testing for subsequent triage. A systematic review of four European trials including more than 175,000 women compared hrHPV testing to cytology, and found that HPV testing conferred 60–70% greater protection against invasive cervical cancer.[27]

Open Exeter, the national cytology results and recall database, was replaced by the cervical screening management system (CSMS) in the first quarter of 2024. It will allow clinicians to access screening histories from across England. CSMS can only be accessed via an NHS Smartcard[28]; all units providing cervical screening in England should ensure their local registration authority engages with arranging access to this system, through ensuring the correct role-based access control and cervical screening workgroup have been added to Smartcard access.

The recommendation, at the time of writing, for annual cervical screening in women with HIV is based on their higher risk of HPV positivity, higher risk of cervical hrHPV infection (29% vs 9% in women without HIV, $p < 0.001$), greater prevalence of cervical cytological abnormalities (14% vs 3% of women without HIV, $p < 0.001$) and higher prevalence of high-grade lesions (3.7% vs no cases in women without HIV).[29] Please refer to the most recent version of the NHSCSP guidelines.

Challenges regarding invitation for annual screening for women/people with HIV who do not wish to disclose their HIV status to primary care should be discussed.

At the time of writing, NHS England has proposed reducing the frequency of cervical screening for people living with HIV. These guidelines will be updated if and when NHSCP recommendations change.

HPV vaccination

A 2021 systematic review of four randomised controlled trials involving 950 people with HIV found no difference in adverse events, CD4 cell count or HIV viral load between the vaccine and placebo groups.[30] A 2022 meta-analysis showed high initial seropositivity for all vaccine types, though antibody levels declined over time, particularly for HPV18 and more so in people with HIV. Despite this, the robust response suggests that vaccination benefits people after acquiring HIV.[31] At the time of writing, the BHIVA immunisation guidelines, which include guidance on HPV vaccination, were pending consultation and publication. Please see the BHIVA website for the latest advice.

Pre-conception advice

Recommendations

We recommend that all individuals with HIV have access to expert advice and services to support safe reproductive health including pre-conception information (GPP).

We recommend that discussions regarding reproductive plans are documented at baseline and annually where appropriate (GPP).

We recommend discussing U=U with all people with HIV (GPP).

We recommend that antiretroviral regimens are prescribed in line with BHIVA guidelines for those planning to conceive (Grade 1C).

We recommend supporting individuals in sharing their HIV status with partners where appropriate (GPP).

Future parenthood plans

The marked improvement in life expectancy and the low risk of vertical transmission mean that fertility desires among people with HIV are high, with many wishing to have their own biological children.[32–35] Despite this, communication between individuals and healthcare providers about conception and pregnancy is often inadequate and pregnancies may be unplanned or purposefully avoided.[36–41] It is important to have open discussions about reproductive health with all people with HIV, regardless of their gender, sexuality or age. There is evidence that few clinicians proactively discuss parenting options with MSM,[42] who may welcome these discussions.

The impact of HIV on reproductive choices is multifactorial and requires an approach that addresses not only medical facts but also the many psychosocial issues relating to conception and pregnancy in the context of HIV.[43]

All people with HIV should have access to accurate information and support around conception, involving their partners where appropriate to do so. There should be a documented discussion of reproductive plans for all individuals with reproductive potential at baseline assessment and annually where appropriate, and we suggest all services or networks have a named healthcare professional responsible for reproductive advice and signposting.

Evidence for U=U

Three prospective observational studies involving serodifferent partnerships, where the partner with HIV maintained viral suppression to less than 200 copies/mL on ART, have provided the foundational evidence for the principle of U=U. These studies confirmed that the risk of sexual transmission is zero when this condition is met.[44–46]

A lack of accurate information about U=U and safe conception can lead some individuals to believe that having children is impossible. It is recommended that all people diagnosed with HIV start treatment as soon as they are ready to do so. It is essential to help individuals understand that once they reach an undetectable viral load, they cannot transmit HIV to their sexual partners, and that a safe, successful pregnancy is entirely possible.[47–49]

In the unusual situation in which someone is unable or unwilling to take ART, or has a detectable viral load but wishes to conceive with an informed consenting partner, risk reduction advice may be given, including timed condomless sexual intercourse, sperm washing (where available) and the use of PrEP and/or PEP. Although there is limited evidence for some of these approaches, risk reduction advice was recommended practice in the previous version of these SRH guidelines[50] and also in National Institute for Health and Care Excellence (NICE) fertility guidelines[51] to reduce HIV transmission risk prior to the availability of further evidence supporting U=U.

Optimising health before conception

People with HIV may encounter stigma surrounding their choice to become parents, both in the community and among healthcare professionals. Addressing stigma is an ongoing challenge. Reproductive counselling should be a routine part of HIV care, to help individuals make informed and safe reproductive choices.[52] We recommend that all women/people who are planning to try to conceive are signposted to resources with advice on optimising health before becoming pregnant, such as the advice from the pregnancy charity Tommy's.[53] Lifestyle advice regarding alcohol consumption, smoking cessation, avoidance of recreational drugs and maintaining an ideal weight should be given prior to conception to both prospective parents or as soon as the pregnancy is known. Sexual health screens are also recommended for both partners prior to conception. We also recommend that people are up to date with relevant vaccinations, as recommended in the BHIVA immunisation guidelines.[54]

Folic acid and vitamin D supplementation

All individuals trying to conceive should be advised to take folic acid 400 mg daily, from before conception until 12 weeks' gestation, to reduce the risk of neural tube defects (NTDs).[55] Although no trials have compared high-dose versus standard-dose folic acid for NTD prevention,[56] a higher dose of 5 mg daily is recommended for people with HIV where additional risk factors are present, including if individuals:

or their partner have an NTD;
have had a previous baby with an NTD;
or their partner have a family history of NTD;
have diabetes;
have epilepsy[57];
are taking a folate antagonist such as co-trimoxazole.

Obesity alone is no longer an indication for high-dose folic acid. However, individuals who have had bariatric surgery should consult that specialist team for individualised advice because of potential metabolic changes after such surgery.[55,58]

Healthcare professionals should also be aware of other current guidelines relevant to pre-pregnancy health including general advice and vitamin D supplementation; NICE recommends vitamin D supplements in specific groups of people including pregnant women.[59]

Auditable outcome

The proportion of people with a documented discussion about reproductive plans at baseline, and annually thereafter (target 95%).

Fertility in people with HIV

Recommendations

Couples trying to conceive, where one or both partners are living with HIV, who require investigation and/or treatment for infertility, should have access to local or regional conception services through agreed pathways (GPP).
If conception is not achieved within 6–12 months, early referral to fertility services should be considered, particularly for those women/people over 35 years and/or with a history of pelvic inflammatory disease (GPP).

Fertility and reproductive options are important considerations for all people with HIV, regardless of gender or sexuality. HIV and its treatment can impact fertility both directly and indirectly. Severe immunosuppression can impact ovulation and ovarian reserve; HIV has been associated with increased frequency and severity of genital tract infection which can result in tubal infertility, and ART may cause mitochondrial toxicity which can affect both oogenesis and spermatogenesis.[60] However, much of the evidence on fertility is based on older antiretroviral drugs,

and in the era of modern ART and high uptake in many settings, there is some evidence that the extent of overall subfertility attributable to HIV is less than previously considered.[61–63]

Retrospective[64] and prospective[65] data from Africa suggest an increased incidence of tubal infertility in women with HIV. For this reason, while natural conception on ART is recommended, couples trying to conceive should be considered for fertility evaluation if they have not conceived within 6–12 months of trying, particularly if the woman/person who wishes to become pregnant has a history of pelvic inflammatory disease or is over 35 years of age.

In vitro fertilisation (IVF) outcome data have suggested that ovarian reserve is reduced in women with HIV compared to those without HIV, and that ART may also have a direct effect on oocyte quality by causing mitochondrial toxicity and mitochondrial depletion.[66]

The effect of HIV and ART on fertility parameters and outcomes has been extensively studied. Before widespread ART use, studies showed that semen parameters in people with HIV were consistently below the WHO-defined normal range. Two large studies[67,68] found significantly lower semen volume, sperm count and sperm motility and poorer sperm morphology compared to control subjects without HIV, with a negative correlation between CD4 count and immune status, especially below 450 cells/mm^3, but no effect of viral load on any semen parameters. Further studies have reported no significant ART effect on semen parameters,[69] although in another study a reduction in sperm motility was noted in those on efavirenz-based regimens.[70]

A small prospective study demonstrated that ART (with protease inhibitor- or efavirenz-based regimens) significantly increased sperm DNA integrity in 53 men with HIV on ART compared to 24 with untreated HIV. Increased DNA fragmentation has been shown to impact natural fertility and the risk of miscarriage.[53] Further larger studies are needed to confirm or refute these findings.

Methods of conception

Recommendations

We recommend condomless sex for conception in heterosexual couples where the person with HIV has an undetectable viral load (GPP).

Sperm washing is not routinely recommended, unless it is not possible to achieve viral suppression in the individual with HIV (GPP).

PrEP for conception (PrEP-C) is not routinely recommended (GPP).

Alternative parenting options should be discussed where appropriate; these may include sperm donation, gamete donation, surrogacy and adoption (GPP).

Conception by condomless sex

Condomless vaginal sex is recommended for conception when a person with HIV has an undetectable viral load on ART, as the risk of transmission of HIV is zero. Couples may still choose to track the most fertile period to increase the chances of conception.

Sperm washing

Sperm washing is the process whereby an HIV-negative person with a uterus is inseminated with sperm from a person with HIV which has been centrifuged to separate sperm from seminal fluid and associated non-sperm cells. NICE fertility guidelines[71] do not recommend sperm washing in preference to timed condomless sex where the man with HIV is on suppressive ART. Sperm washing is only available in certain parts of the country and often requires individual funding requests for treatment to proceed; clinics should be aware of local services and pathways.

PrEP-C

Some couples may request PrEP-C as an additional 'safety net' but should be reassured that this is not indicated unless the person with HIV is not on ART or has a detectable viral load on ART. Initiating/optimising ART for the person with HIV should be prioritised and PrEP-C considered an exception based on shared decision-making. Further information about PrEP, including safety in pregnancy, is available in the latest BASHH/BHIVA PrEP guidelines.[72]

Self-insemination

If couples prefer not to have condomless sex, other options include timing ovulation, using a non-spermicidal condom and extracting sperm with a syringe or pipette for vaginal insertion. Friends planning to conceive together can follow the latter approach, with ejaculation of semen into a sterile cup, from which sperm is drawn and inserted into the vagina.

Sperm donation

This option is available for women/people with a uterus who are in same-sex relationships or with partners facing male infertility. The safest way to obtain donor sperm is through clinics licensed by the Human Fertilisation and Embryology Authority (HFEA), which are regulated in the UK.

Gamete donation

On 22 October 2024, legislation was passed by the UK Parliament to allow people with HIV to donate sperm or eggs to a known recipient, including in a surrogacy arrangement. Operational guidelines are being developed and have not yet been published; we advise clinicians to document discussions carefully and manage expectations until then. A multidisciplinary approach will be required to support prospective parents as for any other pregnancy, and equity of access should be ensured across all four nations of the UK.

Adoption

Adoption or fostering is an option for people with HIV, either alone or with a partner. HIV does not prevent approval as an adoptive parent, but health and circumstances will be assessed to ensure the child's needs are met. An HIV physician may need to provide a report on the individual's health and life expectancy.

Management of infertility

Recommendations

> Intrauterine insemination is not routinely recommended but may be considered where there is a potential for HIV transmission during conception (GPP).
>
> We recommend that intracytoplasmic sperm injection (ICSI) is undertaken only in the context of viral suppression to avoid the need for sperm washing (GPP).
>
> We recommend that people with HIV undergoing treatments that may impact fertility have access to cryopreservation (GPP).
>
> We recommend that the option for gamete donation, pending operational guidelines, is discussed where appropriate (GPP).

General approach

Overall, assisted conception in people living with HIV is considered safe when viral suppression is achieved, with no evidence of increased risk of HIV transmission in this context. Fertility outcomes appear broadly comparable to those in the general population, although some studies suggest that outcomes may be poorer in certain groups, particularly women living with HIV. These differences may relate to a combination of social factors, biological factors, comorbidities or treatment effects, but the evidence remains inconclusive.

A multidisciplinary approach to infertility care is advised, involving a reproductive medicine specialist and an HIV clinician, with appropriate multidisciplinary and peer support, particularly considering the potential psychological impact of infertility. People should be involved in their treatment planning, and fully informed of their options and of any risks from conception to delivery.[73]

Sperm washing

Although there are no reported cases of HIV transmission when sperm washing is performed according to established protocols,[74] intrauterine insemination of washed sperm is no longer recommended as a first-line option for safe conception; the ideal approach is to achieve and maintain an undetectable viral load. However, sperm washing may be considered in exceptional circumstances or if the person producing sperm is unable to maintain a stable, undetectable viral load.

Assisted conception

Women/people with ovaries who have delayed conception should be referred for assisted conception and managed in the same way as those without HIV. No additional investigations are necessary.

Although early studies suggested that assisted conception outcome might be poorer in serodifferent couples where the female partner is living with HIV, these did not consider the impact of co-infection with hepatitis B or C and the benefit of early ART.

In a 2011 systematic review and meta-analysis of serodifferent couples using sperm washing, outcomes of 3900 intrauterine insemination (IUI) cycles in 1184 couples and 738 IVF/ICSI cycles in 579 couples were reported.[75] The median pregnancy rates were 18% (IUI) and 38% (ICSI), comparable to control subjects without HIV, with no seroconversions or vertical transmissions. A 2014 review of 24 studies of IUI and IVF outcomes in serodifferent couples found pregnancy rates of 17% and 30% (men living with HIV) and 14% and 16% (women living with HIV) respectively. No HIV transmissions in 8212 IUI and 1254 IVF cycles were observed.[76]

A retrospective, case–control study compared IVF outcomes in 179 couples, in which at least one partner was living with HIV, with outcomes in 179 HIV-negative couples.[77] HIV was associated with poorer outcomes in terms of higher administered gonadotropin doses, longer stimulation periods, lower cumulative pregnancy rates and lower live birth rates. A subgroup analysis in women with HIV also showed worse outcomes in terms of number of oocytes retrieved.

A systematic review and meta-analysis of 10 case–control studies in serodifferent couples where the female partner was living with HIV described outcomes of 516 IVF/ICSI cycles. Pregnancy rate was lower in six studies, with no difference in four studies.[78] A retrospective

case–control study, comparing 82 women with HIV and HIV-negative control subjects showed no statistical difference in response to ovarian stimulation, fertilisation rate or numbers of embryos transferred but a statistically significant lower implantation rate (10% vs 21%), clinical pregnancy rate (12% vs 32%) and live birth rate (7% vs 19%) in women with HIV.[79] It is possible that poorer outcomes were related to a premature fall in ovarian reserve[80] and an impact of ART on oocyte quality.[66]

IVF outcome does not appear to be affected in women with HIV who are recipients of donor eggs, suggesting that any effect of HIV is on ovarian response and ovarian reserve rather than on implantation.[81]

Cryopreservation of gametes

1. Fertility can be impacted following surgery, chemotherapy, immunotherapy and/or radiotherapy. People requiring treatment that may affect their fertility should be offered prompt access to counselling to discuss their options. When appropriate and if time permits, the option to cryopreserve sperm or eggs should be provided to preserve future fertility.[51] There are no restrictions on gamete cryostorage in centres licensed by the HFEA, and laboratories should adhere to standard guidelines regarding gamete storage.[82] Access to, and funding for, cryopreservation may be limited and vary geographically.

Contraception for people with HIV

Recommendations

There are many ART regimens that are compatible with contraceptive options, and it is essential to decide which option suits an individual (GPP).

There may be DDIs between hormonal contraception and ART, therefore we recommend taking a comprehensive medication history at every appointment (GPP).

If DDIs limit contraceptive choice, consider switching ART regimen with the advice of an HIV healthcare professional (GPP).

Condoms remain important for STI prevention and we suggest they form part of combination prevention of HIV transmission from a person living with HIV who is not suppressed on ART (Grade 1A).

