

Beyond the Pap Smear: Gender-responsive HIV Care for Women

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Women comprise nearly one-quarter of all people living with human immunodeficiency virus (HIV†) in the U.S. and 20 percent of incident annual cases. Though women overall are more likely than men to be diagnosed with HIV and engage in care, they are as unlikely to successfully achieve viral suppression with antiretroviral therapy, suggesting gender-based disparities that should be addressed by gender-responsive policies and programs. Using the socioecological model of health and syndemics theory, we comprehensively reviewed published literature to evaluate reasons for and ways to address gender differences in HIV risk and treatment. We discuss the biologic, sociocultural, interpersonal, and behavioral contexts of HIV risk that affect women, comprehensive healthcare for women with HIV that includes pregnancy planning or prevention, and policy implications.

Clinical vignette: *A 40-year old woman with recently diagnosed HIV presents to initiate care. She has no history of sexually transmitted infections, substance use, transactional sex, or incarceration, and was HIV tested routinely during an annual gynecology visit. Her only risk factor for HIV was condomless vaginal sex with a man, who was unaware he had HIV. She is distressed by the diagnosis and fearful of disclosure, which compounds the stresses of her job, unstable housing, and caring for her two children, and has exacerbated her depression and post-traumatic stress disorder. While initiating antiretroviral therapy, how can the clinician best address her needs and deliver high quality care in a way that is gender-sensitive?*

INTRODUCTION

The specific health needs of women living with HIV have been overlooked throughout three decades of the HIV epidemic. The first cases of HIV, manifested as pneumocystis pneumonia and Kaposi's sarcoma in young men who have sex with men (MSM), were known as gay-related immune deficiency (GRID). HIV devastated communities of young gay men with high mortality rates, sparking outrage and community coalition-building that are still reflected in most representations of HIV in popular media. In June 1983, the Centers for Disease Control and Prevention (CDC) reported the first cases of women acquiring AIDS through heterosexual sex [1], but it was a more politically palatable focus on prevention of ma-

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†Abbreviations: HIV, human immunodeficiency virus; AIDS, acquired immunodeficiency syndrome; MSM, men who have sex with men; ART, antiretroviral therapy; PLH, people living with HIV; PrEP, pre-exposure prophylaxis; STI, sexually transmitted infections; IDU, injection drug use; PWIDs, people who inject drugs; IPV, intimate partner violence; IDSA, Infectious Disease Society of America; LARC, long-acting reproductive contraception.

Keywords: women, gender, HIV, treatment

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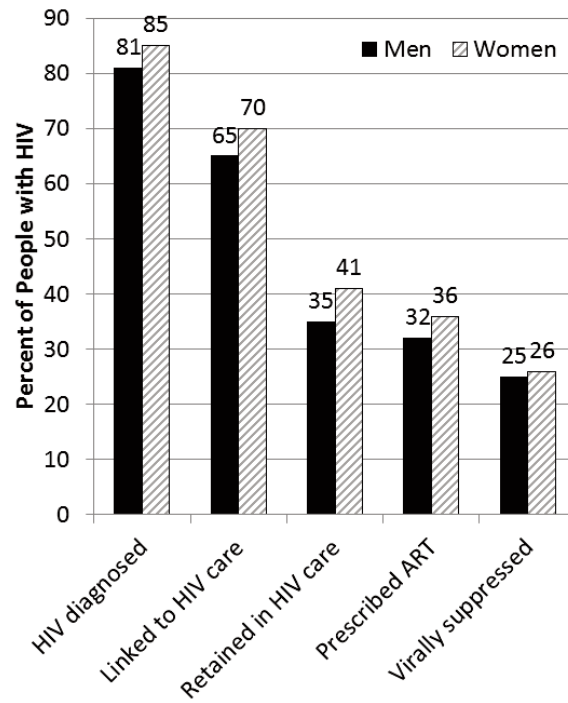


Figure 1. Gender Differences in the HIV Care Continuum for People Living with HIV in the United States (2012), Adapted from CDC Stages of Care [16]

ART=antiretroviral therapy

ternal to child transmission that rallied public cries about HIV in women. It was not until a decade later, in 1993, that the CDC recognized invasive cervical cancer as an AIDS-defining condition [2].

