



Published in final edited form as:

*Curr Opin HIV AIDS*. 2013 September ; 8(5): 490–497. doi:10.1097/COH.0b013e3283632bd7.

## The role of family planning in elimination of new pediatric HIV infection

**Rose Wilcher, M.P.H. [Technical Advisor]**

FHI 360, Durham, NC, USA

**Tricia Petruney, M.A. [Senior Technical Officer]**

FHI 360, Durham, NC, USA

**Willard Cates Jr, M.D., M.P.H. [Distinguished Scientist]**

FHI 360, Durham, NC, USA

### Abstract

**Purpose of review**—We reviewed recent literature on the role of family planning in eliminating new pediatric HIV infections.

**Recent findings**—Global commitments to eliminate new pediatric HIV infections recognize that preventing unintended pregnancies among women with HIV is essential to achieving this goal. However, substantial shortcomings exist in translating this policy support into widespread practice. Programs to prevent mother-to-child transmission of HIV continue to be implemented and evaluated as a narrow set of interventions that typically begins in antenatal care, after a woman is already pregnant. In addition, data suggest that women living with HIV experience high rates of unmet need for family planning and unintended pregnancies. Evidence is growing that integrating family planning and HIV services is an effective strategy for increasing access to contraception among women with HIV who do not wish to become pregnant. A number of health systems obstacles must be resolved to achieve effective, sustained delivery of integrated services at scale.

**Summary**—Prevention of unintended pregnancies among women with HIV must be elevated as a programmatic priority. By strengthening family planning programs for all women, and better integrating family planning and HIV services, progress toward ending new pediatric HIV infections will be accelerated.

### Keywords

contraception; family planning; pediatric HIV; PMTCT; integration

### Introduction

Voluntary family planning to enable women and couples to determine the timing and spacing of their pregnancies has long been recognized as a basic human right. Over time,

evidence has grown demonstrating the contributions family planning can make to global health and development, including achievement of the Millennium Development Goals [1]. In 2012, the groundbreaking London Summit on Family Planning galvanized support for the far-reaching benefits of family planning, leading funders, government leaders and other partners to commit to expanding access to contraception and rights-based family planning services to an additional 120 million women and girls.

For women and couples living with HIV who do not wish to become pregnant, family planning offers the added benefit of helping prevent mother-to-child transmission of HIV (PMTCT) [2]. In 2003, the World Health Organization and its partners conceptualized a comprehensive framework for PMTCT consisting of the following core elements:

- Element 1: Primary prevention of HIV among women of childbearing age
- Element 2: Prevention of unintended pregnancies among women living with HIV
- Element 3: Prevention of transmission from HIV-infected women to their infants
- Element 4: Provision of treatment, care and support to HIV-infected women and their children and families

Ten years later, this four-element strategy continues to provide the foundation for current global commitments to eliminate new pediatric HIV infection. These include the Global Plan Towards the Elimination of New HIV Infections Among Children By 2015 and Keeping Their Mothers Alive and *PEPFAR Blueprint: Creating an AIDS-free Generation*. The centrality of family planning to MTCT elimination is clearly articulated in both of these commitments.

Though not widely recognized, analyses have demonstrated that current use of family planning by HIV-infected women not wishing to conceive already contributes substantially to the prevention of new pediatric HIV infections [3, 4]. To assess recent developments in this area, we reviewed relevant literature with an eye toward understanding: (1) the extent to which family planning is implemented and measured as part of PMTCT programs; (2) advances in reducing unintended pregnancies and unmet need for family planning among women living with HIV; (3) contraceptive methods that are safe and appropriate for women living with HIV; and (4) new evidence-based programmatic approaches for meeting the contraceptive needs of women living with HIV.