We recommend considering assessment for osteoporosis and fracture risk in individuals using injectable depot medroxyprogesterone acetate (DMPA) (GPP).

We recommend following FSRH guidelines for emergency contraception (GPP).

For people taking an enzyme-inducing drug, we recommend the copper intrauterine device (Cu-IUD) as the most effective emergency contraception; if this is not suitable or acceptable, consider administering a double dose (3 mg) of levonorgestrel (Grade 2A).

Introduction

All women/people with HIV at risk of unplanned pregnancy should have access to safe and effective contraception and be supported in choosing the contraceptive method that is most suitable for them.

The College of Sexual and Reproductive Healthcare (CoSRH) provides guidance on all contraceptive methods (https://www.cosrh.org/). The CoSRH has produced the UK Medical Eligibility Criteria for Contraceptive Use (UKMEC),[83] which is an adaptation of WHO Medical Eligibility Criteria (WHOMEC).[84] UKMEC classifies medical conditions (including HIV; both in people who are clinically well and on ART, and in those who are not) into eligibility categories, by contraceptive type. UKMEC recommendations are based on safety and do not take DDIs into account, hence all relevant DDIs must be reviewed to ensure the person's ART will not affect exposure to contraceptive hormones and impair contraceptive efficacy. FSRH guidance on contraception for people living with HIV[85] should be used alongside UKMEC to inform prescribing, including up-to-date advice on DDIs.[85]

Contraception provision

Depending on the provision of local services, contraception can be managed within an integrated HIV service, or individuals may be referred to an allied sexual and reproductive health service. Regardless, a sexual and reproductive history is an essential element of any routine HIV consultation.

Hormonal contraception and antiretroviral DDIs

The evidence for hormonal contraception and antiretroviral DDIs mainly comes from pharmacokinetic studies, with limited information on clinical outcomes, such as rates of unintended pregnancy. The FSRH guidance uses pharmacokinetic data to estimate the potential effects of DDIs on contraceptive effectiveness. Therefore, when an interaction between two medications could affect contraceptive effectiveness or safety, and a change in antiretroviral drugs is not feasible, avoiding the use of the contraception and/or using additional protection such as condoms is advised.[85]

Prescribers must take thorough drug histories, including ART, other prescribed medications, non-prescription medications, herbal preparations, recreational drugs and dietary supplements. It is essential to check for interactions with each component of the ART regimen, as well as the

different components of hormonal contraception, such as the combined hormonal contraceptive pill. Individuals should check with their healthcare team before starting any new prescribed or unprescribed medications or supplements.[85]

In addition to the FSRH guidance, prescribers should refer to regularly updated DDI resources, such as:

> The University of Liverpool HIV Drug Interaction Checker (a quick reference to ART and contraception is available at: https://liverpool-hiv-hep.s3.amazonaws.com/prescribing_resources/pdfs/000/000/025/original/TS_Contraceptive_2025_Nov.pdf?1763638140);
> The British National Formulary (https://bnf.nice.org.uk/interactions/).

Informed choice

Choice of ART and contraception requires an approach tailored to the individual, considering effectiveness, safety and preference. Newer ART regimens tend to avoid DDIs with hormonal contraception, with the first-line ART regimens in the 2025 BHIVA treatment guidelines having no significant interactions.[86] Intrauterine contraception (levonorgestrel IUD and Cu-IUD) and the intramuscular DMPA method (DMPA-IM) are not affected by any DDIs with ART.[85]

However, there may be situations in which a particular contraceptive method may still be the appropriate or preferred choice for a person despite a potential DDI and, where feasible and appropriate, ART switch should be considered to suit an individual's choice of contraception, in consultation with the prescribing healthcare provider.[85]

Bone mineral density (BMD)

HIV may also be associated with reduced BMD and initiation of ART (especially tenofovir disoproxil fumarate [DF]) is associated with an initial loss of BMD before stabilisation.[87,88] The DMPA progestogen-only injectable is also associated with a loss of BMD, which usually recovers after discontinuation.[87–89] A recent, small, retrospective study showed that using tenofovir DF and DMPA together was associated with more BMD loss than using tenofovir DF alone.[90] Further research is needed to determine whether this increases the risk of fractures, and whether there may be justification for tenofovir alafenamide regimens in those requesting continued DMPA use.

BMD should be discussed when choosing a contraceptive method, and those on DMPA should be re-evaluated for osteoporosis risks and benefits every 2 years. The BHIVA monitoring guidelines include guidance on appropriate monitoring for and assessment of osteoporosis and fracture risk.[6]

Emergency contraception

Emergency contraception with either a Cu-IUD or oral medication (levonorgestrel/ulipristal acetate) reduces the risk of unintended pregnancy following unprotected sexual intercourse or contraceptive failure.

The most effective emergency contraception is the Cu-IUD. If appropriate, the Cu-IUD should be offered first line (see FSRH guidelines for use in people with HIV[85]) noting that the UKMEC grading differs by HIV clinical status.[83]

Enzyme-inducing ART may reduce the effectiveness of oral emergency contraception. If a Cu-IUD is unavailable or unsuitable, a double dose (3 mg) of levonorgestrel should be considered.[85]

Contraceptive effect on HIV outcome

There is no evidence that hormonal contraception reduces ART effectiveness or negatively affects HIV progression or clinical outcomes.[91–93]

Summary

People with HIV on suppressive ART need effective and safe contraception to suit their personal needs and help them to plan their families and have a fulfilling sex life. Prescribers must consider important DDIs, which may affect the efficacy of contraception, and person preference when undertaking joint decision-making related to contraception. It may be appropriate to switch to an alternative ART regimen to enable individuals to choose the right contraception for them.

Auditable outcome

1. Proportion of people who have the potential to conceive with a documented contraception discussion at baseline, and annually thereafter (target 95%).

Contraception and HIV acquisition, transmission and disease progression

Recommendation

> We suggest that contraceptive choice should not be impacted by risk of HIV acquisition (GPP).

Background

There were concerns that DMPA-IM and intrauterine contraception use could increase HIV acquisition risk, so these options were rated UKMEC two based on evidence from low-quality observational studies.[94–96]

In 2019, the Evidence for Contraceptive Options and HIV Outcomes (ECHO) study 2,[97] a randomised, multicentre, open-label trial, compared DMPA-IM, a Cu-IUD and a levonorgestrel implant among 7829 women living in areas of high HIV incidence in Africa. During a follow-up period of 18 months, no significant difference in HIV risk was found between groups. The authors of the study concluded that all three methods were safe and highly effective, supporting the continued use of these contraceptive methods.[97]

In accordance with WHO guidelines, the CoSRH now recommends that contraceptive choices for the UK population should not be limited by HIV risk.[84,85,98] In view of this, and the findings of the ECHO study 2, all contraceptive options are now rated UKMEC 1 for people needing contraception who are at high risk of HIV.[83]

Summary

There is no evidence that DMPA-IM increases the risk of HIV transmission.

Menopause and post-reproductive health

Recommendations

We recommend baseline menstrual cycle assessment and annual review thereafter in all women/people with ovaries (GPP).

We recommend routine annual assessment of menopausal symptoms in women/people with ovaries aged 35 years and over, until they are established on systemic hormone-replacement therapy (HRT) and/or until several years postmenopause (GPP).

We recommend that menopause is diagnosed after ≥12 months of amenorrhoea in women/people aged over 45 years and not on hormonal contraception (or on the basis of menopausal symptoms in those without a uterus) (GPP); follicle-stimulating hormone (FSH) testing is not recommended in this group.

We recommend the use of systemic and topical vaginal HRT as per NICE guidelines (Grade 1A).

We recommend that all women/people with ovaries are provided proactively with information about menopause and management strategies by HIV specialist services when appropriate (GPP).

We recommend bone and cardiovascular disease risk screening in line with the BHIVA monitoring guidelines (GPP).

We suggest ongoing management of menopause in primary care as per NICE guidelines, with close communication with HIV specialist services (GPP).

Menopause is the time when menstruation ceases due to loss of ovarian follicular function and a decline in circulating blood oestrogen levels. For most women/people with ovaries, this occurs as a result of biological ageing, although it can also be induced iatrogenically through surgery and medical treatment such as radiotherapy and ovarian suppression medication. Menopause as a result of ageing is a gradual transition, with hormonal changes and symptoms occurring before menstruation ceases (perimenopause). Vasomotor symptoms, experienced by 75% of women in Europe and North America, can last for more than 7 years during the menopausal transition and persist for 4.5 years after menstruation ceases.[99,100]

Approximately 13,400 women of potentially menopausal age (between 45 and 56 years) attended for HIV-related care in the UK in 2021, a more than 2-fold increase over a 10-year period.[101] Menopause and its associated hormonal changes can lead to a range of somatic, psychological and urogenital symptoms, as well as increasing the risk of comorbidities such as osteopenia and osteoporosis and cardiometabolic disease, which is already elevated as a result of HIV infection itself. It is therefore important to ascertain menopausal status, and the presence and severity of symptoms, to optimise the health and wellbeing of people with HIV as they get older.[102]

Age at menopause in people with HIV

There is some evidence to suggest an increased prevalence of menopause under the age of 45 years in women with HIV.[103] Given the possibility of early menopause, we recommend routine annual enquiry about menstrual patterns in all women/people with ovaries living with HIV, regardless of age. It is important to identify people experiencing early menopause (final menstrual period aged 45 or under). Those experiencing early menopause should be advised to commence systemic HRT, or a combined oral contraceptive, as early and particularly premature menopause are associated with decreased life expectancy as a result of increased cardiovascular disease, stroke and fracture risk.[104]

Menopausal symptoms in people with HIV

There is a high prevalence of somatic, psychological and urogenital menopausal symptoms in people with HIV,[105–107] with most of these symptoms peaking during the perimenopausal period[105,108] and some evidence that HIV increases their severity.[109,110] Physical and mental exhaustion, muscle and joint pain, and low mood are among the most troubling menopausal symptoms reported by people with HIV. Sexual problems (including low sexual desire and vulvovaginal dryness and pain) are common among people living with HIV during menopause; some studies have demonstrated an association between HIV

status and sexual problems among menopausal women.[111–113]

Not only do menopausal symptoms negatively impact the quality of life and mental health of people with HIV,[102,114] they have also been shown to be associated with decreased ART adherence and engagement in HIV care.[115–119] An analysis of the PRIME study found that women with HIV with current or previous mental health problems *and* who experience menopausal symptoms are at particular risk of missing ART doses and HIV clinic appointments.[114] Ascertaining and managing menopausal symptoms are therefore key strategies for optimising engagement in HIV care.

We recommend routine annual assessment of menopausal symptoms in women/people with ovaries aged 35 years and over, until they are established on systemic HRT and/or until several years postmenopause. The validated Menopause Rating Scale is an example of a tool to measure menopausal symptoms (see: https://zeg-berlin.de/expertise/diagnostics-tools/menopause-rating-scale/languages/).

Diagnosing menopause

Laboratory investigations to support the diagnosis of menopause (such as FSH level) are not routinely indicated in people in the general population aged over 45 years with menstrual irregularity and/or vasomotor symptoms.[120] In those aged over 45 years, perimenopause can be diagnosed based on vasomotor symptoms and menstrual irregularity; menopause is diagnosed after ≥12 months of amenorrhoea in people not on hormonal contraception (or on the basis of menopausal symptoms in those without a uterus[120]). The FSH level may be within the normal range during perimenopause and therefore measurement of FSH is often unhelpful.

There is an increased prevalence of amenorrhoea in people with HIV independent of substance use or socioeconomic status.[121] In a study of 85 women with HIV aged over 45 years with an undetectable HIV viral load and reporting more than 12 months of amenorrhoea, it was found that 95% had an elevated level of FSH.[122] These data suggest that menopausal status can be ascertained by menstrual history alone in people with HIV aged over 45 years with an undetectable HIV viral load. FSH testing may be considered in the case of menstrual irregularity or menopausal symptoms in those aged 45 years and under, or those who are immunosuppressed and/or not virologically suppressed (when other diagnoses may need to be excluded).

Management of menopause

HIV clinics are well-placed to ascertain menopausal status and symptoms, given their regular follow-up of people with HIV. However, we advise ongoing management of menopause within primary care (where appropriate) in accordance with current NICE menopause guidelines.[120] Increasingly, HIV clinics are developing specialist menopause pathways and/or services; many involve liaising with primary care for ongoing management.[123–125]

Women/people with ovaries living with HIV should be provided with information about menopause and management strategies before they reach midlife. An example of information tailored to people with HIV is the menopause guide developed by Sophia Forum (see https://sophiaforum.net/wp-content/uploads/2022/10/web-SF_Menopause-booklet-2022-20.10.22.pdf).

It is important to discuss lifestyle modification (such as weight-bearing exercise, smoking cessation and reduction of alcohol intake), which will not only reduce menopausal symptoms but also improve longer-term health. Contraceptive need should be assessed in the perimenopausal and early postmenopausal phase.[126] Social isolation and mental health problems are common in midlife women with HIV in the UK, especially those from racially minoritised communities.[127] Therefore we advise signposting to local peer support organisations including the GROWS programme which provides tailored support for women ageing with HIV (https://positivelyuk.org/grows-growing-older-wiser-and-stronger/).

There is an absence of data from randomised controlled trials on the efficacy and safety of systemic HRT in people living with HIV.[128] However, in view of the benefits of HRT in terms of ameliorating symptoms, improving quality of life and potentially reducing comorbidity risk, we advise the use of systemic HRT for the management of vasomotor and/or menopausal mood symptoms as per NICE guidelines,[120] should an individual wish to take this treatment. Transdermal oestrogen, with micronised progesterone or the Mirena IUS (if the uterus is intact), is recommended first line by NICE and safest in terms of venous thromboembolism and breast cancer risk. Any discussion of systemic HRT should include a balanced presentation of risks and benefits. Other treatment options for vasomotor symptoms include selective serotonin reuptake inhibitors, clonidine and cognitive behavioural therapy specifically for menopause. We currently have no data on the use of newer treatments such as ospemifene (a selective oestrogen receptor modulator used for genitourinary syndrome of menopause) or fezolinetant (a non-hormonal neurokinin three receptor antagonist for hot flushes that is awaiting approval in the UK) in individuals with HIV. We also have no data on DDIs between antiretroviral drugs and these newer agents.

DDIs between ART and HRT can be managed either through switching of ART or titrating doses of HRT according to symptoms and side effects (see the University of Liverpool's HIV Drug Interaction Checker for more information: https://www.hiv-druginteractions.org/). Anyone

experiencing menopause at or below the age of 45, and especially at or below the age of 40, should be strongly advised to commence systemic HRT (or combined oral contraceptives) and continue until they are at least 50 years old. They will benefit from prompt referral to a specialist menopause service to receive support and advice about fertility (if indicated).

Symptoms of genitourinary syndrome of menopause (including vaginal dryness, dyspareunia, vulval pain and recurrent urinary tract infections) are extremely common postmenopause, and respond well to vaginal moisturisers and/or vaginal oestrogen; these often need to be continued indefinitely.

A small study from the Netherlands has found a high prevalence of low testosterone among women with HIV aged 18 years and over; this was associated with fatigue and low libido.[129] Testosterone replacement can be considered (off licence) for low libido, after systemic HRT has been established and other causes of low libido have been addressed (such as low mood, vulvovaginal symptoms or concomitant medication).[130] There is currently no evidence for the use of testosterone for any other symptoms of menopause.

Screening for comorbidities

HIV and its treatment can predispose people with HIV to a variety of metabolic complications, many of which are also associated with ageing and menopause[131,132] including cardiovascular disease and loss of BMD. A recent analysis of the US Women Interagency HIV Study (WIHS) cohort demonstrated that the prevalence of non-AIDS comorbidities was higher in perimenopausal women, and in women with HIV compared to their HIV-negative counterparts.[133]

We recommend annual screening of all women/people with ovaries aged over 40 years for cardiovascular disease risk as per the BHIVA monitoring guidelines.[6] We recommend 3-yearly assessment of fracture risk using the FRAX tool (frax.shef.ac.uk/FRAX/tool.aspx?country = 9) in postmenopausal individuals (≥12 months amenorrhoea or following surgical menopause) and in all women/people with ovaries aged over 50 years.