In the last several years, there has been growing attention to gender in HIV prevention and treatment. Women, especially women of color, now comprise a key target population for HIV diagnosis, treatment, and retention in care in the latest U.S. National HIV/AIDS Strategy [3], and the World Health Organization strategy [4]. The U.S. Health Resources and Services Administration (HRSA) has specific guidelines for the clinical care of women with HIV [5], and the International Association of Providers of AIDS Care (IAPAC) just released recommendations on how to optimally deliver gender-sensitive care and programming to facilitate the care continuum [6]. Research on these issues is rapidly expanding in parallel, from the enrollment of 2000 women in the landmark Women's Interagency HIV Cohort Study [7] and the Women's HIV Seroincidence Study [8], to a special issue of the *Journal of Acquired Immune Deficiency* (JAIDS) devoted to HIV prevention and treatment in women who use drugs [9]. A research pipeline is insured by newly announced NIH funding opportunities to develop HIV interventions for key populations, including women who use drugs and those who engage in transactional sex.

Despite these exciting developments, many clinicians and the latest U.S. HIV treatment guidelines still consider women worthy of special consideration mostly in terms of their childbearing potential [10]. While acknowledging some gender differences in adverse effects and pharma-

cokinetics of antiretroviral therapy (ART), the Infectious Disease Society of America (IDSA) clinical guidelines note no differences in indications for or goals of ART for women compared to any other people living with HIV (PLH) [10]. These recommendations reflect the promising "universal treatment" paradigm of the modern ART era. Nonetheless, there remain gender differences in HIV risk behaviors and engagement in a continuum of care, as depicted in Figure 1, which shows gender differences in key treatment outcomes among people living with HIV in the United States (2012) [11-17]. Gender disparities in care engagement are greatest among people who use drugs, veterans, and those in the criminal justice system [13,18]. Why are women, who are more likely than men to have HIV diagnosed and to subsequently engage in care, as unlikely as (or less likely than) men to achieve viral suppression? It may be that gender differences are due only in part to the biological basis of disease, and are also attributable to the sociocultural contexts that frame behavior. The goal of this comprehensive literature review was to explore gender differences in HIV epidemiology and contexts of risk that can guide the development of gender-responsive policies and programs of HIV care.

METHODS

As shown in Figure 2, we generated study questions in terms of the socioecological model [19] that supposes health behavior is determined by multilevel factors, including individual (e.g. anatomy, behaviors), interpersonal (e.g. intimate partnerships), community (e.g. neighbor-