## The Disconnect between Policy and Practice

Globally, nationally, regionally, and at facility level, PMTCT programs continue to be conceptualized, implemented and evaluated as a series of element 3 interventions often referred to as the “PMTCT cascade.” Recent evaluations of PMTCT programs in Malawi, Ethiopia, Kenya, Angola, South Africa, and the Dominican Republic confirm that coverage of the PMTCT service cascade is expanding and contributing to reductions in mother-to-child transmission of HIV [5–11]. However, they also highlight a fundamental challenge that PMTCT programs will have to overcome if elimination of new pediatric HIV is to become a reality. The cascade typically begins with HIV counseling and testing in the antenatal care setting *after a woman is already pregnant*, followed by ARV prophylaxis

during pregnancy and delivery, and ending with HIV testing of exposed infants and linkages to ongoing HIV care and support. A variety of indicators are used to measure implementation and outcomes associated with this continuum of PMTCT services. Rarely are measures of other PMTCT program components, including family planning, part of these evaluations.

Some exceptions to this trend exist. For example, an evaluation of a PMTCT program in Ethiopia – which uses PMTCT as an entry point to comprehensive, integrated care for the mother, her child and family members – reported high levels of postpartum contraceptive use among PMTCT clients in addition to other relevant PMTCT outcomes [12]. Another study from Malawi found the scale up and integration of PMTCT and ART services into primary care services from 2005 to 2010 were associated with not only a substantial reduction in the proportion of HIV-exposed infants testing positive, but also a 40% increase in family planning consultations [13\*].

For the most part, however, a disconnect persists between what the policy environment endorses for PMTCT programming and what is translated into practice. An assessment of PMTCT services in Uganda found that only 15% of facilities offer a comprehensive, 4-component package of PMTCT services as described in the national policy [14]. In South Africa, a recent impact evaluation of the national PMTCT program reported that perinatal transmission rates had dropped below 4% in the country, but close to two-thirds of the pregnancies among HIV-infected women in the study were unplanned [15]. An analysis of PEPFAR's contributions to national PMTCT efforts in Nigeria found that the vast majority of resources have gone toward element 3 interventions [16]. No evidence was found of PEPFAR support for family planning-related activities, and PEPFAR reporting mechanisms did not allow the authors to determine if partners supported efforts to prevent unintended pregnancies among women with HIV via other funding sources.

Even a global analysis of PEPFAR's contributions to PMTCT reflects the inattention that has been given to preventing unintended pregnancies among women with HIV [17\*\*]. Though the 4-element strategy is touted as the basis for PEPFAR's PMTCT response, the accomplishments – such as expanded coverage of the PMTCT service cascade and delivery of more efficacious ARV prophylaxis regimens – pertain primarily to the 3<sup>rd</sup> element. However, eliminating mother-to-child transmission of HIV will require a more comprehensive approach to PMTCT programming. Prevention of unintended pregnancies among women with HIV is one of five key areas that must be prioritized to achieve elimination of new pediatric HIV infection. At the service delivery level, implementers will have to reframe the PMTCT cascade, ensuring that entry points other than antenatal care are leveraged to address unmet need for family planning (Figure 1).

## **Fertility Intentions, Family Planning Use, Unintended Pregnancies, and Unmet Need for Family Planning among Women Living with HIV**

Despite the shortcomings of most PMTCT programs to conceptualize, implement and evaluate family planning interventions as a core component of those programs, in recent years we have better documented the fertility intentions, family planning practices,

experiences with unintended pregnancies, and level of unmet need for family planning among women and couples living with HIV. These data come from women and couples with HIV in a variety of settings and circumstances – not just PMTCT clients – and offer insights regarding progress and challenges to reducing mother-to-child transmission of HIV through prevention of unintended pregnancies.