Individuals should be advised to attend routine screening appointments for cervical and breast cancer as per national guidance.

Auditable outcomes

Proportion of women/people with ovaries with documented menstrual cycle assessment at baseline, and annually thereafter (target 95%).

Proportion of women/people with ovaries aged 35 and over with documented assessment of menopausal symptoms until they are established on systemic HRT and/or until several years postmenopause (target 95%).

Sexual violence, domestic abuse and intimate partner violence (IPV)

Recommendations

We recommend routine enquiry about domestic abuse, including IPV, in sexual health and HIV clinics (GPP).

We recommend that services develop local guidelines and pathways based on BASHH guidance[134] prior to the introduction of routine questioning (GPP).

We recommend that staff should be familiar with legislation related to issues that may be associated with HIV acquisition or form part of ongoing controlling behaviours. These include, but are not limited to, coercive control, non-fatal strangulation, stealthing and sharing images without consent (GPP).

Enquiry about abuse among people with HIV allows recognition of lived experience of domestic and sexual violence and an opportunity to offer information on options, available resources and appropriate onward referral for support and interventional trauma-focused therapies if required.

The WHO defines IPV as behaviour by an intimate partner, current or former, that causes physical, sexual or psychological harm including physical aggression, sexual coercion, physical abuse and controlling behaviours.[135] The term domestic abuse, used in many countries, refers to IPV but encompasses child or elder abuse, or abuse by any member of the household.[136] Sexual violence can take on many different forms; it is not limited to acts of non-consensual intercourse but involves a wide range of behaviours, including attempts to obtain a sexual act, sexual harassment, coercion, trafficking for sexual exploitation, female genital mutilation and technology-facilitated abuse. It does not require the use of physical force. Sexual assault is an act motivated by power and control.[137]

Women with HIV are more likely to experience IPV than HIV-negative women and lifetime prevalence in the UK has been reported as high as 52%.[138–140] IPV is a predictor of worse HIV outcomes and has been associated with lower use of ART, reduced self-reported ART adherence and significantly reduced odds of viral suppression among women.[141,142] It may also impair a woman's ability to disclose her HIV status.[143] It has also been reported that HIV status can be used as part of the violence, for example threatening to disclose to others against a person's will, or using it as a reason to withdraw financial or practical support.[144,145] Lower quality of life indicators have been noted in those with stable viral loads with lived experience of violent victimisation.[146]

Although some issues affect all, there are some gender-specific issues associated with abuse. Sexual violence and domestic abuse are also common in the non-heterosexual community and it has been shown that all forms of IPV occur at rates similar to or higher than those documented among women in heterosexual relationships.[147,148] An additional aspect, particularly for MSM and gender minorities, is the association between non-consensual sex and use of chemsex.[149,150] Studies of transgender people are more limited in number, but suggest that they have similar or higher rates of lifetime IPV than other groups, ranging from 31.1% to 50.0%.[151] There are few data on IPV and its effects in non-heterosexuals with HIV. A recent meta-analysis showed that MSM who have experienced IPV are more likely to engage in condomless anal sex and to be living with HIV and that forced sex and difficulties with condom negotiation may be common in abusive non-heterosexual relationships.[152,153] Increasing the awareness of the prevalence of sexual violence may minimise the immediate and long-term risks of HIV acquisition.[152–154]

IPV causes significant long-term and short-term effects on physical and mental health, therefore people experiencing IPV are more likely to be in regular contact with healthcare professionals than those who are not experiencing IPV, which can provide important opportunities to identify and offer support.[155,156] It is recommended that all sexual health clinics should routinely enquire about domestic abuse including IPV.[134,156–160] In addition, routine enquiry may identify child safeguarding issues where children and young people are, or have been, witness to sexual and domestic violence, mitigating ongoing risk of adverse childhood experiences and the contribution to poor health outcomes. It is crucial that enquiry and management of disclosure of IPV is carried out safely within local guidelines, by appropriately trained staff and with clear referral pathways to specialist domestic abuse services and safeguarding teams.[161,162] Detailed guidance on adequately preparing a service to respond to domestic abuse has been published by BASHH and we endorse its use before introducing routine enquiry in HIV services.[134] IPV includes controlling behaviour such as isolating a person from family and friends, monitoring their movements and restricting access to financial resources, employment, education or medical care and gaslighting (a tactic whereby, in order to gain more power, a victim is made to question their reality), all of which can make it more difficult for a person to leave an abusive relationship. IPV is widespread globally and viewed as a public health epidemic by the WHO due to its detrimental and extensive effects on physical and mental health.[136] There is a large global evidence base showing links between IPV and HIV, irrespective of gender. Multiple forms of IPV are associated in complex ways with HIV acquisition and ongoing abuse[163]; these include forced or non-consensual sex, and difficulties negotiating condom use due to power imbalances in the relationship. Legislation reflects the criminality of these abusive behaviours.[163–165]

Auditable outcome

The proportion of services with local guidelines and a pathway for routine enquiry about domestic abuse and methods of supporting and encouraging safe disclosure of sexual violence (target 95%).

Female genital mutilation (FGM)

Recommendations

Routine enquiry about FGM is recommended for women/people with HIV with a vulva (GPP).

For those aged 18 years and above, enquiry about FGM is recommended once, either at HIV diagnosis or when transferring into a new service (GPP).

Annual enquiry about FGM is recommended if individuals are less than 18 years old (GPP).

People who have experienced FGM should be assessed for complications of FGM and, where indicated, offered referral for support and management of these complications (GPP).

FGM reported by or observed in any person under 18 years old should be escalated according to local safeguarding polices with a referral to children's social care. In England and Wales there is also a professional duty to file a police report for those under 18 years old who have experienced FGM (GPP).

FGM is a violation of the human rights of girls and women which is widely carried out in 30 countries in Africa, the Middle East and Asia.[166] The WHO estimates that more than 200 million women and girls are living with the consequences of FGM worldwide.[166] FGM and HIV infection share overlapping geographical prevalence,[167] and high rates of detection of FGM are reported among people with HIV in countries in which FGM is illegal and not routinely performed.[167,168]

There is a paucity of data regarding the relationship between FGM and HIV.[169] An association between other sexually transmitted blood-borne viruses such as hepatitis B and FGM has been described.[170,171] Several studies have suggested mechanisms by which HIV acquisition may occur during FGM; the procedure may be performed on multiple individuals and a study in Dar es Salaam showed that, 97% of the time, the same cutting equipment was used for 15–20 girls, potentially

facilitating HIV transmission through non-sterile equipment.[172]

FGM may lead to pain and scarring and predispose to trauma of the genital tissues and mucosal tearing during sex, potentially increasing the risk of viral transmission.[173–175] The longer-term effect of FGM on the female genital tract microbiota is unknown,[176] and women who have experienced FGM may be more likely to develop recurrent genitourinary infections such as vaginal candidiasis.

Short-term risks of FGM include pain, bleeding and wound infections. Long-term sequelae include chronic pain, menstrual problems, urinary tract and pelvic infections, scar formation, sexual difficulties, obstetric complications, post-traumatic stress disorder and other psychological sequelae.[166,173] Higher rates of invasive cervical cancer were demonstrated in women who had undergone FGM compared to those who had not,[177] underlining the importance of holistic SRH care including HPV vaccination and cervical screening for all individuals with HIV who have undergone FGM.

Routine enquiry about FGM is now recognised as best practice within a sexual health setting.[178] Routine enquiry within HIV care settings can increase detection rates of FGM, allowing opportunities to treat complications and ensure adequate safeguarding.[167,168] For women/people with a vulva aged 18 years and above, enquiry about FGM is recommended once, either at HIV diagnosis or when transferring into a new service. Because of ongoing risk of FGM in girls, annual enquiry about FGM is recommended for those who are under 18 years old.

It is mandatory for health and social care professionals who identify FGM in those aged less than 18 years to report cases to the police.[179] Local safeguarding procedures should be followed, including referral to children's social care. In all identified cases of FGM an assessment of whether there are any other children at risk of FGM should be undertaken and, where identified, they should be appropriately referred for safeguarding.[180,181]

A trauma-informed and prejudice-free approach to enquiry and assessment of those disclosing FGM should be adopted[182] and individuals offered referral and signposting for holistic medical, psychological, sexual wellbeing and peer support services.

For women aged 18 years or over who have experienced FGM, NHS acute trusts, mental health hospitals and general practice surgeries must submit data to NHS Digital using the FGM Enhanced Data Set information standard.[183] This information is used nationally and locally to improve the NHS response to FGM and to help commission the services to support women who have experienced FGM and safeguard women and girls at risk of FGM.

In line with the rest of the NHS, it is mandatory for health and social care professionals working in HIV services to report FGM and collect data. More guidance on this with information on pathways and training can be found on the government and NHS England websites.[180,183]

Auditable outcome

Proportion of women/people with a vulva with a documented enquiry about FGM (once for those aged 18 years and above and annually for those aged under 18 years) (target 95%).

Sexual wellbeing and HIV

Recommendations

We recommend that clinicians should initiate conversations with people with HIV about sexual wellbeing soon after initial HIV diagnosis, and thereafter at least annually (Grade 1D).

Conversations about sexual wellbeing should be trauma-informed and focus on all aspects of sexual wellbeing, including sexual problems, pleasure, safety and justice (GPP).

Sexual wellbeing services should be available and accessible by direct referral from HIV care centres (GPP).

We recommend that all individuals with sexual problems should have a full sexual history taken and a focused physical examination, and where relevant an evaluation of cardiovascular disease risk (Grade 1A).

We recommend that investigation of sexual problems in men/people with a penis should include evaluation of bioavailable fasting morning testosterone level, prolactin level and thyroid function as a minimum, as well as fasting lipids and screening for diabetes if not recently tested (Grade 1A).

Any person presenting with sexual pain should be offered a physical examination by a clinician with expertise in sexual problems or sexual health. This is particularly important in women/people with a vulva and vagina experiencing pain. A chaperone should be offered, and wherever possible a choice of gender of clinician offered (GPP).

It is good practice to offer genital examination to everyone where physical factors associated with their sexual problem cannot otherwise be excluded (GPP).

We recommend that assessment and response to treatment should be aided by the use of validated scales, such as the Sexual Function Evaluation Questionnaire (SFEQ),[184] designed to measure difficulties with sexual function as well as broader aspects of sexual wellbeing, including sexual confidence and enjoyment (Grade 1B).

We recommend that services record and report data about the sexual wellbeing of people with HIV in

order to develop the evidence base regarding sexual wellbeing in transgender people with HIV (GPP).

It is recognised that a healthy and satisfying sex life is associated with living longer and improved mental health and wellbeing.[185] Sexual dysfunction has been defined as 'the various ways in which an individual is unable to participate in their preferred sexual relationships and experiences'.[186] There has been a terminology shift in recent years to promote sexual wellbeing, to recognise that sexual pleasure should be accepted as an integral part of sexual health and sexual rights.[187]

Sexual wellbeing describes not only the absence of dysfunction but also the ability to connect to a sense of sexual self-esteem, respect, safety and confidence within one's own sexual life. It includes feeling able to make choices freely and move forward from past experiences without shame or judgement.[188] It is increasingly recognised that the promotion of sexual wellbeing is vital to enable people to access sexual healthcare, to make choices that are based on their sexual needs and safety, and to feel they can access sexual rights and justice when they need to Ref. 189. This is especially important for people with HIV.

Sexual problems, concerns, difficulties and dysfunctions among people with HIV are commonly reported[190,191] with a higher prevalence of problems than in the general population.[192,193] Many people with HIV report continued high rates despite the widespread use of ART.[190,194] The reasons for this are multifactorial and commonly are an interplay between various psychological, social and biological influences. In the UK, it is likely that an ageing cohort of people with HIV, with co-existing medical issues and polypharmacy, will experience continued high levels of sexual problems into the future.[195]

HIV-associated stigma and experiences of rejection continue to affect sexual wellbeing in many people with HIV, and the role this plays in different groups varies.[196,197] Issues may include increasing sexual avoidance, shame, reduced confidence to approach sexual relationships and assert sexual needs, and increased risk-taking sexual behaviours.

High rates of mental health problems, including anxiety and depression, among people with HIV frequently co-exist with sexual problems[198]; the relationship between mental health and sexual function is commonly bi-directional. Depression and anxiety may predict subsequent sexual problems,[199] and this may be due to a direct effect of mood disturbance as well as the effect of medications used to treat mental health difficulties.[199] The BASHH guidelines for sexual health care of MSM note that sexual difficulties have been associated with low self-confidence and poor self-image and there are complex interactions between sexual problems, recreational drug and alcohol use, mood disturbance, sexual risk taking and HIV infection.[200]

The presence of sexual problems has been associated with reduced adherence to medication[190,201] and the additive effects of sexual difficulties and mood disturbance may further negatively affect adherence. Sexual difficulties have also been associated with poor condom use and risky sexual behaviour although it is important to note that sexual difficulties in this context can be both the cause and consequence of risk taking.[190,191]

Supporting people with HIV to achieve a healthy and satisfying sex life should be part of routine clinical care and improving health-related quality of life outcomes, including sexual wellbeing, is accepted as being an important part of providing optimal HIV care.[202] Annual enquiry about erectile dysfunction (ED) is a NICE-recommended standard for management of other chronic conditions, such as diabetes.[203] We recommend that annual enquiry about sexual function and wellbeing should be standard of care for all people with HIV. A question regarding sexual functioning, for example framed as 'what is your current relationship to sex and how are you feeling about this?', could be asked annually and further questions guided by the response.

Sexual difficulties are under-reported and individuals may not feel able to initiate conversations about sexual wellbeing spontaneously, so it is important to ask about sex directly. For clinicians who are less confident about or experienced in asking sexual wellbeing questions, training to ask open-ended questions, which are trauma-informed and respectful of different sexual preferences, sexualities and cultural differences, is encouraged. Given the multifaceted nature of sexual problems, we recommend a biopsychosocial approach to assessment and treatment.

For sexual problems that may indicate underlying medical conditions, such as erection difficulties and pain on sex, local pathways for timely access to relevant medical investigations and treatment are crucial. When there is a predominantly organic basis to sexual problems, psychological support, alongside medical treatments, to facilitate adjustment to changes in sexual function may still be helpful and facilitate a sex life that still has value. For people with lifestyle factors that significantly contribute to their sexual problem, for instance substance use or alcohol misuse, conversations around behaviour change are encouraged. Brief psychological interventions can be effective at supporting individuals to make changes in behaviour, including motivational interviewing combined with cognitive behavioural therapy. The latter has been effective in improving sexual wellbeing in other populations and can be modified to help improve sexual functioning in people with HIV.[204]

Sexual history should include enquiry about concomitant drug therapy (such as antidepressants and antihypertensives) and recreational drugs (including 'chems' [see section below: Sexualised drug use and chemsex], anabolic steroids, alcohol and other psychoactive substances) as these may be implicated in the development of sexual

problems.[205] It may also be important to ask about other factors that could lead to risk taking, such as performance anxiety, shame or perceived lack of choice in sexual behaviours.[202] We suggest that services develop pathways for psychological support for people to explore their sexual choices and/or develop confidence about methods to reduce sexual risks. Sex therapy techniques, for instance, can improve confidence in using condoms.

Sexual problems in the context of HIV may also be commonly related to psychological factors such as fear of onward transmission of HIV, disclosure concerns, changes in body image, stigma and issues around condom usage,[206] all of which should be explored in the sexual history and may require psychological input. Clear and consistent psychoeducation, especially around the evidence for U=U and the benefits of treatment as prevention, PEP and PrEP, can help to normalise sexual choices, reduce anxiety and increase confidence in approaching sexual experiences safely. Data have shown that the confidence that people with HIV have in the U=U message varies according to level of education and across cultural groups, therefore tailored messages to different groups are recommended.[207]

Access to sexual wellbeing services should be available, and pathways in place for referral from HIV services to services with expertise in treating sexual problems. These services should be accessible and appropriately tailored to the population they serve. A stepped care model can be a cost-effective way to improve access to psychosexual interventions at the level of individual need.