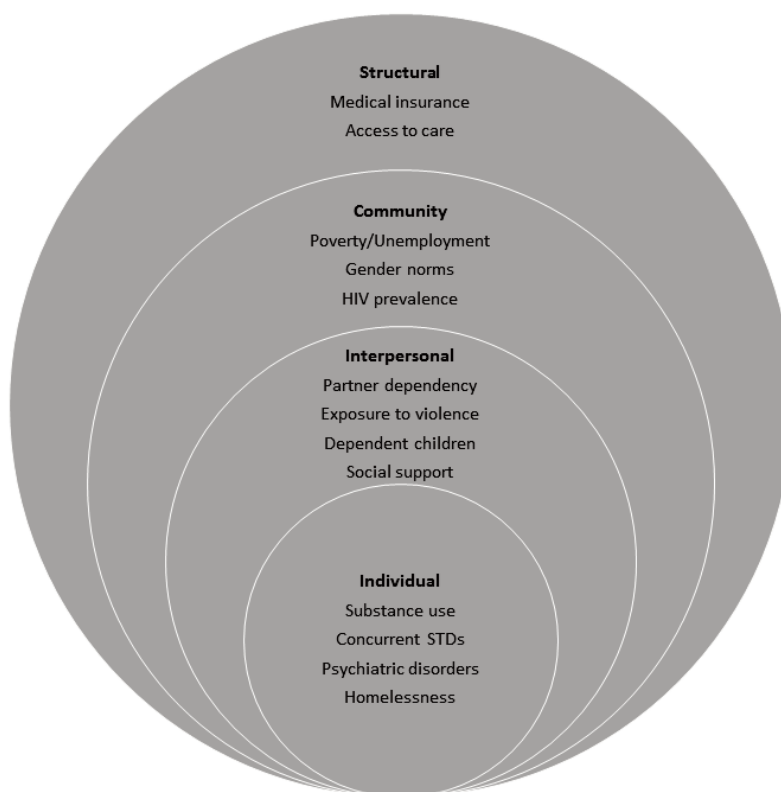


Figure 2. Multilevel Factors Affecting Women's HIV Risk and Treatment Outcomes

hood characteristics, resource availability), and structural factors (e.g. health insurance, laws). We also drew on syndemics theory [20], which proposes that multiple epidemics (e.g. HIV, substance use, psychiatric disorders), converge on certain populations and synergize to negatively affect health outcomes. We searched PubMed, Google Scholar, and EmBASE according to Institute of Medicine Guidelines [21], using the terms “women,” “sex,” “gender,” “disparities,” or “differences” AND “HIV” AND “risk,” “treatment,” “outcomes,” or “anti-retrovirals.” Further publications were identified in associated citations. Publications were included if they were in English with full text available and related to the U.S. context. In sum, several hundred abstracts and articles were reviewed, and over 100 articles were selected for inclusion and further discussion. This was not intended to be a critical appraisal of all published literature, but rather a comprehensive discussion of key issues related to gender in HIV care. Although there are clearly important gender differences in HIV clinical care in global and resource-limited settings, we chose to focus on the U.S. as a setting in which to inform policy changes that can be more feasibly implemented. Each author independently searched the published literature and described relevant findings, which were then synthesized.

We use the term “gender” to denote the experience of being biologically male or female. Although the term “sex” is more technically correct [22], we wanted to avoid confusing an identity with the behavior of intercourse, a distinction highly relevant to the HIV epidemic and con-

sistent with CDC surveillance definitions (www.cdc.gov/hiv/group/gender/index.html). In doing so, we limited this review to issues relevant to biological females who identify as women and have sex primarily with men or identify as heterosexual, and confirmed that the reviewed literature applied the definitions of sex and gender designated above. A discussion of HIV in transgender persons is timely but beyond our scope, and has recently been reviewed elsewhere [23,24].

We further focused our review on issues related to HIV risk, treatment, and engagement in care, as opposed to HIV prevention. Highly effective biomedical strategies for preventing HIV (e.g., pre-exposure prophylaxis; PrEP) are rapidly evolving. Prior to the advent of PrEP, the HIV biomedical prevention toolbox included few methods that were both effective at preventing HIV infection and controlled by women [25]. A female-controlled method is critical for women, especially those who are dependent on partners for basic subsistence needs, or have limited social capital to negotiate condoms [26]. PrEP empowers women and has effectively prevented HIV infection in randomized controlled trials of heterosexual serodiscordant couples, especially when combined with ART “treatment as prevention” for the HIV-infected partner [27-29]. Major barriers to effectiveness of oral or vaginal PrEP in women include suboptimal adherence and unfavorable pharmacokinetics in cervico-vaginal tissue [30-32]. Emerging data suggests long-acting formulations, including injectables and vaginal rings, may help overcome adherence issues [33]. Real-world implementation of PrEP

in high-risk women will need to address these factors along with risky behaviors that occur outside of monogamous partnerships. In the interim, PrEP is recommended by the CDC and World Health Organization (WHO) for women at high-risk of HIV acquisition based on sexual and drug use behaviors [34,35].