### **Fertility intentions**

At the individual level, understanding the fertility intentions of women and couples living with HIV is essential to effective PMTCT programming (Figure 2) [18]. Those who want to become pregnant can be supported to plan for safer conception and access ART services to reduce the risk of HIV transmission from mother to child. Those who do not wish to become pregnant can be supported to access and use contraception. Though fertility desire may increase for some women after starting ART, recent data suggest that on average HIV-infected women tend to want fewer children than HIV-uninfected women [19, 20, 21\*]. In one study, HIV status was the firmest predictor of not wanting future children [21]. A variety of factors has been identified as influencing desire for children among people living with HIV. Drivers for not desiring children include fear of adverse health effects on the mother, fear of transmission to the child or to a partner, degree of knowledge about PMTCT interventions and their efficacy, financial hardship, community or provider stigma, death of a child, current ill health, leaving child an orphan, and having 'enough' children [21–25]. Alternatively, desire for children among HIV-infected individuals is associated with having no or few children, partner's desire for children, awareness of and access to ART, being married few years, and higher education [19, 23, 25, 26]. Two studies showed a significantly higher desire for children among HIV-infected men than women [25\*\*, 27].

### **FP use and method choice**

Several studies suggest that contraceptive use among HIV-infected women is similar to or exceeds that of HIV-uninfected women or women in the general population [14, 28–32]. Exceptions to this trend include two studies that showed lower contraceptive use among HIV-infected youth and HIV-infected female sex workers compared to their HIV-uninfected counterparts. [20, 33] Factors associated with contraceptive use by people living with HIV are similar to those identified for the general population, and are primarily not related to HIV status [14, 24, 27, 30, 31, 34]. However, one study reported that fear of ART interactions was a reason for not using contraception and another indicated that beliefs about a lower survival rate for HIV-infected children was a reason for use [14, 26].

With regard to contraceptive method choice, condoms tend to be the method most reportedly used by women and couples with HIV [20, 24, 25, 27, 29, 35]. Data from an HIV prevention trial in Zimbabwe and South Africa found that receiving an HIV diagnosis did not affect method choice [36]. However, in Vietnam a dramatic decline in use of IUDs and pills and a significant increase in self-reported condom use occurred after an HIV diagnosis [35]. In India, married couples with HIV cited provider stigma and counseling emphasizing condoms as major barriers to using other methods [34]. Prevalence of dual method use among people living with HIV is generally low, with reports ranging from 2.3% to 23% [20, 27, 29, 34, 35]. Only two studies have reported high rates of dual method use, but both are

from Thailand where sterilization rates among women with HIV are higher than in the general population and condom use has been a contraceptive and HIV prevention staple for decades [19, 37].

### **Unmet need and unintended pregnancy**

Though not measured uniformly, rates of unmet need for family planning and unintended pregnancies among women living with HIV are critical proxies for gauging the extent to which family planning is contributing to the prevention of pediatric HIV. One analysis across 10 African countries found that being aware of a positive HIV status was associated with lower rates of unmet need for contraception [38]. However, several other recent studies suggest unmet need for family planning and unintended pregnancies remain common for many women living with HIV (Table 1).

### **Safe and Effective Contraceptive Options for Women with and without HIV**

Meeting the contraceptive needs of women and couples with HIV requires that safe and effective contraceptive options exist to meet those needs. Different contraceptives have a varying influence on HIV transmission dynamics. Male and female condoms used consistently and correctly are the only methods which protect against HIV acquisition. The other available contraceptives provide no protection [41].

For the HIV-infected woman wishing not to conceive, data indicate her choice of contraception can safely encompass the full range of methods. Both male and female condoms reduce her risk of transmitting to an uninfected partner, and hormonal methods have little effect on shedding or transmission if the woman is on ART [42]. Moreover, hormonal methods and IUDs do not affect progression of HIV disease [43\*\*].

For the HIV-uninfected woman, whether hormonal contraception, especially injectable DMPA, increases her risk of acquiring HIV remains unknown. While biologic plausibility and animal models cause concern about DMPA, the results of human observational studies are mixed. A randomized trial will be necessary to provide higher quality evidence [43, 44].