Validated tools such as the SFEQ,[184] designed to measure broad aspects of sexual wellbeing including sexual confidence and enjoyment, can be used to compliment a broader assessment of individuals' current sexual experience and help to measure the outcomes of interventions.[208] However use of such tools cannot replace a detailed sexual history.

In line with the standards for psychological support for adults living with HIV[209] and NICE mental health guidelines,[210] we recommend the provision of accessible and tailored self-help material for people with HIV. This should include access to accurate information about sexual arousal, and evidence-based self-help material about common sexual problems. However, accurate information is sparse and inaccurate information is easily accessible (e.g. via pornography). Psychoeducation can be a useful and cost-effective first-line intervention for sexual concerns and problems, especially given inaccurate beliefs about 'normal' sexual arousal and response, and the distress that can result from comparisons to unrealistic myths and norms. Guided self-help, including tailored material, is particularly effective when there is a psychological aspect to the presenting problem. In addition to self-help, timely integrated medical and psychological assessment and treatment is important.[202]

Desire

High prevalence rates of problems related to loss of sexual desire have been described in people with HIV, with studies demonstrating rates of up to 48% in MSM.[211,212] There are many possible psychosocial contributing factors and the individual often cites psychological reasons as the putative cause[211,213]; an integrated psychological and medical assessment is optimal. Recent research has highlighted the impact on sexual desire of minority stress, which is disproportionately experienced by people with HIV.[214] Hormonal abnormalities can affect desire and lack of desire associated with androgen deficiency has been described in men with HIV on ART.[213,215–217] As with all sexual problems, a sexual history is warranted including review of medications that may cause hormonal disturbance plus a focused physical examination, particularly noting any signs of hypogonadism, along with consideration of hormonal assays (fasting morning testosterone for men/people with a penis, prolactin and thyroid hormones) to determine whether a physical cause is contributing to low desire.

Sexualised drug use (SDU)

There has been a significant increase in the prevalence of SDU over recent years,[218] and in particular the use of γ-hydroxybutyrate/γ-butyrolactone (GBH/GBL), crystal methamphetamine and mephedrone (known as chems, and disproportionately used within MSM communities).[219] Those using chems report a loss of inhibition during sex, increased confidence and sexual desire and an ability to push boundaries in sexual exploration. For some this can include increased risk-taking sexual behaviours.[220] Although some research has suggested that chemsex practices are higher for MSM with HIV,[221] this relationship is unclear, with factors such as urban living, preference for condomless anal intercourse and a low level of confidence in practising safer sex being strong predictors regardless of HIV status.[222]

Use of recreational drugs during sex has been associated with difficulties in sexual function, especially erection difficulties and delayed ejaculation.[205,218] However, this relationship is likely to be bi-directional, with motivation to use chems linked to attempts to overcome concerns around sexual function and improve sexual performance.[223] Difficulties with sexual function are often reported when attempting to have sex while 'sober' or to negotiate sex without drugs following a period of use. SDU/chemsex had been linked to reduced measures of sexual wellbeing overall, including experiences of sexual shame, lower sexual confidence and experiencing a lack of agency around sexual choices.[222] Broader psychosocial difficulties relating to negotiating intimacy and social isolation have also been linked to higher rates of SDU/chemsex.[219,222]

There are currently no formal guidelines for the management of sexual difficulties in the context of SDU/chemsex. Access to substance misuse services (preferably those with knowledge of chemsex) is important, alongside referral to psychosexual therapies which can enable individuals to explore preferred relationships between sex and drug use. For those exploring sober sex, gaining access to evidence-based treatment for sexual difficulties can be a vital part of reducing the risk of future relapse.[223] Clear, non-judgemental and inclusive psychoeducation is also vital to ensure that individuals can make safer choices when negotiating SDU/chemsex and receive information about possible impacts on sexual function and wellbeing.

Detailed guidance on the management of specific sexual difficulties is beyond the scope of these guidelines and the following is a summary of some key issues to be considered when managing people with HIV; signposting to relevant national/international published guidance is included where available.

We are keen to ensure these guidelines are as inclusive as possible, and as such we are aiming to move beyond binary gendered language when considering specific sexual function difficulties. However, we are aware that much of the research in this area continues to be conducted within cisgender populations. We will therefore reference this evidence base as appropriate in order to make recommendations, while acknowledging that more research is needed into the sexual wellbeing needs of transgender and gender-expansive populations.

For men/people with a penis

Erectile dysfunction (ED). is a highly prevalent problem and prevalence increases with age.[224] It is associated with depression, smoking and sleep apnoea in people with HIV as well as longer time between HIV diagnosis and ART initiation.[225] In men over 45 years, HIV has been found to independently predict decreased erectile function,[226] and ED in people with HIV may be neglected in terms of offering treatments.[227]

Early studies demonstrated an association between ED and treatment with protease inhibitors,[228] but other studies found no association.[229] Peripheral neuropathy secondary to older ART agents, particularly nucleoside reverse transcriptase inhibitors, may contribute to ED, but ED has not been consistently linked with any particular antiretroviral class.[230] ED is listed as an uncommon side effect in the summary of product characteristics for raltegravir.[231] Although it has been queried whether switching to dolutegravir-based regimens may be associated with ED in one small Ugandan survey-based study,[232] no convincing evidence is available and ED is not mentioned in the summary of product characteristics for dolutegravir[233] or bictegravir.[234]

There is an association between ED and coronary artery disease, and ED may be an early marker of more generalised cardiovascular disease.[235] The link between ED and coronary artery disease may involve an interplay between androgen dysregulation, chronic inflammation and cardiovascular disease risk factors that determines endothelial dysfunction and atherosclerosis, resulting in disorders of penile and coronary circulation.[235] In people with HIV, an increased risk of both cardiovascular disease and endothelial dysfunction has been documented,[236] and it is recommended that anyone living with HIV with ED should undergo a cardiovascular disease risk assessment and optimisation of any modifiable risk factors for coronary artery disease.

Where there is a significant contribution of psychogenic causes for ED, access to psychosexual therapy should be available. The potential merits of sex therapy, in conjunction with medical therapy when appropriate, should be discussed even when ED is primarily organic. Psychological therapy can support individuals, or couples, to adjust to changes in their sexual lives and to increase capacity to overcome concerns around sexual functioning.

Phosphodiesterase type 5 inhibitors (PDE5Is) are usually the first-line medical treatment for ED; all undergo predominantly hepatic metabolism via the cytochrome P450 3A4 isoenzyme.[237] Any drug affecting this P450 isoenzyme system has the potential to affect PDE5I levels, and high rates of DDIs have been reported in men with HIV on ritonavir or cobicistat-boosted ART and taking a PDE5I.[238] Consequently, dose adjustment is required with both reduced and less-frequent dosing recommended when PDE5Is are co-administered with protease inhibitors, or other boosting agents such as cobicistat; vigilance with regard to associated adverse events such as hypotension, syncope, visual disturbances and priapism is also essential. The PDE5I may also require dose adjustment when co-administered with some non-nucleoside reverse transcriptase inhibitors that induce the P450 3A4 isoenzyme, due to reduced bioavailability of the PDE5I. By contrast, no dosage adjustment is required for any ART when used concomitantly with PDE5Is. People who use amyl nitrate or other recreational nitrate agents should be cautioned not to use these agents in conjunction with PDE5Is due to the risk of fatal hypotension. We recommend that the Liverpool HIV drug interactions website should be checked for up-to-date information about DDIs prior to prescribing PDE5Is to individuals on ART (www.hiv-druginteractions.org).

Alprostadil is an effective second-line treatment for ED and can be administered via intracorporal injection or transurethral application (MUSE and Vitaros). There is a theoretical risk of blood-borne virus and/or STI transmission from either the injection site or from local inflammation within the urethra. There are no data regarding this risk in the context of U=U, but the risk of transmission is likely to be zero. Where there are concerns regarding this,

individuals can be counselled to ensure that a condom is rolled back to cover the injection site and to ensure safe needle disposal.

Ejaculatory disorders. There are limited data describing the prevalence of ejaculatory disorders; factors potentially contributing to delayed ejaculation in men with HIV may include medications (especially antidepressants), rarely penile sensation loss due to neuropathy (including drug-induced),[205] endocrinopathies and psychological aetiologies.[239]

Along with medical treatments for men reaching the criteria for early ejaculation, psychological interventions are an effective way for men to increase their control over how they ejaculate, as well as more broadly in relation to anxiety around sex.

Androgen deficiency. Prevalence estimates of androgen deficiency among men with HIV have declined since the widespread introduction of combined ART,[217] but prevalence is still higher than would be expected in the general population.[240] The pathogenesis of testosterone deficiency in HIV is likely to be multifactorial and several mechanisms have been proposed including chronic illness, HIV replication, medications including ART and opiates, lipodystrophy, metabolic syndrome, other comorbidities and co-infections.[240,241] Studies have suggested a loss of diurnal variation in free testosterone levels among men with HIV compared to HIV-negative control subjects.[242] Testosterone replacement to normal levels in HIV-negative men has been shown repeatedly to decrease all-cause mortality.[243–245]

Individuals may have normal total testosterone but low free or bioavailable testosterone levels due to increased levels of sex hormone-binding globulin. Free and bioavailable testosterone levels are informative and can be calculated with the Vermeulen equation using an online calculator tool (https://www.issam.ch/freetesto.htm).

Sexual function and circumcision. There are data from several large studies suggesting that circumcision of adult men as a strategy to reduce HIV acquisition is not associated with reduced sexual functioning at a population level.[246–248]

Guidance

Useful up-to-date guidance on management of sexual difficulties including male hypogonadism, ED and disorders of ejaculation has been published by the European Association of Urology[249] and British Society for Sexual Medicine.[250] Treatment recommendations for delayed ejaculation have also been published by the BASHH Sexual Wellbeing special interest group,[211] and guidelines on management of rapid ejaculation published by the International Society for Sexual Medicine[251] are available.

For women/people with a vulva and vagina

Literature regarding sexual function in women with HIV is still very limited. Available data strongly support high levels of sexual difficulties among women with HIV.[111,252–258] A European study in 2004[254] found that 25% of women with HIV reported sexual problems (poor lubrication, pain during sex and low sexual satisfaction). A more recent controlled study found a prevalence of female sexual dysfunction of 48% in women with HIV compared to 18% in the control group (n = 43).[259] A larger scale study in 2020 compared respondents aged 45–60 years to the British National Survey of Sexual Attitudes and Lifestyles (Natsal-3) and to PRIME, a survey of women with HIV. Women with HIV were found to have poorer sexual functioning and were more likely to report at least one sexual problem lasting at least 3 months in all eight areas assessed.[260] Women with HIV have rarely been asked by their healthcare provider about sexual function[261,262] despite the fact that it is likely that such questioning is of benefit.[261] It is therefore probable that sexual problems are under-diagnosed and under-treated in women with HIV and opportunities to improve quality of life are missed. Dissatisfaction with sexual function has been found to be correlated with higher levels of HIV-related stigma and poorer mental health.[263]

Female sexual dysfunction commonly relates to psychosocial issues including depression, anxiety and loneliness, and HIV status itself.[111,254] Poorer sexual functioning in women with HIV has been associated with menopause, low CD4 count, low mood and poor body image.[112,252,253] Complications of HIV infection and HIV treatment, such as neuropathy (HIV-related or drug-induced), endocrine disturbances or atherosclerosis may cause or contribute to sexual difficulties.[260] Sexual side effects of psychotropic medications are common (including anorgasmia, reduced libido and vaginal dryness) and may persist even after cessation of the medication.[264] Menopause is associated with changes in sexual function; women with HIV may experience earlier menopause[107] and more menopause-related sexual problems.[265] For women experiencing painful sex as a result of menopause-related urogenital atrophy, NICE menopause guidelines recommend that topical vaginal oestrogens may offer substantial symptomatic benefit with insignificant systemic absorption.[120] Further information on systemic HRT is available in the menopause section of these guidelines.

Women's sexual function should be assessed primarily via thorough sexual history taking, focusing particularly on the biopsychosocial context in which any problems occur. All women presenting with sexual pain

should be offered a physical examination by a clinician with expertise in sexual problems or sexual health, and it is good practice to offer examination for all women where physical factors associated with their pain cannot be excluded with confidence. For those requiring treatment or further investigation for sexual difficulties, onward referral to integrated psychosexual services is the 'gold standard' of care.

Transgender and gender-expansive individuals

There are no data describing sexual functioning in transgender men and women living with HIV. Transgender individuals are more likely to experience health inequalities, anxiety and depression, and research has shown that understanding of transgender terminology and creating a transgender-inclusive environment is important to reduce discrimination.[266] We recommend that services record data collected during annual reviews to develop an evidence base regarding sexual function in this population. We suggest signposting to specialised transgender services, where available, and seeking advice from colleagues with expertise where required.

PrEP

PrEP messaging often emphasises risk reduction, overlooking the positive effects of PrEP on sexuality and relationships. A systematic review highlighted the role of PrEP in enhancing intimacy, increasing sexual options, removing barriers to physical closeness, and reducing sexual anxiety[267]; it was suggested that sexual pleasure should be incorporated into PrEP messaging to improve uptake and reduce stigma among MSM. An observational study also found that PrEP increases sexual satisfaction among MSM, highlighting the need for sex-positive messaging in discussions about starting PrEP.[268]

Summary

Challenges related to sexual function and maintaining sexual wellbeing are commonly experienced by people with HIV. Routinely enquiring about sex, sexual function and wellbeing is a vital aspect of HIV care that can frequently be overlooked. Increasing opportunities for people with HIV to talk about sexual wellbeing within clinical consultations can help to provide early identification of concerns and difficulties, and increase opportunities for appropriate and timely intervention. Creating a focus around sexual wellbeing can enable service providers to understand more holistically the needs of people with HIV and improve quality of life in ways beyond the traditional remit of HIV health services.

Auditable outcome

Proportion of people with a documented discussion about sexual wellbeing at baseline, and annually thereafter (target 95%).