KEY GENDER DIFFERENCES IN HIV EPIDEMIOLOGY

While HIV prevalence in the U.S. has been higher among men since the beginning of the epidemic, the absolute number of women infected with HIV has increased drastically and they continue to comprise a sizeable proportion of PLH. In 2013, there were an estimated 223,041 women living with HIV, representing nearly a quarter of all PLH, and an estimated 9,278 new HIV cases among women in 2013, accounting for 20 percent of new cases [36]. While the proportion of women who comprise both the population of PLH and new HIV diagnoses has decreased over the last decade in the U.S., the absolute number of women living with HIV has increased by nearly 130,000 since 2004 and the number of incident cases among women has remained fairly constant with between 9,000 and 10,000 new infections every year [37]. There has also been a change in transmission patterns of HIV among women, with most cases early in the epidemic attributed to injection drug use. The mid-1990s transitioned to a sexually-driven epidemic [37], and today, 86.5 percent of new HIV cases in women are due to heterosexual transmission [36].

CONTEXTS OF RISK

Biological Factors Throughout the Lifecycle

Women's risk for HIV is determined, in part, by biological and anatomical factors. Historically, studies of serodiscordant couples found twice the risk of male-to-female HIV transmission per coital act, compared to female-to-male transmission, even after controlling for transactional sex [38]. Transmission of HIV from men to women is theoretically facilitated by interleukin-7, which enhances HIV viral replication *in vitro* in the semen of men with HIV [39]. More recent studies, however, have found per-coital transmission probability is dependent on whether the HIV-infected partner, regardless of gender, has a concurrent sexually transmitted infection (STI) [40]. STIs increase both the susceptibility to and infectiousness of HIV by disrupting genital mucosa to create a point of entry, altering local immune responses, shifting the microbiome of the genital tract, and enhancing HIV viral replication [41,42]. Risk of STI transmission per coital act is determined by the virulence of the infecting organism. Though prevalence of STIs (e.g., syphilis, chlamydia, gonorrhea) is highest among MSM and rising, women experience highest morbidity from the sequelae of undiagnosed

or untreated STIs, including infertility and pelvic inflammatory disease [43]. It has been hotly debated whether intravaginal practices like douching or "dry sex" are temporally associated with HIV incidence, but the association appears to be mediated by concurrent infection with bacterial vaginosis [44-46].

Conditions other than STIs also affect the vaginal microenvironment throughout the lifespan to increase women's susceptibility to HIV infection. Menstruation not only disrupts cervico-vaginal anatomic barriers, but also alters hormonally controlled local immunity to create a "window of vulnerability" to HIV [47]. Among women over the age of 50, age-related thinning and dryness of vaginal tissue may also increase the risk of HIV acquisition if exposed. Furthermore, in this older age group, anti-HIV-1 activity is relatively reduced in vaginal fluid, and there are more susceptible CD4+ T-cells with upregulated CCR5 expression found in the endometrium [48,49]. In sum, local host responses during the postmenopausal period facilitate HIV entry into and infection of CD4+ T-cells. This, in combination with sociocultural and behavioral factors, likely contributes to the rising incidence of HIV among aging populations of women, who might not otherwise be considered at risk.

Sociocultural Factors

HIV disproportionately impacts women based on a number of socio-demographic factors. For instance, women of color comprise about one-third of the U.S. population but accounted for nearly 83 percent of all women living with HIV at the end of 2012 [36]. There are also strong geographic trends in HIV among women, with cases concentrated in urban centers and the largest proportion of infections occurring in the South [36,50]. In addition to individual biological factors, these trends point to structural and social factors that influence HIV susceptibility, such as regional differences in sex education policies, diminished infrastructure and support to provide screening and prevention services, and sociocultural variation in the expectations of women [51]. For instance, perceptions that women should remain chaste may be reinforced both by social affiliations and sexual health knowledge, which are impacted by a confluence of culture and regional policies. Repressive views of sexuality may also influence availability of comprehensive services for women, women's willingness to seek care, or women's disclosure of sexual behaviors to their partners or providers.