### **Family Planning/HIV Programmatic Developments**

A variety of programmatic investments are needed to achieve more meaningful progress toward the prevention of unintended pregnancies among HIV-infected women. Continuing to support and expand traditional family planning programs to expand access to contraception to all women who desire it is an essential part of the solution. In addition, increasing the contraceptive method mix – especially the longer acting, more effective methods - is crucial in high HIV prevalence regions which provide only limited contraceptive options. Finally, evidence is also growing that integrating family planning and HIV services is a desirable and effective strategy for increasing access to contraception among women with HIV who do not wish to become pregnant.

Several reviews of integration efforts have been encouraging. The bulk of studies evaluating interventions to deliver sexual and reproductive health services to women living with HIV have reported positive effects on health outcomes, including contraceptive use [45–47].

More recent studies have broadened the evidence base in this area. Two different studies by the same research group have demonstrated success in increasing uptake of long acting reversible contraceptives among HIV-discordant and concordant couples who do not wish to become pregnant in Rwanda and Zambia [48\*, 49]. Follow-up data from one of these studies also showed a reduction in pregnancy incidence [50\*]. However, the generalizability of the data from these two studies is limited as they come from motivated couples, both of whom opted for joint HIV testing and to enroll in a clinical research project.

Two other evaluations of integrated family planning/HIV service delivery interventions reported increases in contraceptive uptake, although the increases were driven primarily by the weak measure of self-reported condom use. One of the studies, a retrospective analysis of clinical data from Kenya, reported greater incidence of family planning use (mainly condoms) per 100 person years among the intervention group compared to the control group (58% vs. 45%). However, no difference in pregnancy incidence between the two groups was observed [51]. The other study, implemented in Nigeria, compared “basic” and “enhanced” family planning/HIV integration interventions. Contraceptive use, primarily condoms, increased in both groups, but the enhanced intervention did not result in significant differential increases in method use [52]. In Zambia, a fifth study reported that 62% of women on ART desiring a contraceptive method successfully accessed family planning services within 90 days after a reproductive health counseling intervention [53].

More widespread implementation of these integrated approaches to service delivery can enhance the contribution of family planning to ending pediatric HIV. However, institutionalizing such service delivery strategies in real-world healthcare settings will require that a number of health systems challenges are addressed. Insufficient capacity of providers to offer rights-based reproductive health services to HIV-infected women, inadequate monitoring systems, weak referral systems, high client load and staff shortages, and infrastructural and logistical deficiencies have all been identified as obstacles to delivering integrated services [54, 55, 56\*]. As evidence-based family planning/HIV integration strategies are promoted and replicated, implementation research will be critical to understanding how to achieve effective, sustained delivery of these integrated services at scale in routine health service contexts.

In addition to expanding integrated service delivery, overcoming gender-based obstacles women face in both accessing PMTCT services and using contraception is crucial. Two recent review articles synthesize existing evidence to show how harmful gender norms and lack of male involvement in women's health impede women's access and adherence to interventions addressing all four PMTCT elements [57, 58]. The broader HIV and reproductive health literature also demonstrates that greater attention to gender equality and male involvement can produce gains on outcomes related to all four elements. However, most efforts to date to engage men in PMTCT programs have focused on increasing male partner HIV testing, and more rigorously designed studies are needed to determine the impact of male engagement interventions on women's uptake of PMTCT services [59, 60]. Nevertheless, progress toward eliminating unmet need for family planning and advancing other PMTCT outcomes will likely be accelerated if programs incorporate effective



strategies for engaging men and transforming harmful norms that affect uptake of the full spectrum of PMTCT interventions.

## Conclusion

Elimination of mother-to-child transmission “is not just about how many women take drugs” [61]. Rather, the path to elimination of pediatric HIV will be paved by managing a variety of personal and programmatic needs, including women's desire for family planning. Preventing unintended pregnancies among women living with HIV through voluntary family planning offers far-reaching individual and public health benefits and is essential to realizing the elimination goal. Yet, family planning interventions are insufficiently implemented and evaluated as part of PMTCT programs.