ORCID iDs

Margaret Kingston https://orcid.org/0000-0001-5792-8529
Pank Sethi https://orcid.org/0009-0006-1345-1291

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References

1. UK Health Security Agency. HIV testing, PrEP, new HIV diagnoses and care outcomes for people accessing HIV services: 2024 report. https://www.gov.uk/government/statistics/hiv-annual-data-tables (2024, accessed 18th February 2025).
2. May MT, Gompels M, Delpech V, et al. Impact on life expectancy of HIV-1 positive individuals of CD4+ cell count and viral load response to antiretroviral therapy. *AIDS* 2014; 28: 1193–1202. https://doi.org/10.1097/qad.0000000000000243
3. World Health Organization. The role of HIV viral suppression in improving individual health and reducing transmission 22 July 2023. https://www.who.int/publications/i/item/9789240055179 (accessed 18th February 2025).
4. British HIV Association. BHIVA guidelines for the management of HIV in pregnancy and the postpartum period. https://bhiva.org/clinical-guidelines/ (accessed 18th February 2025).
5. British HIV Association. Standards of care for people living with HIV. https://bhiva.org/wp-content/uploads/2024/10/BHIVA-Standards-of-Care-2018.pdf (2018, accessed 1st May 2025).
6. British HIV Association. BHIVA guidelines for the routine investigation and monitoring of adult HIV-1-positive individuals 2016 (2019 interim update). https://bhiva.org/clinical-guidelines/ (accessed 19th February 2025).
7. British Association for Sexual Health and HIV. BASHH summary guidance on testing for sexually transmitted infections. https://www.bashh.org/_userfiles/pages/files/resources/bashh_summary_guidance_on_stis_testing_2023.pdf (2023, accessed 19th February 2025).
8. Newsome PN, Cramb R, Davison SM, et al. Guidelines on the management of abnormal liver blood tests. *Gut* 2018; 67: 6–19. https://doi.org/10.1136/gutjnl-2017-314924

9. The European AIDS Clinical Society. EACS guidelines. https://eacs.sanfordguide.com (accessed 24th May 2025).
10. NHS England. Cervical screening: programme and colposcopy management. https://www.gov.uk/government/publications/cervical-screening-programme-and-colposcopy-management (accessed 20th February 2025).
11. The well project. Human papillomavirus (HPV). https://www.thewellproject.org/hiv-information/human-papillomavirus-hpv (2024, accessed 20th February 2025).
12. Ezechi O, Akinsolu F, Salako A, et al. High-risk human papillomavirus infection among Nigerian women: a systematic review and meta-analysis. *J Int Med Res* 2023; 51: 3000605231182884. https://doi.org/10.1177/03000605231182884
13. Megersa T, Dango S, Kumsa K, et al. Prevalence of high-risk human papillomavirus infections and associated factors among women living with HIV in Shashemene town public health facilities, Southern Ethiopia. *BMC Womens Health* 2023; 23: 125. https://doi.org/10.1186/s12905-023-02279-2
14. Sung H, Ferlay J, Siegel RL, et al. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin* 2021; 71: 209–249. https://doi.org/10.3322/caac.21660
15. World Health Organization. Global strategy to accelerate the elimination of cervical cancer as a public health problem. https://www.who.int/publications/i/item/9789240014107 (2020, accessed 20th February 2025).
16. World Health Organization. Cervical cancer. https://www.who.int/news-room/fact-sheets/detail/cervical-cancer (2024, accessed 20th February 2025).
17. Stelzle D, Tanaka LF, Lee KK, et al. Estimates of the global burden of cervical cancer associated with HIV. *Lancet Global Health* 2021; 9: e161–e169.
18. Ibrahim Khalil A, Mpunga T, Wei F, et al. Age-specific burden of cervical cancer associated with HIV: a global analysis with a focus on sub-Saharan Africa. *Int J Cancer* 2022; 150: 761–772. https://doi.org/10.1002/ijc.33841
19. Clifford GM, Georges D, Shiels MS, et al. A meta-analysis of anal cancer incidence by risk group: toward a unified anal cancer risk scale. *Int J Cancer* 2021; 148: 38–47. https://doi.org/10.1002/ijc.33185
20. Lebreton M, Carlton I, Brousse S, et al. Vulvar intraepithelial neoplasia: classification, epidemiology, diagnosis, and management. *J Gynecol Obstet Hum Reprod* 2020; 49: 101801. https://doi.org/10.1016/j.jogoh.2020.101801
21. Ayakannu T, Murugesu S, Taylor AH, et al. The impact of focality and centricity on vulvar intraepithelial neoplasia on disease progression in HIV+ patients: a 10-year retrospective study. *Dermatology* 2019; 235: 327–333. https://doi.org/10.1159/000500469
22. Kesic V, Carcopino X, Preti M, et al. The European Society of Gynaecological Oncology (ESGO), the International Society for the Study of Vulvovaginal Disease (ISSVD), the European College for the Study of Vulval Disease (ECSVD), and the European Federation for Colposcopy (EFC) consensus statement on the management of vaginal intraepithelial neoplasia. *Int J Gynecol Cancer* 2023; 33: 446–461.
23. Bertoli HK, Baandrup L, Aalborg GL, et al. Time trends in the incidence and survival of vaginal squamous cell carcinoma and high-grade vaginal intraepithelial neoplasia in Denmark - a nationwide population-based study. *Gynecol Oncol* 2020; 158: 734–739. https://doi.org/10.1016/j.ygyno.2020.05.683
24. Massad LS, Xie X, Greenblatt RM, et al. Effect of human immunodeficiency virus infection on the prevalence and incidence of vaginal intraepithelial neoplasia. *Obstet Gynecol* 2012; 119: 582–589. https://doi.org/10.1097/AOG.0b013e318244ee3d
25. Konopnicki D, Manigart Y, Gilles C, et al. Sustained viral suppression and higher CD4+ T-cell count reduces the risk of persistent cervical high-risk human papillomavirus infection in HIV-positive women. *J Infect Dis* 2013; 207: 1723–1729. https://doi.org/10.1093/infdis/jit090
26. Gilles C, Konopnicki D and Rozenberg S. The recent natural history of human papillomavirus cervical infection in women living with HIV: a scoping review of meta-analyses and systematic reviews and the construction of a hypothetical model. *HIV Med* 2023; 24: 877–892. https://doi.org/10.1111/hiv.13490
27. Ronco GD, Dillner JP, Elfström KM, et al. Efficacy of HPV-based screening for prevention of invasive cervical cancer: follow-up of four European randomised controlled trials. *Lancet* 2014; 383: 524–532. https://doi.org/10.1016/s0140-6736(13)62218-7
28. NHS England. Guidance for CSMS system users. https://digital.nhs.uk/services/screening-services/national-cervical-screening/new-cervical-screening-management-system/actions-for-system-users (accessed 20th February 2025).
29. Gupta R, Hussain S, Hariprasad R, et al. High prevalence of cervical high-grade lesions and high-risk human papillomavirus infections in women living with HIV: a case for prioritizing cervical screening in this vulnerable group. *Acta Cytol* 2022; 66: 496–506. https://doi.org/10.1159/000525340
30. Zizza A, Banchelli F, Guido M, et al. Efficacy and safety of human papillomavirus vaccination in HIV-infected patients: a systematic review and meta-analysis. *Sci Rep* 2021; 11: 4954. https://doi.org/10.1038/s41598-021-83727-7
31. Staadegaard L, Rönn MM, Soni N, et al. Immunogenicity, safety, and efficacy of the HPV vaccines among people living with HIV: a systematic review and meta-analysis. *EClinicalMedicine* 2022; 52: 101585. https://doi.org/10.1016/j.eclinm.2022.101585
32. Asfaw HM and Gashe FE. Fertility intentions among HIV positive women aged 18-49 years in Addis Ababa Ethiopia: a cross sectional study. *Reprod Health* 2014; 11: 36. https://doi.org/10.1186/1742-4755-11-36

33. Arikawa S, Dumazert P, Messou E, et al. Childbearing desire and reproductive behaviors among women living with HIV: a cross-sectional study in Abidjan, Côte d'Ivoire. *PLoS One* 2020; 15: e0239859. https://doi.org/10.1371/journal.pone.0239859
34. Rhodes CM, Cu-Uvin S and Rana AI. Pregnancy desire, partner serodiscordance, and partner HIV disclosure among reproductive age HIV-infected women in an urban clinic. *Infect Dis Obstet Gynecol* 2016; 2016: 8048457. https://doi.org/10.1155/2016/8048457
35. Alvarez-del Arco D, Rodríguez S, Pérez-Elías MJ, et al. Role of HIV in the desire of procreation and motherhood in women living with HIV in Spain: a qualitative approach. *BMC Womens Health* 2018; 18: 24. https://doi.org/10.1186/s12905-017-0483-y
36. Assefa S, Dheresa M, Lami M, et al. Fertility desires of antiretroviral therapy-attending HIV-positive women and its associated factors in Harari region, Ethiopia. *Int Health* 2024; 16: 174–181. https://doi.org/10.1093/inthealth/ihad030
37. Loutfy MR, Blitz S, Zhang Y, et al. Self-reported preconception care of HIV-positive women of reproductive potential: a retrospective study. *J Int Assoc Phys AIDS Care* 2014; 13: 424–433. https://doi.org/10.1177/2325957413494238
38. Mindry D, Wagner G, Lake J, et al. Fertility desires among HIV-infected men and women in Los Angeles County: client needs and provider perspectives. *Matern Child Health J* 2013; 17: 593–600. https://doi.org/10.1007/s10995-012-1035-6
39. Nostlinger C, Desjardins F, Dec J, et al. Child desire in women and men living with HIV attending HIV outpatient clinics: evidence from a European multicentre study. *Eur J Contracept Reprod Health Care* 2013; 18: 251–263. https://doi.org/10.3109/13625187.2013.801072
40. Peel J, Brousse de Gersigny J, Teague R, et al. Reproductive health among women living with HIV attending Melbourne sexual health centre for HIV care from February 2019 to February 2020. *Sex Health* 2024; 21: SH23122. https://doi.org/10.1071/sh23122
41. Mayondi GK, Wirth K, Morroni C, et al. Unintended pregnancy, contraceptive use, and childbearing desires among HIV-infected and HIV-uninfected women in Botswana: across-sectional study. *BMC Public Health* 2016; 16: 44. https://doi.org/10.1186/s12889-015-2498-3
42. Pralat R, Anderson J, Burns F, et al. Discussing parenthood with gay men diagnosed with HIV: a qualitative study of patient and healthcare practitioner perspectives. *BMC Public Health* 2021; 21: 2300. https://doi.org/10.1186/s12889-021-12285-4
43. Huertas-Zurriaga A, Palmieri PA, Edwards JE, et al. Motherhood and decision-making among women living with HIV in developed countries: a systematic review with qualitative research synthesis. *Reprod Health* 2021; 18: 148. https://doi.org/10.1186/s12978-021-01197-6
44. Rodger AJ, Cambiano V, Bruun T, et al. Sexual activity without condoms and risk of HIV transmission in serodifferent couples when the HIV-positive partner is using suppressive antiretroviral therapy. *JAMA* 2016; 316: 171–181. https://doi.org/10.1001/jama.2016.5148
45. Curran K, Baeten JM, Coates TJ, et al. HIV-1 prevention for HIV-1 serodiscordant couples. *Curr HIV AIDS Rep* 2012; 9: 160–170. https://doi.org/10.1007/s11904-012-0114-z
46. Bavinton BR, Pinto AN, Phanuphak N, et al. Viral suppression and HIV transmission in serodiscordant male couples: an international, prospective, observational, cohort study. *Lancet HIV* 2018; 5: e438–e447. https://doi.org/10.1016/s2352-3018(18)30132-2
47. Kuzoe-Liengme B, Hirschel B and Schiffer V Swiss statements: a two-year follow-up. *Rev Med Suisse* 2010; 6: 714–718. [Article in French].
48. Cohen MS, Chen YQ, McCauley M, et al. Prevention of HIV-1 infection with early antiretroviral therapy. *N Engl J Med* 2011; 365: 493–505. https://doi.org/10.1056/nejmoa1105243
49. Rodger AJ, Cambiano V, Bruun T, et al. Risk of HIV transmission through condomless sex in serodifferent gay couples with the HIV-positive partner taking suppressive antiretroviral therapy (PARTNER): final results of a multicentre, prospective, observational study. *Lancet* 2019; 393: 2428–2438. https://doi.org/10.1016/s0140-6736(19)30418-0
50. Fakoya A, Lamba H, Mackie N, et al. British HIV association, BASHH and FSRH guidelines for the management of the sexual and reproductive health of people living with HIV infection. https://www.bashh.org/_userfiles/pages/files/resources/sexualreproductivehealth.pdf (2008, accessed 7th May 2025).
51. National Institute for Health and Care Excellence. Fertility problems: assessment and treatment. https://www.nice.org.uk/guidance/cg156/resources/fertility-problems-assessment-and-treatment-pdf-35109634660549 (2017, accessed 7th May 2025).
52. UK Health Security Agency. Positive voices 2022: survey report. https://www.gov.uk/government/publications/hiv-positive-voices-survey/positive-voices-2022-survey-report (2024, accessed 5th March 2025).
53. Tommy's. Planning for pregnancy. https://www.tommys.org/pregnancy-information/planning-pregnancy/planning-for-pregnancy-tool (2024, accessed 5th March 2025).
54. British HIV Association. BHIVA guidelines on the use of vaccines in HIV-positive adults 2015. https://bhiva.org/clinical-guideline/vaccination-guidelines/ (2015, accessed 5th March 2025).
55. National Institute for Health and Care Excellence. Maternal and child nutrition: nutrition and weight management in pregnancy, and nutrition in children up to 5 years. https://www.nice.org.uk/guidance/ng247 (accessed 22nd April 2026).
56. Dwyer ER, Filion KB, MacFarlane AJ, et al. Who should consume high-dose folic acid supplements before and

during early pregnancy for the prevention of neural tube defects? *BMJ* 2022; 377: e067728. https://doi.org/10.1136/bmj-2021-067728
57. Royal College of Obstetricians and Gynaecologists. Epilepsy in pregnancy. Green-top Guideline No. 2016; 68. https://www.rcog.org.uk/media/rzldnacf/gtg68_epilepsy.pdf (accessed 5th March 2025).
58. O'Kane M, Parretti HM, Pinkney J, et al. British obesity and metabolic surgery society guidelines on perioperative and postoperative biochemical monitoring and micronutrient replacement for patients undergoing bariatric surgery-2020 update. *Obes Rev* 2020; 21: e13087. https://doi.org/10.1111/obr.13087
59. National Institute for Health and Care Excellence. *Vitamin D: supplement use in specific population groups*. Public Health Guideline 2017; PH56. https://www.nice.org.uk/guidance/ph56/chapter/1-recommendations (accessed 5th March 2025).
60. Semprini AE, Hollander LH, Vucetich A, et al. Infertility treatment for HIV-positive women. *Women's Health* 2008; 4: 369–382. https://doi.org/10.2217/17455057.4.4.369
61. Marston M, Zaba B and Eaton JW. The relationship between HIV and fertility in the era of antiretroviral therapy in Sub-Saharan Africa: evidence from 49 demographic and health surveys. *Trop Med Int Health* 2017; 22: 1542–1550. https://doi.org/10.1111/tmi.12983
62. Mkwashapi D, Renju J, Mahande M, et al. Fertility trends by HIV status in a health and demographic surveillance study in Magu District, Tanzania, 1994–2018. *PLoS One* 2023; 18: e0281914. https://doi.org/10.1371/journal.pone.0281914
63. Marston M, Nakiyingi-Miiro J, Kusemererwa S, et al. The effects of HIV on fertility by infection duration: evidence from African population cohorts before antiretroviral treatment availability. *AIDS* 2017; 31(Suppl 1): S69–S76. https://doi.org/10.1097/qad.0000000000001305
64. Onyangunga DC and Moodley J. Hysterosalpingographic evaluation of human immunodeficiency virus-infected and uninfected infertile women. *S Afr J Radiol* 2020; 24: 1–4. https://doi.org/10.4102/sajr.v24i1.1767 (accessed 5th March 2025).
65. Adesiyun AG, Ameh CA and Eka A. Hysterosalpingographic tubal abnormalities and HIV infection among Black women with tubal infertility in Sub-Saharan Africa. *Gynecol Obstet Invest* 2008; 66: 119–122. https://doi.org/10.1159/000128600
66. Lopez S, Coll O, Durban M, et al. Mitochondrial DNA depletion in oocytes of HIV-infected antiretroviral-treated infertile women. *Antivir Ther* 2008; 13: 833–838.
67. Nicopoullos JD, Almeida PA, Ramsay JW, et al. The effect of human immunodeficiency virus on sperm parameters and the outcome of intrauterine insemination following sperm washing. *Hum Reprod* 2004; 19: 2289–2297. https://doi.org/10.1093/humrep/deh426
68. Nicopoullos JD, Almeida P, Vourliotis M, et al. A decade of the sperm-washing programme: correlation between markers of HIV and seminal parameters. *HIV Med* 2011; 12: 195–201. https://doi.org/10.1111/j.1468-1293.2010.00868.x
69. Kehl S, Weigel M, Muller D, et al. HIV-infection and modern antiretroviral therapy impair sperm quality. *Arch Gynecol Obstet* 2011; 284: 229–233. https://doi.org/10.1007/s00404-011-1898-6
70. Frapsauce C, Grabar S, Leruez-Ville M, et al. Impaired sperm motility in HIV-infected men: an unexpected adverse effect of efavirenz? *Hum Reprod* 2015; 30: 1797–1806. https://doi.org/10.1093/humrep/dev141
71. National Institute for Health and Care Excellence. Fertility problems: assessment and treatment. https://www.nice.org.uk/guidance/ng257 (2026, accessed 15th April 2026).
72. Brady M, Clutterbuck D, Rodger A, et al. BASHH/BHIVA guidelines on the use of HIV pre-exposure prophylaxis (PrEP). https://bhiva.org/wp-content/uploads/2025/07/2025-PrEP-guidelines.pdf (2025, accessed 15th April 2026).
73. ESHRE Guideline Group on Viral infection/disease. Mocanu E, Drakeley A, Kupka MS, et al. ESHRE guideline: medically assisted reproduction in patients with a viral infection/disease. *Hum Reprod Open* 2021; 2021: hoab037.
74. Zafer M, Horvath H, Mmeje O, et al. Effectiveness of semen washing to prevent human immunodeficiency virus (HIV) transmission and assist pregnancy in HIV-discordant couples: a systematic review and meta-analysis. *Fertil Steril* 2016; 105: 645–655.e2. https://doi.org/10.1016/j.fertnstert.2015.11.028
75. Vitorino RL, Grinsztejn BG, de Andrade CA, et al. Systematic review of the effectiveness and safety of assisted reproduction techniques in couples serodiscordant for human immunodeficiency virus where the man is positive. *Fertil Steril* 2011; 95: 1684–1690. https://doi.org/10.1016/j.fertnstert.2011.01.127
76. Barnes A, Riche D, Mena L, et al. Efficacy and safety of intrauterine insemination and assisted reproductive technology in populations serodiscordant for human immunodeficiency virus: a systematic review and meta-analysis. *Fertil Steril* 2014; 102: 424–434. https://doi.org/10.1016/j.fertnstert.2014.05.001
77. Vianna C, Dupont C, Selleret L, et al. Comparison of in vitro fertilization cycles in couples with human immunodeficiency virus type 1 infection versus noninfected couples through a retrospective matched case-control study. *FS Rep* 2021; 2: 376–385. https://doi.org/10.1016/j.xfre.2021.04.008
78. Marques C, Guerreiro C and Soares SR. Lights and shadows about the effectiveness of IVF in HIV infected women: a systematic review. *Infect Dis Obstet Gynecol* 2015; 2015: 517208. https://doi.org/10.1155/2015/517208
79. Stora C, Epelboin S, Devouche E, et al. Women infected with human immunodeficiency virus type 1 have poorer assisted reproduction outcomes: a case-control study. *Fertil Steril* 2016; 105: 1193–1201. https://doi.org/10.1016/j.fertnstert.2015.12.138