Additionally, women are disproportionately impacted by HIV based on sociocultural factors, such as culture, neighborhood, and social and sexual networks [51]. Cultural affiliation affects women's roles in relationships, beliefs in sexual taboos, and social structure that contribute to HIV susceptibility by influencing knowledge and practice of harm reduction strategies, access to HIV services, and social support for prevention, treatment, and care [52]. Neighborhood-level factors include a mix of social, cul-

tural, economic, and geographic factors that impact both physical and social relations. Social and sexual networks are largely determined by neighborhood and culture. Disparities in HIV prevalence by neighborhood or segregated group increase a woman's risk of exposure to HIV risk because of sexual mixing patterns within a network (e.g. concurrent partnerships) and increased HIV prevalence within certain networks [53,54]. For instance, women without high risk behaviors may still be at increased risk for HIV when their sexual networks include men who do engage in high risk behaviors, such as concurrent sexual partnerships and sex while intoxicated [55]. In many communities of color, high rates of incarceration among young men has created a sex ratio imbalance that promotes sexual concurrency among men and secondarily increases women's HIV risk.

Behavioral and Interpersonal Factors

Although the major risk factor for HIV in women is having sex with a man, HIV in women is often directly or indirectly related to substance use, including injection drug use (IDU) [56]. HIV risk is amplified for women who use drugs, because of high rates of sexual risk-taking, including transactional sex, in the setting of substance-induced disinhibition or factors attendant to a lifestyle centered on procuring drugs [57]. Women comprise one-third of people who inject drugs (PWIDs) and often experience stigma and discrimination [58], both because of their drug use and their gender [59].

Women's drug use is often driven by and embedded within social relationships, wherein specific patterns of IDU among women pose exceptional risk for HIV. Women are more likely than men to begin injecting at a younger age, be introduced to injecting by male sexual partners or female friends, and to have used other illicit drugs for less time before first injecting [60-62]. Because female PWIDs often depend on others to acquire drugs, and because they use drugs in dyads, they are more likely to be injected by someone else and to have ever shared needles or other drug paraphernalia [61-64]. When women are "second on the needle" they experience increased exposure to HIV and viral hepatitis [61,63]. Dependency on others to obtain, prepare, and use drugs perpetuates a power imbalance within relationships in which women may have limited autonomy to modify behaviors or negotiate condoms [59]. They may also be forced to rely on sexual bartering for drugs or "survival sex," further potentiating HIV risk. In this role, women often experience sexual and physical intimate partner violence (IPV), the prevalence of which is three times higher in drug-involved women than in women who do not use drugs [65,66]. Among female PWIDs, IPV is an independent risk factor for HIV exposure and acquisition.

Drug-dependent women are doubly at risk for HIV because of overlapping sexual and drug networks [67]. While some drug-involved women inject with their sexual partners, others do not inject drugs but have high-risk sex-

ual partners who do. Heterosexual IDU sex partnerships are associated with condomless sex, heavy crack use, incarceration, and poverty, each of which independently contribute to HIV risk [68,69]. Highly prevalent co-morbid conditions, such as psychiatric disorders and STIs, also increase susceptibility to HIV [54,70].

STRUCTURAL BARRIERS TO WOMEN'S CARE ENGAGEMENT

Structural health disparities arise as the result of political, economic, legal, and societal contributors to racism, discrimination, and gender inequity [51,71]. While many health disparities are not gender-specific (e.g., those related to race, substance use behaviors, geographic region, etc.), these factors can interact with gender to create intersectional stigma and cumulatively negatively impact health outcomes [72]. For women, structural disparities relate to differential access to prevention, testing, and treatment services. For example, policies that limit comprehensive sexual education reduce women's knowledge about HIV, thus increasing high-risk behaviors and risk of HIV acquisition [54,73,74]. Economic factors drive HIV susceptibility as women living in poverty, particularly female-headed households that represent a disproportionately high proportion of those living below the poverty line, often face barriers to receiving HIV services due to lack of employment options, health insurance access, or financial constraints to receiving care [75,76]. This may be exacerbated by cultural expectations that women are solely responsible for childcare, have limited autonomy, or lack control of financial resources, hampering their health-care seeking capacity [77]. Discrimination based on race, gender, or stigmatized behaviors can also compound barriers to access and worsen health outcomes [78].

