Preconception Care in HIV-Positive Women
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Abstract
The human immunodeficiency virus (HIV) epidemic has transformed from a death sentence to a chronic illness. With advancement in antiretroviral therapy, HIV-positive patients are living longer and healthier lives. Recent studies have shown that HIV-positive women have similar fertility desires and intentions as their HIV-negative cohorts. Vertical and horizontal transmission has decreased in the past decade due to safe sexual practices and development of more potent antiretroviral therapy. HIV-positive fertility desires can be met through a strong physician-patient partnership including discussions of contraception, preconception counseling, safe sexual practices, social needs, and psychological needs of every HIV-positive woman. This paper is a review of research outlining the importance of discussion about fertility desires through preconception counseling, antepartum care, and postpartum care for HIV-positive women.

Introduction
HIV infections cause a state of chronic immunosuppression through the depletion of CD4 T-cells. HIV was first recognized in the United States in the 1980’s. It was primarily thought of as an illness that affected men, specifically homosexual men, and to a reduced degree intravenous drug users and people who received blood transfusions. Thus, a stigma was placed on HIV. The incidence of HIV in homosexual men from 1978 to 1999 was 5 to 20 per 100 person years [1]. Men who have sex with men resume the highest incidence of HIV; however, the demographics of HIV incidence shifted since the early 1990’s. Based on HIV Surveillance Report published by Centers for Disease Control and Prevention (CDC), the incidence of HIV was estimated as 47,500 new cases in 2010 [2]. Twenty-five percent of these new cases transpired via heterosexual transmission and women represented twenty percent of these cases [2]. Due to this transition, it is important to review the impact HIV has on heterosexual couples, women, and reproduction and fertility. In 1989, the Journal of American Medical Association published the first peer-reviewed article based on HIV-positive intravenous drug users and HIV-negative intravenous drug users and how HIV status influenced the decision on whether or not to terminate a pregnancy [1,3]. Selwyn et al. concluded there was not a significant discordance based on HIV status to explain reproductive management and it was necessary to investigate social and environmental factors such as family support and pressure, relationship status, and religious beliefs [1,3].

In the 1980’s, HIV transmission rate from mother-to-child in the United States was 15% to 30% [1]. It was estimated that 24,600 children and 21,000 adolescents would be orphaned due to maternal mortality related to HIV [1]. Thus leading the CDC to recommend against pregnancy in HIV-positive women and further stigmatizing reproduction and family planning among HIV-positive females [1]. The stigma surrounding HIV-positive women discussing family planning lead to women and providers not communicating about fertility. Lack of preconception communication further produced a problem. In 2006, 49% of all pregnancies in the United States were unintended [4]. Further emphasizing the importance that providers must communicate with their HIV-positive patients on reproductive planning and preconception counseling in order to meet the patient’s needs and prevent horizontal transmission to their partner and vertical transmission to their child.

Approximately 26,700 newly infected HIV individuals were in the reproductive years (ages 13-34) in 2010 [2]. The advancement in antiretroviral therapy (ART) has contributed to a drastic decrease in mother-to-child and woman-to-partner transmission of HIV. Specifically, the risk of mother-to-child
transmission has decreased to 2% with appropriate medical therapy and infant feeding habits. [1]. As a result of zidovudine and other ART, the rate of HIV transmission to child has declined from 1,650 infected infants in 1991 to merely 42 infected infants in 2004 [1]. Patients treated with ART are living healthier and longer lives, thus living long past their reproductive years. Traditionally, the stigma of HIV status has largely caused physicians to ignore the desires for family planning and reproduction in HIV-positive individuals. Patient-provider communication remains limited. It is important to provide HIV-positive patients preconception counseling to further decrease transmission rates and address the needs of the patient throughout each stage of reproductive life. The CDC and American College of Obstetrics and Gynecology (ACOG) recommend preconception counseling to all women of reproductive age.

This paper will review the desires and intentions of pregnancy in HIV-positive women, providers’ misconceptions and lack of prenatal counseling, and summarize United States Preventive Health Service guidelines to better enhance prenatal counseling and patient-provider communication about maximizing safety in HIV-positive childbearing.