Element 2 must become a more visible PMTCT programmatic priority. Addressing unmet need for family planning should be integrated into a broader PMTCT cascade, which begins well before an HIV-infected woman becomes pregnant. However, this responsibility does not fall solely to the PMTCT implementers. Achieving elimination of new pediatric HIV will require that we both strengthen family planning programs for all women, and better integrate family planning services in HIV service delivery settings. Women living with HIV will undoubtedly benefit from recent commitments to reduce global unmet need for family planning [62]. However, PMTCT and other HIV service delivery implementers, policymakers, and funders must also implement and report on family planning interventions as a routine component of their programs. Transforming services in this way will help HIV-infected women and couples achieve their desired timing and number of children and, in turn, produce gains on both reproductive health outcomes and elimination of pediatric HIV.

## Acknowledgements

Support for this manuscript was provided by FHI 360 with funds from the United States Agency for International Development (USAID), Cooperative Agreement Number GHO-A-00-09-00016-00, although the views expressed in this publication do not necessarily reflect those of FHI 360 or USAID.

## References

1. Cates W Jr, Abdool Karim Q, El-Sadr W, et al. Global development. Family planning and the Millennium Development Goals. *Science*. Sep 24.2010 329(5999):1603. [PubMed: 20847233]
2. Mazzeo CI, Flanagan EH, Bobrow EA, et al. How the global call for elimination of pediatric HIV can support HIV-positive women to achieve their pregnancy intentions. *Reprod Health Matters*. Dec; 2012 20(39 Suppl):90–102. [PubMed: 23177684]
3. Hladik W, Stover J, Esiru G, et al. The contribution of family planning towards the prevention of vertical HIV transmission in Uganda. *PLoS One*. 2009; 4(11):e7691. [PubMed: 19888347]
4. Reynolds HW, Janowitz B, Wilcher R, et al. Contraception to prevent HIV-positive births: current contribution and potential cost savings in PEPFAR countries. *Sex Transm Infect*. Oct; 2008 84(Suppl 2):ii49–53. [PubMed: 18799493]
5. Nigatu T, Woldegebriel Y. Analysis of the prevention of mother-to-child transmission (PMTCT) service utilization in Ethiopia: 2006–2010. *Reprod Health*. 2011; 8:6. [PubMed: 21496304]
6. Kim MH, Ahmed S, Buck WC, et al. The Tingathe programme: a pilot intervention using community health workers to create a continuum of care in the prevention of mother to child transmission of HIV (PMTCT) cascade of services in Malawi. *J Int AIDS Soc*. 2012; 15(Suppl 2): 17389. [PubMed: 22789644]