80. Massad LS, Evans CT, Minkoff H, et al. Effects of HIV infection and its treatment on self-reported menstrual abnormalities in women. *J Womens Health (Larchmt)* 2006; 15: 591–598. https://doi.org/10.1089/jwh.2006.15.591
81. Coll O, Suy A, Figueras F, et al. Decreased pregnancy rate after in-vitro fertilization in HIV-infected women receiving HAART. *AIDS* 2006; 20: 121–123. https://doi.org/10.1097/01.aids.0000196161.25647.35
82. Fertilisation Human and Authority Embryology. Fertility preservation. https://www.hfea.gov.uk/treatments/fertility-preservation/ (2023, accessed 5th March 2025).
83. College of Sexual and Reproductive Health. UK medical eligibility criteria for contraceptive use (UKMEC). https://www.cosrh.org/Public/Standards-and-Guidance/uk-medical-eligibility-criteria-for-contraceptive-use-ukmec (2025, accessed 29th March 2026).
84. World Health Organization. Medical eligibility criteria for contraceptive use. https://www.who.int/publications/i/item/9789241549158 (2015, accessed 5th March 2025).
85. Faculty of Sexual and Reproductive Healthcare. Clinical guidance: drug interactions between HIV antiretroviral therapy (ART) and contraception. https://www.fsrh.org/Common/Uploaded/files/documents/hiv-drug-interactions-with-contraception-07feb2023.pdf (2023, accessed 5th March 2025).
86. British HIV Association. BHIVA guidelines on antiretroviral treatment for adults living with HIV-1 2022 (2025 interim update). https://bhiva.org/clinical-guideline/hiv-1-treatment-guidelines/ (accessed 26th March 2026).
87. Brown TT and Qaqish RB. Antiretroviral therapy and the prevalence of osteopenia and osteoporosis: a meta-analytic review. *AIDS* 2006; 20: 2165–2174. https://doi.org/10.1097/qad.0b013e32801022eb
88. Bolland MJ, Wang TKM, Grey A, et al. Stable bone density in HAART-treated individuals with HIV: a meta-analysis. *J Clin Endocrinol Metab* 2011; 96: 2721–2731. https://doi.org/10.1210/jc.2011-0591
89. Kaunitz AM, Arias R and McClung M. Bone density recovery after depot medroxyprogesterone acetate injectable contraception use. *Contraception* 2008; 77: 67–76. https://doi.org/10.1016/j.contraception.2007.10.005
90. Kiweewa Matovu F, Kiwanuka N, Nabwana M, et al. Intramuscular depot medroxyprogesterone acetate accentuates bone loss associated with tenofovir disoproxil fumarate-containing antiretroviral therapy initiation in young women living with HIV (the BONE: CARE study): a prospective cohort study in Uganda. *Lancet Global Health* 2022; 10: e694–e704. https://doi.org/10.1016/s2214-109x(22)00080-8
91. Patel RC, Baeten JM, Heffron R, et al. Brief report: hormonal contraception is not associated with reduced ART effectiveness among women initiating ART: evidence from longitudinal data. *J Acquir Immune Defic Syndr* 2017; 75: 91–96. https://doi.org/10.1097/qai.0000000000001339
92. Morrison CS, Hofmeyr GJ, Thomas KK, et al. Effects of depot medroxyprogesterone acetate, copper intrauterine devices, and levonorgestrel implants on early HIV disease progression. *AIDS Res Hum Retrovir* 2020; 36: 632–640. https://doi.org/10.1089/aid.2020.0015
93. Todd CS, Jones HE, Langwenya N, et al. Safety and continued use of the levonorgestrel intrauterine system as compared with the copper intrauterine device among women living with HIV in South Africa: a randomized controlled trial. *PLoS Med* 2020; 17: e1003110. https://doi.org/10.1371/journal.pmed.1003110
94. Ralph LJ, McCoy SI, Shiu K, et al. Hormonal contraceptive use and women's risk of HIV acquisition: a meta-analysis of observational studies. *Lancet Infect Dis* 2015; 15: 181–189. https://doi.org/10.1016/S1473-3099(14)71052-7
95. Morrison CS, Chen PL, Kwok C, et al. Hormonal contraception and the risk of HIV acquisition: an individual participant data meta-analysis. *PLoS Med* 2015; 12: e1001778. https://doi.org/10.1371/journal.pmed.1001778
96. Polis CB, Curtis KM, Hannaford PC, et al. An updated systematic review of epidemiological evidence on hormonal contraceptive methods and HIV acquisition in women. *AIDS* 2016; 30: 2665–2683. https://doi.org/10.1097/QAD.0000000000001228
97. Evidence for Contraceptive Options and HIV Outcomes (ECHO) Trial Consortium. HIV incidence among women using intramuscular depot medroxyprogesterone acetate, a copper intrauterine device, or a levonorgestrel implant for contraception: a randomised, multicentre, open-label trial. *Lancet* 2019; 394: 303–313.
98. Faculty of Sexual and Reproductive Healthcare. FSRH CEU statement updated guidance on contraceptive choices for women at high risk of HIV. https://www.cosrh.org/Common/Uploaded/files/documents/fsrh-ceu-statement-updated-guidance-on-contraceptive-choices-for-women-at-high-risk-of-hiv-09-19.pdf (2019, accessed 15th April 2026).
99. Avis NE, Crawford SL, Greendale G, et al. Duration of menopausal vasomotor symptoms over the menopause transition. *JAMA Intern Med* 2015; 175: 531–539. https://doi.org/10.1001/jamainternmed.2014.8063
100. Sturdee DW, Hunter MS, Maki PM, et al. The menopausal hot flush: a review. *Climacteric* 2017; 20: 296–305. https://doi.org/10.1080/13697137.2017.1306507
101. Cuong Chau, UK Health Security Agency. Personal communication, 10th February 2023.
102. Okhai H, Dragomir L, Pool ER, et al. Association between health-related quality of life and menopausal status and symptoms in women living with HIV aged 45-60 years in England: an analysis of the PRIME study. *Womens Health* 2022; 18: 17455065211068722. https://doi.org/10.1177/17455065211068722
103. Van Ommen CE, King EM and Murray MCM. Age at menopause in women living with HIV: a systematic review.

Menopause 2021; 28: 1428–1436. https://doi.org/10.1097/gme.0000000000001871

104. Torrealday S, Kodaman P and Pal L. Premature ovarian insufficiency - an update on recent advances in understanding and management. *F1000Res* 2017; 6: 2069. https://doi.org/10.12688/f1000research.11948.1
105. Thapa R, Yang Y and Bekemeier B. Menopausal symptoms and associated factors in women living with HIV in Cambodia. *J Women Aging* 2020; 32: 517–536. https://doi.org/10.1080/08952841.2019.1593773
106. Okhai H, Sabin CA, Haag K, et al. Menopausal status, age and management among women living with HIV in the UK. *HIV Med* 2021; 22: 834–842. https://doi.org/10.1111/hiv.13138
107. Tariq S, Delpech V and Anderson J. The impact of the menopause transition on the health and wellbeing of women living with HIV: a narrative review. *Maturitas* 2016; 88: 76–83. https://doi.org/10.1016/j.maturitas.2016.03.015
108. Okhai H, Sabin C, Haag K, et al. The prevalence and patterns of menopausal symptoms in women living with HIV. *AIDS Behav* 2022; 26: 3679–3687. https://doi.org/10.1007/s10461-022-03696-4
109. Looby SE, Shifren J, Corless I, et al. Increased hot flash severity and related interference in perimenopausal human immunodeficiency virus-infected women. *Menopause* 2014; 21: 403–409. https://doi.org/10.1097/GME.0b013e31829d4c4c
110. Madanhire T, Hawley S, Dauya E, et al. Menopausal symptoms by HIV status and association with health-related quality of life among women in Zimbabwe: a cross-sectional study. *BMC Womens Health* 2023; 23: 343. https://doi.org/10.1186/s12905-023-02466-1
111. Scofield D, Weis N, Andersson M, et al. Psychosocial, sexual, reproductive and menopausal health in women with and without HIV in a high-income setting. *AIDS* 2023; 37: 1315–1322. https://doi.org/10.1097/qad.0000000000003555
112. Mezones-Holguín E, Arriola-Montenegro J, Cutimanco-Pacheco V, et al. Low sexual function is associated with menopausal status in mid-aged women with human immunodeficiency virus infection. *Menopause* 2022; 29: 317–326. https://doi.org/10.1097/gme.0000000000001914
113. Toorabally N, Mercer CH, Mitchell KR, et al. Association of HIV status with sexual function in women aged 45-60 in England: results from two national surveys. *AIDS Care* 2020; 32: 286–295. https://doi.org/10.1080/09540121.2019.1653436
114. Haag K, Tariq S, Dhairyawan R, et al. Patterns of mental health symptoms among women living with HIV ages 45-60 in England: associations with demographic and clinical factors. *Menopause* 2022; 29: 421–429. https://doi.org/10.1097/gme.0000000000001931
115. Arriola-Montenegro J, Cutimanco-Pacheco V, Zeta-Solis L, et al. Association between depressive symptoms and adherence to highly active antiretroviral therapy in HIV-positive women is dependent of menopausal status: a secondary analysis from a Peruvian series. *Maturitas* 2019; 124: 187–188. https://doi.org/10.1016/j.maturitas.2019.04.197
116. Cutimanco-Pacheco V, Arriola-Montenegro J, Mezones-Holguin E, et al. Menopausal symptoms are associated with non-adherence to highly active antiretroviral therapy in human immunodeficiency virus-infected middle-aged women. *Climacteric* 2020; 23: 229–236. https://doi.org/10.1080/13697137.2019.1664457
117. Duff PK, Money DM, Ogilvie GS, et al. Severe menopausal symptoms associated with reduced adherence to antiretroviral therapy among perimenopausal and menopausal women living with HIV in Metro Vancouver. *Menopause* 2018; 25: 531–537. https://doi.org/10.1097/gme.0000000000001040
118. Okhai H, Tariq S, Burns F, et al. Associations of menopausal age with virological outcomes and engagement in care among women living with HIV in the UK. *HIV Res Clin Pract* 2020; 21: 174–181. https://doi.org/10.1080/25787489.2020.1852817
119. Solomon D, Sabin CA, Burns F, et al. The association between severe menopausal symptoms and engagement with HIV care and treatment in women living with HIV. *AIDS Care* 2021; 33: 101–108. https://doi.org/10.1080/09540121.2020.1748559
120. National Institute for Health and Care Excellence. Menopause: identification and management. NICE guideline NG23. https://www.nice.org.uk/guidance/ng23 (2024, accessed 8th May 2025).
121. King EM, Albert AY and Murray MCM. HIV and amenorrhea: a meta-analysis. *AIDS* 2019; 33: 483–491. https://doi.org/10.1097/QAD.0000000000002084
122. Tariq S, Okhai H, Severn A, et al. Follicle-stimulating hormone in postmenopausal women living with HIV: a prevalence study. *HIV Med* 2022; 23: 434–440. https://doi.org/10.1111/hiv.13205
123. Chirwa M, Taghinejadi N, Macaulay G, et al. Reflections on a specialist HIV menopause service: experiences of managing menopause in women living with HIV. *HIV Med* 2022; 23: 426–433. https://doi.org/10.1111/hiv.13256
124. Paul L and Gilleece Y. Implementing menstruation and menopause assessment into the HIV nursing assessment for people living with HIV. *Sex Transm Infect* 2023; 99: A50–A51. https://doi.org/10.1136/sextrans-BASHH-2023.96
125. Samuel MI, Sullivan V, Hamzah L, et al. Tailoring care for women living with HIV: experience of a dedicated medical gynaecology clinic. *HIV Med* 2018; 19: S124–S125.
126. The Faculty of Sexual and Reproductive Health. FSRH guideline contraception for women aged over 40 years 2025. https://www.cosrh.org/Common/Uploaded/files/documents/fsrh-guideline-contraception-for-women-aged-over-40-years.pdf (accessed 15th April 2026).