Desires and Intentions of Pregnancy in HIV-positive women

Prescriptions, Intent, and Communication with Provider: As HIV-positive women live longer and healthier lives into their reproductive years, many express an interest in childbearing or face the consequences of an unintended pregnancy. Seventy percent of HIV-positive women are sexually active [5]. Several studies have estimated that 25 to 30% of HIV-positive women express a desire to bear children. The majority of these women have not discussed fertility desires with their physician. One study demonstrated that even in countries with advanced HIV care, America and Brazil, there was inadequate communication between providers (HIV specialist, obstetrician and gynecologist and primary care physician) and HIV-positive patients about childbearing [6]. This study inquired about desire of pregnancy and future children, intent of pregnancy, and preconception communication with providers. Among women in Brazil and the United States, 36% and 55% had the desire to have children, respectively. Sixteen percent of Brazilian HIV-positive women in the study had the actual intent of becoming pregnant in contrast to 42% of American HIV-positive women in the study. Among all women sampled, agreement that it was acceptable for HIV-positive women to have children was significantly associated with both desire and intention to reproduce [6]. This study also concluded that provider communication most likely occurred among women who were younger, white, and currently in a relationship, indicating that even countries with advanced HIV care exhibit discrepancy in prenatal communication and counseling [6]. Another study in Los Angeles County, California demonstrated similar results with approximately 39% of HIV-positive men and women desiring to reproduce, but 66% of those individuals have not had a discussion with their providers [7].

Preconception Care: Regardless of HIV status all women deserve preconception counseling and prenatal care. Preconception care should not just stop at one single conversation as a woman’s desires may change over time. Preconception counseling should be a routine care item integrated into the primary care needs of women during every visit.

Contraception options and the importance of preventing transmission of HIV and other sexually transmitted infections should be discussed. HIV-infected women should use a safe and reliable means of contraception until ready to reproduce [5]. Recent data has shown that ART may improve fertility; therefore, HIV-positive women not wanting to conceive should receive effective contraception [10]. The most frequently requested characteristics of different types of contraception are ease of use, efficacy at preventing pregnancy, and low risk of side effects. [9]. It is important to discuss barrier protection such
as male and female condoms with HIV-infected women to decrease horizontal transmission to their partner or to prevent a super-infection from infected partners. Male condoms reduce the risk of HIV transmission by approximately 80% to 90% [5]. However, male condoms have a failure rate of approximately 10%, thus making it important to address other forms of contraception with HIV-positive women. For HIV-positive women not wanting to conceive, two forms of contraception are recommended: one barrier option to decrease transmission to partner and a second option such as hormonal contraception, sterilization, or intrauterine device (IUD) to decrease risk of pregnancy. One study noted that HIV-positive women most commonly use sterilization techniques as a second form of contraception but with high regret rates, emphasizing the importance to discuss reversible options [9].

*Methods of Safer Conception:* Components of HIV-specific preconception care have been outlined by the United States Public Health Service and reproduced in Table 1 with permission from Aaron et al [5].

<table>
<thead>
<tr>
<th>Table 1: Steps for integrating Preconception Care and HIV Testing into a Comprehensive Reproductive Health Care Model [5].</th>
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<tr>
<td>• Provide continuous preconception counseling for women of reproductive age: ask about pregnancy intention. Every woman, every visit.</td>
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<tr>
<td>• Provide family planning services integrated in HIV clinics.</td>
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<tr>
<td>• Provide rapid HIV testing of patients and their partners in obstetrics and gynecology clinics.</td>
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<tr>
<td>• Provide preconception education, evaluation, and risk assessment prior to pregnancy attempts.</td>
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<tr>
<td>• Provide integrated obstetrics and HIV services for HIV-infected pregnant women.</td>
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<tr>
<td>• Provide on-site case management, peer educators, and psychological services integrated into prenatal care.</td>
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<tr>
<td>• Provide state-of-the-art medical care to every woman.</td>
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<tr>
<td>• Provide rapid HIV testing in hospital delivery rooms for all unregistered or untested pregnant women.</td>
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<tr>
<td>• Provide linkages to HIV care for HIV-infected women and children by collaborating with pediatric services and family-centered clinics.</td>
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Other than preconception counseling and prenatal care, there are other methods that can help decrease horizontal transmission to the partner including ART, male circumcision, timed unprotected intercourse, preconception pre-exposure prophylaxis (PrEP) and vaginal insemination [11]. Each will be discussed below.

*ART.* Before attempting conception the HIV-positive female should be on ART to decrease serum viral load and reduce the risk of horizontal transmission. ART does not guarantee a decreased load in the genital tract; however studies have shown that a HIV-infected partner started on ART before conception was associated with a 96% relative reduction of HIV transmission to the HIV-negative partner [11]. If a provider communicates with HIV-positive patients and becomes aware that a HIV-positive individual is trying to conceive, then the patient can start ART and practically eliminate horizontal spread.