7. Lorenzo O, Beck-Sague CM, Bautista-Soriano C, et al. Progress towards elimination of HIV mother-to-child transmission in the Dominican Republic from 1999 to 2011. *Infect Dis Obstet Gynecol.* 2012; 2012:543916. [PubMed: 23251074]
8. Lussiana C, Clemente SV, Ghelardi A, et al. Effectiveness of a prevention of mother-to-child HIV transmission programme in an urban hospital in Angola. *PLoS One.* 2012; 7(4):e36381. [PubMed: 22558455]
9. van Lettow M, Bedell R, Landes M, et al. Uptake and outcomes of a prevention-of mother-to-child transmission (PMTCT) program in Zomba district, Malawi. *BMC Public Health.* 2011; 11:426. [PubMed: 21639873]
10. Grimwood A, Fatti G, Mothibi E, et al. Progress of preventing mother-to-child transmission of HIV at primary healthcare facilities and district hospitals in three South African provinces. *S Afr Med J.* Feb; 2012 102(2):81–3. [PubMed: 22310438]
11. Azcoaga-Lorenzo A, Ferreyra C, Alvarez A, et al. Effectiveness of a PMTCT programme in rural Western Kenya. *AIDS Care.* Mar; 2011 23(3):274–80. [PubMed: 21347890]
12. McNairy M, Melaku Z, Barker P, et al. Leveraging progress in prevention of mother-to-child transmission of HIV for improved maternal, neonatal, and child health services. *J Acquir Immune Defic Syndr.* 2011; 57(Supplement 2):S83–S6. [PubMed: 21857303]
- \*13. van den Akker T, Bemelmans M, Ford N, et al. HIV care need not hamper maternity care: a descriptive analysis of integration of services in rural Malawi. *BJOG.* Mar; 2012 119(4):431–8. [PubMed: 22251303]
14. Mbonye AK, Hansen KS, Wamono F, et al. Barriers to contraception among HIV-positive women in a periurban district of Uganda. *Int J STD AIDS.* Sep; 2012 23(9):661–6. [PubMed: 23033523]
15. Goga, A.; Dinh, T.; Dlamini, N., et al. Impact of the national prevention of mother to child transmission (PMTCT) program on mother-to-child transmission of HIV (MTCT), South Africa. 6th IAS Conference on HIV Pathogenesis, Treatment, and Prevention; Rome, Italy. 2011.
16. Ezegebe C, Stephenson N. The reach and limits of the US President's Emergency Plan for Aids Relief (PEPFAR) funding of Prevention of Mother-to-Child Transmission (PMTCT) of HIV in Nigeria. *Afr J Reprod Health.* Mar; 2012 16(1):23–34. [PubMed: 22783665]
- \*\*17. Chi BH, Adler MR, Bolu O, et al. Progress, challenges, and new opportunities for the prevention of mother-to-child transmission of HIV under the US President's Emergency Plan for AIDS Relief. *J Acquir Immune Defic Syndr.* Aug 15; 2012 60(Suppl 3):S78–87. [PubMed: 22797744]
18. Wilcher R, Cates W. Reproductive choices for women with HIV. *Bulletin of the World Health Organization.* Nov; 2009 87(11):833–9. [PubMed: 20072768]
19. Landolt NK, Phanuphak N, Pinyakorn S, et al. Sexual life, options for contraception and intention for conception in HIV-positive people on successful antiretroviral therapy in Thailand. *AIDS Care.* 2012; 24(7):897–904. [PubMed: 22292980]
20. Beyeza-Kashesya J, Kaharuza F, Ekstrom AM, et al. To use or not to use a condom: a prospective cohort study comparing contraceptive practices among HIV-infected and HIV-negative youth in Uganda. *BMC Infect Dis.* 2011; 11:144. [PubMed: 21605418]
- \*21. Heys J, Jhangri G, Rubaale T, et al. Infection with the human immunodeficiency virus and fertility desires: results from a qualitative study in rural Uganda. *World Health Popul.* 2012; 13(3):5–17. [PubMed: 22555116]
22. King R, Khana K, Nakayiwa S, et al. 'Pregnancy comes accidentally--like it did with me': reproductive decisions among women on ART and their partners in rural Uganda. *BMC Public Health.* 2011; 11:530. [PubMed: 21726467]
23. Rispel LC, Metcalf CA, Moody K, et al. Sexual relations and childbearing decisions of HIV-discordant couples: an exploratory study in South Africa and Tanzania. *Reprod Health Matters.* May; 2011 19(37):184–93. [PubMed: 21555099]
24. Harrington EK, Newmann SJ, Onono M, et al. Fertility intentions and interest in integrated family planning services among women living with HIV in Nyanza Province, Kenya: a qualitative study. *Infect Dis Obstet Gynecol.* 2012; 2012:809682. [PubMed: 22844189]
- \*\*25. Tesfaye L, Admassu M, Getachew A, et al. Fertility desires and family planning demand among HIV-positive clients in follow-up care at antiretroviral treatment unit in Gondar university hospital, Ethiopia. *Vulnerable Children and Youth Studies.* 2012; 7(1):20–35.