127. Solomon D, Tariq S, Alldis J, et al. Ethnic inequalities in mental health and socioeconomic status among older women living with HIV: results from the PRIME study. *Sex Transm Infect* 2022; 98: 128–131. https://doi.org/10.1136/sextrans-2020-054788
128. Mezones-Holguin E, Helguero-Santin LM, Cordova-Agurto JS, et al. Efficacy and safety of menopausal hormone therapy on women with human immunodeficiency virus infection: a systematic review. *Menopause* 2019; 26: 1470.
129. Laan ETM, Prins JM, van Lunsen RHW, et al. Testosterone insufficiency in human immunodeficiency virus-infected women: a cross-sectional study. *Sex Med* 2019; 7: 72–79. https://doi.org/10.1016/j.esxm.2018.10.002
130. British Menopause Society. Testosterone replacement in menopause. https://thebms.org.uk/wp-content/uploads/2022/12/08-BMS-TfC-Testosterone-replacement-in-menopause-DEC2022-A.pdf (2022, accessed 7th March 2025).
131. Finnerty F, Walker-Bone K and Tariq S. Osteoporosis in postmenopausal women living with HIV. *Maturitas* 2017; 95: 50–54. https://doi.org/10.1016/j.maturitas.2016.10.015
132. Solomon D, Sabin CA, Mallon PWG, et al. Cardiovascular disease in women living with HIV: a narrative review. *Maturitas* 2018; 108: 58–70. https://doi.org/10.1016/j.maturitas.2017.11.012
133. Collins LF, Mehta CC, Palella FJ, et al. The effect of menopausal status, age, and human immunodeficiency virus (HIV) on non-AIDS comorbidity burden among US women. *Clin Infect Dis* 2023; 76: e755–e758. https://doi.org/10.1093/cid/ciac465
134. Sacks R, Dhairyawan R, Brawley D, et al. Responding to domestic abuse in sexual health settings. https://www.bashh.org/_userfiles/pages/files/responding_to_domestic_abuse_in_sexual_health_settings_feb_2016_final.pdf (2016, accessed 8th May 2025).
135. World Health Organization. Violence against women prevalence estimates, 2018 – executive summary. https://www.who.int/publications/i/item/9789240026681 (2021, accessed 17th March 2025).
136. World Health Organization. Social determinants of health. Violence prevention. https://www.who.int/teams/social-determinants-of-health/violence-prevention (accessed 8th May 2025).
137. World Health Organization. Guidelines for medico-legal care for victims of sexual violence. https://apps.who.int/iris/handle/10665/42788 (2003, accessed 17th March 2025).
138. Maman S, Mbwambo J, Hogan N, et al. HIV-positive women report more lifetime partner violence: findings from a voluntary counselling and testing clinic in Dar es Salaam. *Am J Public Health* 2002; 92: 1331–1337. https://doi.org/10.2105/ajph.92.8.1331
139. Garcia-Moreno C and Watts C. Violence against women: its importance for HIV/AIDS. *AIDS* 2000; 14(Suppl 3): S253–S265.
140. Dhairyawan R, Tariq S, Scourse R, et al. Intimate partner violence in women living with HIV attending an inner city clinic in the UK: prevalence and associated factors. *HIV Med* 2013; 14: 303–310. https://doi.org/10.1111/hiv.12009
141. Schafer KR, Brant J, Gupta S, et al. Intimate partner violence: a predictor of worse HIV outcomes and engagement in care. *AIDS Patient Care STDS* 2012; 26: 356–365. https://doi.org/10.1089/apc.2011.0409
142. Hatcher AM, Smout EM, Turan JM, et al. Intimate partner violence and engagement in HIV care and treatment among women: a systematic review and meta-analysis. *AIDS* 2015; 29: 2183–2194. https://doi.org/10.1097/QAD.0000000000000842
143. North R and Rothenburg K. Partner notification and the threat of domestic violence against HIV infection. *N Engl J Med* 1993; 329: 1194–1196.
144. Bourne A, Dodds C, Weatherburn P, et al. *Plus one: HIV sero-discordant relationships among Black African people in England*. Sigma Research, 2011. https://www.researchgate.net/publication/259784843_Plus_One_HIV_sero-discordant_relationships_among_black_African_people_in_England_-_Managing_the_relationship (accessed 17th March 2025).
145. Orza L, Bewley S, Chung C, et al. "Violence. Enough already": findings from a global participatory survey among women living with HIV. *J Int AIDS Soc* 2015; 18(Suppl 5): 20285. https://doi.org/10.7448/IAS.18.6.20285
146. Harris R, Xavier Hall C, Mills J, et al. Beyond viral suppression-the impact of cumulative violence on health-related quality of life among a cohort of virally suppressed patients. *J Acquir Immune Defic Syndr* 2023; 92: 59–66. https://doi.org/10.1097/qai.0000000000003099
147. Ard KL and Makadon HJ. Addressing intimate partner violence in lesbian, gay, bisexual, and transgender patients. *J Gen Intern Med* 2011; 26: 930–933. https://doi.org/10.1007/s11606-011-1697-6
148. Finneran C and Stephenson R. Intimate partner violence among men who have sex with men: a systematic review. *Trauma Violence Abuse* 2013; 14: 168–185. https://doi.org/10.1177/1524838012470034
149. Drückler S, Speulman J, van Rooijen M, et al. Sexual consent and chemsex: a quantative study on sexualized drug use and non-consensual sex among men who have sex with men in Amsterdam. The Netherlands. *Sex Transm Infect* 2021; 97: 268–275. https://doi.org/10.1136/sextrans-2020-054840
150. Wilkerson JM, Di Paola A, Nieto D, et al. Sexual violence and chemsex among substance-using sexual and gender minorities in Texas. *Subst Use Misuse* 2021; 56: 2141–2150. https://doi.org/10.1080/10826084.2021.1975743
151. Brown TNT and Herman JL. Intimate partner violence and sexual abuse amongst LGBT people: a review of existing research. https://williamsinstitute.law.ucla.edu/publications/ipv-sex-abuse-lgbt-people/ (2015, accessed 17th March 2025).

152. Buller AM, Devries KM, Howard LM, et al. Associations between intimate partner violence and health among men who have sex with men: a systematic review and meta-analysis. *PLoS Med* 2014; 11: e1001609. https://doi.org/10.1371/journal.pmed.1001609
153. Heintz AJ and Melendez RM. Intimate partner violence and HIV/STD risk among lesbian, gay, bisexual, and transgender individuals. *J Interpers Violence* 2006; 21: 193–208. https://doi.org/10.1177/0886260505282104
154. Abrahams N, Mhlongo S, Dunkle K, et al. Increase in HIV incidence in women exposed to rape. *AIDS* 2021; 35: 633–642. https://doi.org/10.1097/qad.0000000000002779
155. Bonomi AE, Anderson ML, Reid RJ, et al. Medical and psychosocial diagnoses in women with a history of intimate partner violence. *Arch Intern Med* 2009; 169: 1692–1697. https://doi.org/10.1001/archinternmed.2009.292
156. Department of Health. Responding to domestic abuse: a handbook for health professionals. https://assets.publishing.service.gov.uk/media/5a7f850940f0b6230268ffba/DometicAbuseGuidance.pdf (accessed 17th March 2025).
157. National Institute for Health and Care Excellence. Domestic violence and abuse: multi-agency working. https://www.nice.org.uk/guidance/ph50 (2014, accessed 17th March 2025).
158. NHS Scotland. Responding to domestic abuse. guidelines for health care workers in NHS Scotland. https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2003/03/responding-domestic-abuse-guidelines-health-care-workers-nhsscotland/documents/0013863-pdf/0013863-pdf/govscot%3Adocument/0013863.pdf (accessed 17th March 2025).
159. The Scottish Government. Letter to chief executives Gender-based violence action plan guidance for health boards. https://www.sehd.scot.nhs.uk/mels/CEL2008_41.pdf (2008, accessed 17th March 2025).
160. British Association for Sexual Health and HIV. National guidelines for the management of individuals disclosing sexual violence in sexual health services. https://www.bashh.org/_userfiles/pages/files/resources/bashh_sv_2022.pdf (2022, accessed 17th March 2025).
161. Caswell RJ, Maidment I, Ross JDC, et al. How, why, for whom and in what context, do sexual health clinics provide an environment for safe and supported disclosure of sexual violence: protocol for a realist review. *BMJ Open* 2020; 10: e037599. https://doi.org/10.1136/bmjopen-2020-037599
162. Caswell RJ, Ross JDC and Lorimer K. Measuring experience and outcomes in patients reporting sexual violence who attend a healthcare setting: a systematic review. *Sex Transm Infect* 2019; 95: 419–427. https://doi.org/10.1136/sextrans-2018-053920
163. Legislation.gov.uk. Sexual offences act 2003. https://www.legislation.gov.uk/ukpga/2003/42/contents#top (accessed 17th March 2025).
164. Legislation.gov.uk sexual offences (Scotland) act 2009. https://www.legislation.gov.uk/asp/2009/9/contents (accessed 17th March 2025).
165. 165. legislation.gov.uk the sexual offences (Northern Ireland) order 2008. https://www.legislation.gov.uk/nisi/2008/1769/contents (accessed 17th March 2025).
166. World Health Organization. Female genital mutilation. https://www.who.int/news-room/fact-sheets/detail/female-genital-mutilation (2025, accessed 6th March 2025).
167. Davies J, Horner C and Ashby J. Impact of routine enquiry on disclosure rates of female genital mutilation in HIV positive women. *HIV Med* 2020; 21(Suppl 4): 68.
168. Mauri F, Cottler-Casanova S, Cavassini M, et al. Female genital mutilation/cutting in the Swiss HIV cohort study: a cross-sectional study. *J Immigr Minority Health* 2023; 25: 136–141. https://doi.org/10.1007/s10903-022-01390-0
169. Noah Pinheiro YA. Associations between female genital mutilation/cutting and HIV: a review of the evidence. *Afr J AIDS Res* 2019; 18: 181–191. https://doi.org/10.2989/16085906.2019.1637913
170. El-Ghitany EM, Farghaly AG and Alkassabany YM. Prevalence and risk factors of HBV and HCV co-infection among people living with HIV in an Egyptian setting. *Curr HIV Res* 2021; 19: 514–524. https://doi.org/10.2174/1570162x19666210805095712
171. Kuugbee ED, Maaldu G, Adamu A, et al. Seroprevalence and risk factors of sexually transmitted blood-borne infections among pregnant women attending antenatal care in Jirapa, Upper West Region of Ghana. *Can J Infect Dis Med Microbiol* 2023; 2023: 3157202. https://doi.org/10.1155/2023/3157202
172. Mutenbei IB and Mwesiga MK. The impact of obsolete traditions on HIV/AIDS rapid transmission in Africa: the case of compulsory circumcision on young girls in Tanzania. In: 12th Annual International Conference on AIDS, Geneva, Switzerland, 1998. Abstract 23473.
173. Brady M. Female genital mutilation: complications and risk of HIV transmission. *AIDS Patient Care STDS* 1999; 13: 709–716. https://doi.org/10.1089/apc.1999.13.709
174. Hardy DB. Cultural practices contributing to the transmission of HIV in Africa. *Rev Infect Dis* 1987; 9: 1109–1119.
175. Kun KE. Female genital mutilation: the potential for increased risk of HIV infection. *Int J Gynecol Obstetr* 1997; 59: 153–155. https://doi.org/10.1016/s0020-7292(97)00201-4
176. Nsereko E, Moreland PJ, Dunlop AL, et al. Consideration of cultural practices when characterizing the vaginal microbiota among African and African American women. *Biol Res Nurs* 2021; 23: 91–99. https://doi.org/10.1177/1099800420940788
177. Osterman AL, Winer RL, Gottlieb GS, et al. Female genital mutilation and noninvasive cervical abnormalities and invasive cervical cancer in Senegal, West Africa: a

retrospective study. *Int J Cancer* 2019; 144: 1302–1312. https://doi.org/10.1002/ijc.31829
178. Brook G, Church H, Evans C, et al. 2019 UK national guideline for consultations requiring sexual history taking: Clinical effectiveness group British association for sexual health and HIV. *Int J STD AIDS* 2020; 31: 920–938. https://doi.org/10.1177/0956462420941708
179. HM Government. Mandatory reporting of female genital mutilation: procedural information. https://www.gov.uk/government/publications/mandatory-reporting-of-female-genital-mutilation-procedural-information (2020, accessed 6th March 2025).
180. HM Government. Multi-agency statutory guidance on female genital mutilation. https://www.gov.uk/government/publications/multi-agency-statutory-guidance-on-female-genital-mutilation (2020, accessed 6th March 2025).
181. Department of Health and Social Care. Safeguarding women and girls at risk of FGM. https://www.gov.uk/government/publications/safeguarding-women-and-girls-at-risk-of-fgm (2017, accessed 6th March 2025).
182. Limoncin E, Nimbi FM, Jannini EA, et al. Pleasure, orgasm, and sexual mutilations in different cultural settings. In: Rowland D and Jannini E (eds). *Cultural Differences and the Practice of Sexual Medicine. Trends in Andrology and Sexual Medicine*. Springer, 2020. https://doi.org/10.1007/978-3-030-36222-5_14
183. National Health Service. Female genital mutilation enhanced data. Set 2015. https://standards.nhs.uk/published-standards/female-genital-mutilation-enhanced-data-set (accessed 6th March 2025).
184. Mitchell KR, Gurney K, McAloney-Kocaman K, et al. The Sexual Function Evaluation Questionnaire (SFEQ) to evaluate effectiveness of treatment for sexual difficulties: development and validation in a clinical sample. *J Sex Res* 2022; 59: 426–434. https://doi.org/10.1080/00224499.2021.1986800
185. Brody S. The relative health benefits of different sexual activities. *J Sex Med* 2010; 7: 1336–1361. https://doi.org/10.1111/j.1743-6109.2009.01677.x
186. Edwards WM and Coleman E. Defining sexual health: a descriptive overview. *Arch Sex Behav* 2004; 33: 189–195. https://doi.org/10.1023/B:ASEB.0000026619.95734.d5
187. Logie CH. Sexual rights and sexual pleasure: sustainable development goals and the omitted dimensions of the leave no one behind sexual health agenda. *Glob Public Health* 2023; 18: 1953559. https://doi.org/10.1080/17441692.2021.1953559
188. Mitchell KR, Lewis R, O'Sullivan LF, et al. What is sexual wellbeing and why does it matter for public health? *Lancet Public Health* 2021; 6: e608–e613. https://doi.org/10.1016/s2468-2667(21)00099-2
189. Mulé NJ, Ross LE, Deeprose B, et al. Promoting LGBT health and wellbeing through inclusive policy development. *Int J Equity Health* 2009; 8: 18. https://doi.org/10.1186/1475-9276-8-18
190. Harding R, Lampe FC, Norwood S, et al. Symptoms are highly prevalent among HIV outpatients and associated with poor adherence and unprotected sexual intercourse. *Sex Transm Infect* 2010; 86: 520–524. https://doi.org/10.1136/sti.2009.038505
191. Sadeghi-Nejad H, Wasserman M, Weidner W, et al. Sexually transmitted diseases and sexual function. *J Sex Med* 2010; 7: 389–413. https://doi.org/10.1111/j.1743-6109.2009.01622.x
192. Shindel AW, Horberg MA, Smith JF, et al. Sexual dysfunction, HIV, and AIDS in men who have sex with men. *AIDS Patient Care STDS* 2011; 25: 341–349. https://doi.org/10.1089/apc.2011.0059
193. Mao L, Newman CE, Kidd MR, et al. Self-reported sexual difficulties and their association with depression and other factors among gay men attending high HIV-caseload general practices in Australia. *J Sex Med* 2009; 6: 1378–1385. https://doi.org/10.1111/j.1743-6109.2008.01160.x
194. Collazos J. Sexual dysfunction in the highly active antiretroviral therapy era. *AIDS Rev* 2007; 9: 237–245.
195. Patel R, Moore T, Cooper V, et al. An observational study of comorbidity and healthcare utilisation among HIV-positive patients aged 50 years and over. *Int J STD AIDS* 2016; 27: 628–637. https://doi.org/10.1177/0956462415589524
196. Huntingdon B, Muscat DM, de Wit J, et al. Factors associated with general sexual functioning and sexual satisfaction among people living with HIV: a systematic review. *J Sex Res* 2020; 57: 824–835. https://doi.org/10.1080/00224499.2019.1689379
197. Norman T, Bourne A, Thepsourinthone J, et al. Sexual satisfaction among people living with HIV in the era of biomedical prevention: enduring impacts of HIV-related stigma? *Sex Health* 2024; 21: SH24103. https://doi.org/10.1071/sh24103
198. De Tubino Scanavino M, Mori E, Nisida VV, et al. Sexual dysfunctions among people living with HIV with long-term treatment with antiretroviral therapy. *Sex Med* 2022; 10: 100542. https://doi.org/10.1016/j.esxm.2022.100542
199. Hart TA, Mustanski B, Ryan DT, et al. Depression and sexual dysfunction among HIV-positive and HIV-negative men who have sex with men: mediation by use of antidepressants and recreational stimulants. *Arch Sex Behav* 2015; 44: 399–409. https://doi.org/10.1007/s10508-014-0279-1
200. Clutterbuck D, Asboe D, Barber T, et al. United Kingdom national guideline on the sexual health care of men who have sex with men. *Int J STD AIDS* 2016; 2018, 956462417746897.
201. Trotta MP, Ammassari A, Murri R, et al. Self-reported sexual dysfunction is frequent among HIV-infected persons and is associated with suboptimal adherence to antiretrovirals. *AIDS Patient Care STDS* 2008; 22: 291–299. https://doi.org/10.1089/apc.2007.0061
202. De Vincentis S, Tartaro G, Rochira V, et al. HIV and sexual dysfunction in men. *J Clin Med* 2021; 10: 1088. https://doi.org/10.3390/jcm10051088