Poverty and a lack of adequate healthcare insurance are critical barriers to care engagement experienced by women with HIV. Relative to men, women with HIV are more likely to be poor: 64 percent of women living with HIV and receiving medical care report annual incomes below \$10,000, compared to 41 percent of men [79]. Moreover, more than 10 percent of women with HIV report having missed care because of conflicting basic subsistence needs, and 7 percent of women report having gone without food to pay for life-saving HIV treatment [80].

Women living with HIV are less likely to be privately insured than men, but more likely to be on Medicaid (61 percent of women vs 39 percent of men) [79]. The Affordable Care Act (ACA) will optimally improve access to care for women living with HIV, though it is too early to assess the magnitude of the effect. Beginning in 2014, insurers can no longer deny coverage based on pre-existing conditions or impose annual or lifetime caps on insurance benefits. Medicaid eligibility can be expanded to include all individuals with income below 138 percent of the Federal poverty line, regardless of disability status and in-

cluding single adults without children. Medicaid expansion, however, is optional and state-based. To date, approximately half of all U.S. states have adopted the new eligibility criteria. In states that have not, the Ryan White HIV/AIDS Program will continue to serve as an important safety net [81].

ACKNOWLEDGING GENDER IN CLINICAL CARE

A Holistic Approach to Women's Health

HIV primary care guidelines have multiplied, providing guidance on topics such as the diagnosis and management of dyslipidemia [82], decreased bone mineral density [83], and cervical cancer screening [84]. IDSA published a comprehensive guide to HIV primary care, addressing both HIV-specific and general primary care concerns for PLH [85]. These guidelines include a dedicated section on special considerations for the clinical care of women with HIV, including contraception, breast and cervical cancer screening, and prevention of mother-to-child transmission. As is typical of most clinical guidelines, however, those for HIV-infected individuals consider disease management in terms of the management of individual conditions and fail to take a more holistic approach to women's health. This approach may result in polypharmacy that negatively impacts morbidity and mortality, and may result in treatments that may help one condition while aggravating another. It also means excluding conditions, like anemia, that are more prevalent in women, particularly those with HIV. While multimorbidity is common among aging PLH [86], multimorbidity in the general population is more common among women than men [87]. A more integrated rather than disease-specific approach to care of HIV-infected individuals, particularly women, is thus warranted. Practically speaking in terms of implementation, integrated, holistic, and patient-centered care can be achieved when a single provider or co-located providers manage all of a patient's issues or when care is delivered by an interdisciplinary team.

Comprehensive preventive HIV care for women, including the woman described in the earlier clinical vignette, includes screening for and immunizing against the same conditions as one would for a man with HIV (e.g., annual testing for latent tuberculosis and proteinuria and vaccinations against Hepatitis B, pneumococcus, influenza, and others). It also means screening for and immunizing against the same conditions as one would for any woman (e.g., mammography for breast cancer, annual lipid panels for those at risk of coronary artery disease, and others) [5]. Some preventive care should be approached more aggressively for women with HIV compared to other women of similar age. For example, given the high prevalence of comorbid HIV and high-risk human papilloma virus (HPV) with cervical intraepithelial neo-

plasia (CIN), women with HIV are expected to have more frequent screening for cervical cancer (i.e. with cytology and HPV testing), with a lower threshold for management of cellular atypia with colposcopy [88].

To attend to the specific health needs of women in HIV care, one need not only consider the conditions mentioned above, but also psychiatric and social comorbidities that are highly prevalent in women with HIV and may complicate care delivery. Women are disproportionately impacted by syndemics of HIV, substance use, and psychiatric disorders that converge and have a super-additive negative effect on health outcomes [89,90]. It is thus critical to, at a minimum, screen for depression and substance use in women, briefly intervene, and refer out for care or integrate management into HIV primary care (known as SBIRT). Indications for and guidelines on treatment of substance use disorders is the same in women and men, including PLH, but data is sparse on addiction treatment during pregnancy, in part because it is so highly stigmatized.