*Male Circumcision.* The foreskin of the penis allows for an entry site of HIV on the penis, thus removing the foreskin decreases the horizontal transmission rate between serodiscordant partners, specifically HIV-positive female/HIV-negative male. One study showed that given time for appropriate healing after a circumcision, transmission rates could be reduced 38% to 66% over a two-year period [11].
**Time Unprotected Intercourse and Preconception Pre-exposure Prophylaxis (PrEP).** Abstinence and barrier methods of contraception are the most suitable methods to decrease horizontal transmission. However, these methods also make it unlikely for a couple to become pregnant. Thus unprotected intercourse must occur during a female’s fertile period in her menstrual cycle. There are several methods that can be used to determine the time of maximum fertility within a cycle including basal body temperature monitoring, urine LH hormone prediction kits, changes in cervical mucus, calendar monitoring of cycle, and a combination of any of the above. Once the time of ovulation is known, the couple should have unprotected sex. This limits the HIV-negative partners exposure to the virus in the HIV-positive genital secretions. Several studies in Spain and France showed a 0-4% transmission rate based on the combination of timed unprotected intercourse and the ART [11]. These studies also showed that the only time HIV was transmitted to the HIV-negative partner was during times of unprotected sex outside of the fertile window [11]. The combination of ART and timed unprotected intercourse seemed to show decreased risk. In order to further decrease the risk of horizontal transmission, the United States Food and Drug Administration approved Truvada as a daily prophylaxis for the HIV-negative partner in a serodiscordant couple [11]. A study in Switzerland proved the efficacy of PrEP by demonstrating no HIV transmission when coupled with timed unprotected intercourse [11].

**Vaginal Insemination.** Vaginal insemination is the simplest and safest method of trying to conceive between an HIV-positive female and a HIV-negative male, especially when paired with male condom use. During the fertile period, patients use a spermicide free condom during intercourse. Immediately after ejaculation, the semen is collected from a water-based lubricated condom or a clean container into a plastic needless syringe [11]. The female or male can insert the syringe high into the vagina and insert the semen content onto the cervix. The female must lie down for thirty minutes after insemination [11]. This method eliminates the risky behavior of unprotected sex, thus decreasing horizontal transmission rate.

**Antepartum Care and Postpartum Care:** Other than the standard obstetrical care during this time period, it is also an important time to prevent vertical transmission to the baby. With the use of antiretrovirals, specifically zidovudine, the risk of mother-to-child transmission has reduced to 2% [5]. Most antiretrovirals have not been shown to have teratogenic affects on the fetus. Additionally, due to the negative risk HIV has on the pregnancy and fetus, the benefits of ART outweigh the risk of HIV [5]. The United States Preventive Health Service recommends that ART should be initiated during the second trimester if the patient was not previously receiving ART before conception [5]. The CDC recommends a Cesarean section if the viral load is greater than 1,000 copies per milliliter of serum to decrease transmission to baby during labor and delivery [8]. To reduce postpartum transmission to child, the CDC recommends against breast-feeding.

**Provider Misconceptions**

Even with advancement in medical therapy such as ART, providers still find it challenging to give prenatal care to women with HIV-positive status. One study in Los Angeles County, California had 8 physicians participate in focus groups discussing “provider knowledge related to HIV and reproductive health, client needs, and resource; provider attitudes related to HIV clients’ desires to have children and experience of non-HIV provider attitudes toward HIV-infected clients; provider needs related to availability of services, training, and knowledge regarding reproduction in the context of HIV [7].” Providers noted that it was challenging to provide safe preconception and intrapartum conception services in areas where resources were scarce, when clients could not afford specialist services (specifically reproductive endocrinologist), and in the absence of national, state, or country guidelines [7]. Providers were also concerned with potential legal liability [7]. However, ACOG and the CDC
recommend all women of reproductive age receive equal opportunity to preconception counseling and routine prenatal medical care [5], thus showing inconsistency in the physicians’ hesitancy toward care and concerns of official guidelines from the Los Angeles study.

Since providers are unsure how to approach the topic and afraid of legality issues, the chance of a missed opportunity to prevent perinatal HIV transmission is further increased. The CDC reported that in 2003-2007 only 62% of HIV-positive women had at least one prenatal visit, 27% were diagnosed with HIV after delivery, and only 29% received some ART medication during pregnancy [8]. If physicians’ use guidelines released by preventative health service organizations and take the initiative to talk to HIV-positive women on an individual basis about preconception desire and options, further transmission could be decreased.

Discussion
The advancement of HIV care has allowed for a transformation in the HIV epidemic. Men and women now live healthier and longer lives, with the majority living into the reproductive years. Although the stigma of HIV shadowed the desires of parenthood in HIV-positive women a decade ago, research has shown that HIV-positive status does not change the desire to bear children. Vertical and horizontal transmission of HIV has significantly decreased in the past decade due to advancement in antiretroviral therapy and safe sexual practices. With preconception and postpartum care guidelines, physicians can approach HIV-positive women and help be proactive in this patient population’s reproductive health care needs. This physician-patient partnership will help decrease transmission and address HIV-positive women’s health needs, social needs, and psychological needs. For further research, a set of guidelines for preconception and post partum care should be outlined and implemented.
References

3. Selwyn PA, Carter RJ, Schoenbaum EE, Robertson VJ, Klein RS, Rogers MF, Knowledge of HIV antibody status and decisions to continue or terminate pregnancy among intravenous drug users. JAMA. 1989; 261(24): 3567-3571