203. National Institute for Health and Care Excellence. Type 2 diabetes in adults: management. NICE guideline NG 2022; 28. https://www.nice.org.uk/guidance/ng28/chapter/recommendations (accessed 6th March 2025).
204. Baker BD, Lea EJ and Lavakumar M. The impact of HIV on sexual functioning: considerations for clinicians. *Psychotherapy* 2020; 57: 75–82. https://doi.org/10.1037/pst0000268
205. Richardson D, Lamba H, Goldmeier D, et al. Factors associated with sexual dysfunction in men with HIV infection. *Int J STD AIDS* 2006; 17: 764–767. https://doi.org/10.1258/095646206778691095
206. Santi D, Brigante G, Zona S, et al. Male sexual dysfunction and HIV--a clinical perspective. *Nat Rev Urol* 2014; 11: 99–109. https://doi.org/10.1038/nrurol.2013.314
207. Huntingdon B, de Wit J, Duracinsky M, et al. Belief, covariates, and impact of the "undetectable = untransmittable" message among people living with HIV in Australia. *AIDS Patient Care STDS* 2020; 34: 205–212. https://doi.org/10.1089/apc.2019.0300
208. Coyne K, Mandalia S, McCullough S, et al. The international index of erectile function: development of an adapted tool for use in HIV-positive men who have sex with men. *J Sex Med* 2010; 7: 769–774. https://doi.org/10.1111/j.1743-6109.2009.01579.x
209. British Psychological Society. British HIV Association, medical foundation for AIDS and sexual health. Standards for psychological support for adults living with HIV. https://bhiva.org/wp-content/uploads/2024/10/Standards_for_psychological_support_for_adults_living_with_HIV.pdf (2011, accessed 6th March 2025).
210. National Institute for Health and Care Excellence. Mental health guidelines. https://www.nice.org.uk/hub/indevelopment/gid-hub10005 (accessed 8th May 2025).
211. Richardson D and Goldmeier D. BASHH special interest group for sexual dysfunction. Recommendations for the management of retarded ejaculation: BASHH special interest group for sexual dysfunction. *Int J STD AIDS* 2006; 17: 7–13. https://doi.org/10.1258/095646206775220450
212. Lamba H, Goldmeier D, Mackie NE, et al. Antiretroviral therapy is associated with sexual dysfunction and with increased serum oestradiol levels in men. *Int J STD AIDS* 2004; 15: 234–237. https://doi.org/10.1258/095646204773557749
213. Cove J and Petrak J. Factors associated with sexual problems in HIV-positive gay men. *Int J STD AIDS* 2004; 15: 732–736. https://doi.org/10.1258/0956462042395221
214. Cheng PJ. Sexual dysfunction in men who have sex with men. *Sex Med Rev* 2022; 10: 130–141. https://doi.org/10.1016/j.sxmr.2021.01.002
215. Ollazos J, Ibarra S, Martinez E, et al. Serum prolactin concentrations in patients infected with human immunodeficiency virus. *HIV Clin Trials* 2002; 3: 133–138. https://doi.org/10.1310/QAQQ-XTCJ-8AL4-6F5P
216. Crum NF, Furtek KJ, Olson PE, et al. A review of hypogonadism and erectile dysfunction among HIV-infected men during the pre- and post-HAART eras: diagnosis, pathogenesis, and management. *AIDS Patient Care STDS* 2005; 19: 655–671. https://doi.org/10.1089/apc.2005.19.655
217. Ashby J, Goldmeier D and Sadeghi-Nejad H. Hypogonadism in human immunodeficiency virus-positive men. *Korean J Urol* 2014; 55: 9–16. https://doi.org/10.4111/kju.2014.55.1.9
218. Edmundson C, Heinsbroek E, Glass R, et al. Sexualised drug use in the United Kingdom (UK): a review of the literature. *Int J Drug Policy* 2018; 55: 131–148. https://doi.org/10.1016/j.drugpo.2018.02.002
219. Bolmont M, Tshikung ON and Trellu LT. Chemsex, a contemporary challenge for public health. *J Sex Med* 2022; 19: 1210–1213. https://doi.org/10.1016/j.jsxm.2022.03.616
220. Kowalczyk RM and Stola A. Sexual dysfunction in chemsex users - research report. *Eur Psychiatry* 2023; 66(Suppl 1): S1099. https://doi.org/10.1192/j.eurpsy.2023.2336
221. Blomquist PB, Mohammed H, Mikhail A, et al. Characteristics and sexual health service use of MSM engaging in chemsex: results from a large online survey in England. *Sex Transm Infect* 2020; 96: 590–595. https://doi.org/10.1136/sextrans-2019-054345
222. Hibbert MP, Brett CE, Porcellato LA, et al. Psychosocial and sexual characteristics associated with sexualised drug use and chemsex among men who have sex with men (MSM) in the UK. *Sex Transm Infect* 2019; 95: 342–350. https://doi.org/10.1136/sextrans-2018-053933
223. Lafortune D, Blais M, Miller G, et al. Psychological and interpersonal factors associated with sexualized drug use among men who have sex with men: a mixed-methods systematic review. *Arch Sex Behav* 2021; 50: 427–460. https://doi.org/10.1007/s10508-020-01741-8
224. Huntingdon B, Muscat DM, de Wit J, et al. Factors associated with erectile dysfunction among men living with HIV: a systematic review. *AIDS Care* 2020; 32: 275–285. https://doi.org/10.1080/09540121.2019.1653443
225. Jansen N, Daniels C, Sunil T, et al. Factors associated with erectile dysfunction diagnosis in men with HIV infection: a case-control study. *HIV Med* 2021; 22: 617–622. https://doi.org/10.1111/hiv.13107
226. Dijkstra M, van Lunsen RH, Kooij KW, et al. HIV-1 status is independently associated with decreased erectile function among middle-aged MSM in the era of combination antiretroviral therapy. *AIDS* 2018; 32: 1137–1146. https://doi.org/10.1097/qad.0000000000001800
227. De Vincentis S, Decaroli MC, Milic J, et al. Determinants of sexual function in men living with HIV younger than 50 years old: focus on organic, relational, and psychological issues. *Andrology* 2023; 11: 954–969. https://doi.org/10.1111/andr.13372
228. Moreno-Pérez O, Escoín C, Serna-Candel C, et al. Risk factors for sexual and erectile dysfunction in HIV-infected men: the role of protease inhibitors. *AIDS* 2010; 24: 255–264. https://doi.org/10.1097/QAD.0b013e328334444b

229. Wang Q, Young J, Bernasconi E, et al. The prevalence of erectile dysfunction and its association with antiretroviral therapy in HIV-infected men: the Swiss HIV cohort study. *Antivir Ther* 2013; 18: 337–344. https://doi.org/10.3851/imp2372
230. Asboe D, Catalan J, Mandalia S, et al. Sexual dysfunction in HIV-positive men is multi-factorial: a study of prevalence and associated factors. *AIDS Care* 2007; 19: 955–965. https://doi.org/10.1080/09540120701209847
231. emc. Raltegravir 600 mg film-coated tablets. Summary of product characteristics. https://www.medicines.org.uk/emc/product/16003/smpc#gref (accessed 21st April 2026).
232. Zakumumpa H, Kiguba R, Ndagije HB, et al. Patient experiences of sexual dysfunction after transition to dolutegravir-based HIV treatment in mid-Western Uganda: a qualitative study. *BMC Infect Dis* 2022; 22: 692. https://doi.org/10.1186/s12879-022-07673-z
233. emc. Tivicay 50 mg film-coated tablets. Summary of product characteristics. https://www.medicines.org.uk/emc/product/10057/smpc#gref (accessed 21st April 2026).
234. emc. Biktarvy 50 mg/200 mg/25 mg film-coated tablets. Summary of product characteristics. https://www.medicines.org.uk/emc/product/9313/smpc#gref (accessed 21st April 2026).
235. Gandaglia G, Briganti A, Jackson G, et al. A systematic review of the association between erectile dysfunction and cardiovascular disease. *Eur Urol* 2014; 65: 968–978. https://doi.org/10.1016/j.eururo.2013.08.023
236. Lambert CT, Sandesara PB, Hirsh B, et al. HIV, highly active antiretroviral therapy and the heart: a cellular to epidemiological review. *HIV Med* 2016; 17: 411–424. https://doi.org/10.1111/hiv.12346
237. Muirhead GJ, Wulff MB, Fielding A, et al. Pharmacokinetic interactions between sildenafil and saquinavir/ritonavir. *Br J Clin Pharmacol* 2000; 50: 99–107. https://doi.org/10.1046/j.1365-2125.2000.00245.x
238. Cota JM, Benavides TM, Fields JD, et al. High frequency of potential phosphodiesterase type 5 inhibitor drug interactions in males with HIV infection and erectile dysfunction. *PLoS One* 2021; 16: e0250607. https://doi.org/10.1371/journal.pone.0250607
239. Jenkins LC and Mulhall JP. Delayed orgasm and anorgasmia. *Fertil Steril* 2015; 104: 1082–1088. https://doi.org/10.1016/j.fertnstert.2015.09.029
240. Crum-Cianflone NF, Bavaro M, Hale B, et al. Erectile dysfunction and hypogonadism among men with HIV. *AIDS Patient Care STDS* 2007; 21: 9–19. https://doi.org/10.1089/apc.2006.0071
241. Rochira V and Guaraldi G. Hypogonadism in the HIV-infected man. *Endocrinol Metab Clin N Am* 2014; 43: 709–730. https://doi.org/10.1016/j.ecl.2014.06.005
242. Slama L, Jacobson LP, Li X, et al. Multicenter AIDS cohort study. Longitudinal changes over 10 years in free testosterone among HIV-iInfected and HIV-uninfected men. *J Acquir Immune Defic Syndr* 2016; 71: 57–64. https://doi.org/10.1097/qai.0000000000000821
243. Hackett G, Heald AH, Sinclair A, et al. Serum testosterone, testosterone replacement therapy and all-cause mortality in men with type 2 diabetes: retrospective consideration of the impact of PDE5 inhibitors and statins. *Int J Clin Pract* 2016; 70: 244–253. https://doi.org/10.1111/ijcp.12779
244. Sharma R, Oni OA, Gupta K, et al. Normalization of testosterone level is associated with reduced incidence of myocardial infarction and mortality in men. *Eur Heart J* 2015; 36: 2706–2715. https://doi.org/10.1093/eurheartj/ehv346
245. Baillargeon J, Urban RJ, Kuo YF, et al. Risk of myocardial infarction in older men receiving testosterone therapy. *Ann Pharmacother* 2014; 48: 1138–1144. https://doi.org/10.1177/1060028014539918
246. Homfray V, Tanton C, Mitchell KR, et al. Examining the association between male circumcision and sexual function: evidence from a British probability survey. *AIDS* 2015; 29: 1411–1416. https://doi.org/10.1097/QAD.0000000000000745
247. Krieger JN, Mehta SD, Bailey RC, et al. Adult male circumcision: effects on sexual function and sexual satisfaction in Kisumu, Kenya. *J Sex Med* 2008; 5: 2610–2622. https://doi.org/10.1111/j.1743-6109.2008.00979.x
248. Kigozi G, Watya S, Polis CB, et al. The effect of male circumcision on sexual satisfaction and function, results from a randomized trial of male circumcision for human immunodeficiency virus prevention, Rakai, Uganda. *BJU Int* 2008; 101: 65–70. https://doi.org/10.1111/j.1464-410X.2007.07369.x
249. European Association of Urology. Sexual and reproductive health. Management of erectile dysfunction. https://uroweb.org/guidelines/sexual-and-reproductive-health/chapter/management-of-erectile-dysfunction (accessed 9th May 2025).
250. Hackett G, Kirby M, Rees RW, et al. The British society for sexual medicine guidelines on male adult testosterone deficiency, with statements for practice. *World J Mens Health* 2023; 41: 508–537. https://doi.org/10.5534/wjmh.221027
251. International Society for Sexual Medicine. ISSM quick reference guide to PE. https://www.issm.info/media/attachments/2021/08/17/03-clinical-guidelines—issm-quick-reference-guide-to-pe–vjan2015.pdf (2015, accessed 9th May 2025).
252. Wilson TE, Jean-Louis G, Schwartz R, et al. HIV infection and women's sexual functioning. *J Acquir Immune Defic Syndr* 2010; 54: 360–367. https://doi.org/10.1097/QAI.0b013e3181d01b14
253. Luzi K, Guaraldi G, Murri R, et al. Body image is a major determinant of sexual dysfunction in stable HIV-infected women. *Antivir Ther* 2009; 14: 85–92. Erratum in: *Antivir Ther* 2009; 14: 465. Vincenzo, Rochira [corrected to Rochira, Vincenzo].

254. Florence E, Schrooten W, Dreezen C, et al. Prevalence and factors associated with sexual dysfunction among HIV-positive women in Europe. *AIDS Care* 2004; 16: 550–557. https://doi.org/10.1080/09540120410001716333
255. Keegan A, Lambert S and Petrak J. Sex and relationships for HIV-positive women since HAART: a qualitative study. *AIDS Patient Care STDS* 2005; 19: 645–654. https://doi.org/10.1089/apc.2005.19.645
256. Meyer-Bahlburg HF, Nostlinger C, Exner TM, et al. Sexual functioning in HIV+ and HIV- injected drug-using women. *J Sex Marital Ther* 1993; 19: 56–68. https://doi.org/10.1080/00926239308404888
257. Hankins C, Gendron S, Tran T, et al. Sexuality in Montreal women living with HIV. *AIDS Care* 1997; 9: 261–271. https://doi.org/10.1080/713613156
258. Camara A, Tounkara TM, Delamou A, et al. Prevalence and risk factors of female sexual dysfunction among women infected with HIV in conakry. *Clin Epidemiol Glob Health* 2021; 12: 100828. https://doi.org/10.1016/j.cegh.2021.100828
259. Marocco R, Vita S, Carraro A, et al. Differences in sexual health among HIV infected and uninfected women of childbearing age. *HIV Med* 2019; 20: 158.
260. Goldmeier D, Kocsis A and Wasserman M. Sexual dysfunction in women with HIV. *Sex Transm Infect* 2005; 81: 284. https://doi.org/10.1136/sti.2004.009266
261. Sandfort TG, Collier KL and Grossberg R. Addressing sexual problems in HIV primary care: experiences from patients. *Arch Sex Behav* 2013; 42: 1357–1368. https://doi.org/10.1007/s10508-012-0009-5
262. Green J, Samuel M, Hookham L, et al. Holistic healthcare for women with HIV: are we getting better at asking the right questions? Comparison with data from 2016. *HIV Med* 2021; 22: 107–108.
263. Carter A, Gormley B, Muchenje M, et al. Prevalence and correlates of sexual concerns and associated distress among women living with HIV in Canada. *Womens Health* 2022; 18: 17455065221074877. https://doi.org/10.1177/17455065221074877
264. Marks S. A clinical review of antidepressants, their sexual side-effects, post-SSRI sexual dysfunction, and serotonin syndrome. *Br J Nurs* 2023; 32: 678–682. https://doi.org/10.12968/bjon.2023.32.14.678
265. Boonyanurak P, Bunupuradah T, Wilawan K, et al. Age at menopause and menopause-related symptoms in human immunodeficiency virus-infected Thai women. *Menopause* 2012; 19: 820–824. https://doi.org/10.1097/gme.0b013e31824cfc0f
266. Abeln B and Love R. Considerations for the care of transgender individuals. *Nurs Clin* 2019; 54: 551–559. https://doi.org/10.1016/j.cnur.2019.07.005
267. Curley CM, Rosen AO, Mistler CB, et al. Pleasure and PrEP: a systematic review of studies examining pleasure, sexual satisfaction, and PrEP. *J Sex Res* 2022; 59: 848–861. https://doi.org/10.1080/00224499.2021.2012638
268. Montgomery MC, Ellison J, Chan PA, et al. Sexual satisfaction with daily oral HIV pre-exposure prophylaxis (PrEP) among gay and bisexual men at two urban PrEP clinics in the United States: an observational study. *Sex Health* 2021; 18: 319–326. https://doi.org/10.1071/sh20207