Comprehensive care for women with HIV also means screening for IPV exposure. While a staggering 36 percent of adult U.S. women report experiencing lifetime physical or sexual assault, mostly by intimate partners [91], up to 73 percent of female commercial sex workers with HIV report experiencing ongoing partner violence [66]. Though IPV does not appear overall to be more common among women with, as opposed to without HIV, IPV is associated with housing instability and substance use that are more common in women with HIV. IPV can negatively affect every aspect of women's engagement in HIV care (from diagnosis to viral suppression). Recommendations to routinely screen for IPV and deliver HIV care in trauma-informed ways are thus core recommendations in the U.S. National HIV Strategy that has been adopted by the CDC [92-94].

Postmenopausal women deserve particular attention in the discussion on HIV care delivery. More than 50 percent of PLH in the United States are more than 50 years of age thanks to improved healthcare outcomes with current ART regimens [95]. In the current treatment era, non-AIDS-associated conditions such as cardiovascular disease [96,97], malignancies [98], and metabolic complications [99] drive morbidity and mortality among PLH [100]. Among aging women with HIV, it is therefore particularly important to deliver care holistically.

Pregnancy Prevention

As women live longer with HIV, planning, spacing, and preventing pregnancies have emerged as key aspects of optimal health care delivery. While there was initial concern that the use of hormonal contraception might cause more rapid HIV disease progression, a number of studies suggest that this is not the case, particularly in women who use ART [101-103]. A concern that has been less well explored is the efficacy of hormonal contracep-

tives at preventing pregnancy when used in conjunction with ART. Extensive research has explored pharmacokinetic interactions between ART and hormonal contraception. These interactions are complex and depend on the ART used, the specific contraceptive hormones involved, and the mode of delivery of these hormones. For example, efavirenz appears to interact with most hormonal contraceptives. It does not seem to alter the pharmacokinetics of ethinyl estradiol, but it does consistently decrease the bioavailability and half-life of co-administered progestins, with the exception of depot medroxyprogesterone acetate (DMPA). Lopinavir/ritonavir decreases systemic levels of ethinyl estradiol when the contraceptive is administered in oral or patch formulations. It also decreases pharmacokinetic parameters of oral norethindrone but increases serum concentrations of most progestins when administered in patch formulation. Less is known about interactions between oral contraceptives and integrase inhibitors, which are core components of first-line ART. There is limited data on the use of long acting reversible contraceptives (LARC), like intrauterine devices (IUDs), for pregnancy prevention in women with HIV, though LARC is recommended by the Academy of Obstetricians and Gynecologists as first-line pregnancy prevention strategies for women of reproductive age [104].

There is also sparse data on whether pharmacokinetic interactions between hormonal contraceptives and ART affect pregnancy outcomes. A handful of case studies suggest that co-administration of efavirenz and the single rod implant that contains etonogestrel may result in pregnancy [105-107]. Other studies have explored the association between changes in pharmacokinetic parameters and ovulation, but as contraceptives work through a number of mechanisms to prevent pregnancy, in addition to preventing ovulation, these studies do not provide the information necessary for management. One recent study suggests the association between injectable contraceptives and pregnancy among women with HIV may be mediated by under-utilization (but over-reported use) of condoms [108]. Unfortunately, there are no quality, longitudinal studies that include pregnancy as an outcome, to sufficiently guide providers and HIV-infected women when considering contraceptive options [109].

Pregnancy Planning

Most clinical guidance on women with HIV focuses on pregnancy prevention more than pregnancy planning. This represents a serious gap, since 86 percent of PLH are of reproductive age and at least one-third express the desire to have biological children [110]. There are an estimated 140,000 HIV-serodiscordant heterosexual couples in the United States, about half of whom want children [111]. Perinatal guidelines recommend best practices for preconception counseling includes treatment of STIs in women and their partners, folate supplementation, supported cessation of substance use, completion of vaccina-

tions, screening for hepatitis C, and semen analysis of the HIV+ male partner to assess sperm motility [112].

Until recently, women with HIV desiring pregnancy were encouraged to consider adoption or assisted reproduction and avoid condomless sex with the attendant potential for HIV transmission between serodiscordant couples and from mother to fetus [113]. Assisted reproductive techniques included artificial insemination during the peri-ovulatory period from an HIV-uninfected partner or donor, sperm washing with intrauterine insemination, or limiting unprotected intercourse to the peri-ovulatory period [113]. Availability of these options was extremely limited in the U.S. because of cost, variable efficacy at generating pregnancies, and legal, ethical, and safety concerns about potential HIV transmission [114,115]. Fortunately, emerging data suggests women with HIV or in serodiscordant relationships can safely plan for and become pregnant through condomless sex restricted to timed ovulation with ART [111]. PrEP effectively prevented HIV infection in randomized controlled trials of heterosexual serodiscordant couples, especially when combined with ART “treatment as prevention” for the HIV-infected partner [27-29]. Data from the Partners PrEP study supports the safety of PrEP in terms of pregnancy outcomes [116]. The intrapartum and postpartum management of women with HIV is beyond the scope of this review and detailed elsewhere [112]. For the treating clinician, it is imperative to counsel women with HIV on pregnancy planning or prevention and be aware of existing options to effectively address women’s concerns. To preach abstinence to women with HIV (as some providers still do), is not only ineffective and likely unrealistic, but may further stigmatize women and deter them from care engagement.

DISCUSSION

Based on the social, biological, behavioral and interpersonal factors presented, we conclude here with a number of policy recommendations to ensure the comprehensive care of women inclusive of HIV prevention, treatment, and care. These can be divided into recommendations for clinical care, community prevention, and integrated approaches. Whereas integrated interventions to facilitate the HIV care continuum for all PLH have been reviewed elsewhere, we focused specifically here on gender-related HIV care issues [117]. A compendium of evidence-based HIV interventions is available online (www.effectiveinterventions.cdc.gov), including those broadly applicable to all PLH and those more specifically targeted to groups based on race, ethnicity, gender, or sexual identity. Certainly, a combination of interventions is needed to meaningfully facilitate HIV care entry and engagement.

CLINICAL CARE RECOMMENDATIONS

- Prioritize gender-sensitive care across the HIV care continuum by training providers and clinical staff on gender-related priorities in care, increasing the number of women as healthcare providers and staff, and offering comprehensive clinical services tailored for women;
- Incorporate screening for physical, emotional, and sexual violence exposure for women across the HIV care continuum;
- Consider women's other medication needs, such as contraception, when prescribing ART and monitoring its effectiveness.

COMMUNITY PREVENTION RECOMMENDATIONS

- Offer culturally competent, comprehensive public health campaigns for sexual education, HIV prevention, and social support among PLH;
- Include women living with HIV in discussions of pregnancy and family planning, acknowledging their reproductive rights and options in a non-discriminatory manner.

INTEGRATED APPROACH RECOMMENDATIONS

- Address the social and structural barriers to HIV testing, treatment, and care through programming to assist in enrolling in health insurance programs that encourage preventive services and offset the cost of medical care;
- Provide community-based HIV testing and offer a coordinated support system of linkage to care for women living with HIV and community support services.

CONCLUSION

In this review of gender-specific issues in HIV treatment and care, we addressed the ways in which biological, sociocultural, and behavioral factors collectively contribute to gender differences in HIV epidemiology. For women living with HIV, we evaluated structural barriers to healthcare access and engagement, including those related to socioeconomic status and under-insurance, and suggested a holistic approach to women's health that includes pregnancy prevention or planning. Future research should examine the ways in which the dynamic healthcare landscape, influenced by the Affordable Care Act, affects healthcare delivery for women with HIV and gender differences in HIV treatment outcomes. Perhaps most pressing, future policy must insure women's access to developing biomedical technologies that effectively prevent HIV altogether.

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