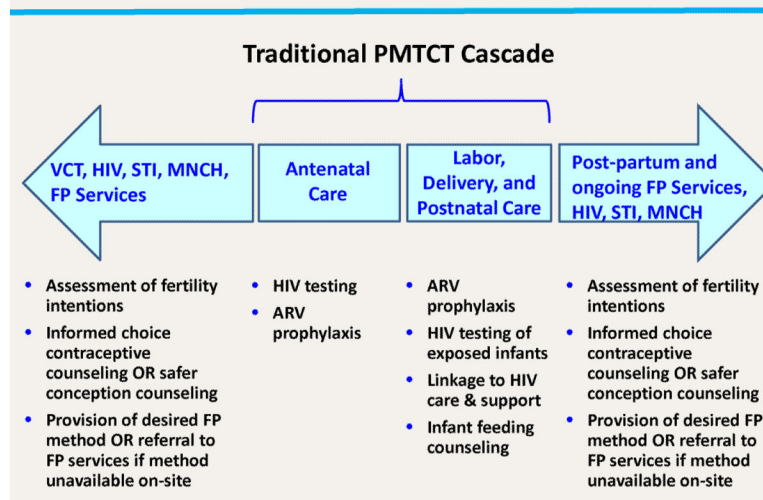


26. Kikuchi K, Wakasugi N, Poudel KC, et al. High rate of unintended pregnancies after knowing of HIV infection among HIV positive women under antiretroviral treatment in Kigali, Rwanda. *Biosci Trends*. Dec; 2011 5(6):255–63. [PubMed: 22281539]
27. Nattabi B, Li J, Thompson SC, et al. Family planning among people living with HIV in post-conflict Northern Uganda: A mixed methods study. *Confl Health*. 2011; 5:18. [PubMed: 21933403]
28. Crede S, Hoke T, Constant D, et al. Factors impacting knowledge and use of long acting and permanent contraceptive methods by postpartum HIV positive and negative women in Cape Town, South Africa: a cross-sectional study. *BMC Public Health*. Mar 16.2012 12(1):197. [PubMed: 22424141]
29. Wanyenze RK, Tumwesigye NM, Kindyomunda R, et al. Uptake of family planning methods and unplanned pregnancies among HIV-infected individuals: a cross-sectional survey among clients at HIV clinics in Uganda. *J Int AIDS Soc*. 2011; 14:35. [PubMed: 21718524]
30. Muyindike W, Fatch R, Steinfield R, et al. Contraceptive use and associated factors among women enrolling into HIV care in southwestern Uganda. *Infect Dis Obstet Gynecol*. 2012; 2012:340782. [PubMed: 23082069]
31. Polis CB, Gray RH, Lutalo T, et al. Trends and correlates of hormonal contraceptive use among HIV-infected women in Rakai, Uganda, 1994–2006. *Contraception*. Jun; 2011 83(6):549–55. [PubMed: 21570553]
32. Ngure K, Heffron R, Mugo NR, et al. Contraceptive method and pregnancy incidence among women in HIV-1-serodiscordant partnerships. *AIDS*. Feb 20; 2012 26(4):513–8. [PubMed: 22156966]
33. Wayal S, Cowan F, Warner P, et al. Contraceptive practices, sexual and reproductive health needs of HIV-positive and negative female sex workers in Goa, India. *Sex Transm Infect*. Feb; 2011 87(1):58–64. [PubMed: 20980465]
34. Chakrapani V, Kershaw T, Shunmugam M, et al. Prevalence of and barriers to dual-contraceptive methods use among married men and women living with HIV in India. *Infect Dis Obstet Gynecol*. 2011; 2011:376432. [PubMed: 22013377]
35. Chi BK, Gammeltoft T, Hanh NT, et al. Contraceptive use among HIV-positive women in Quang Ninh province, Vietnam. *Trop Med Int Health*. Jul 29.2012
36. Blanchard K, Holt K, Bostrom A, et al. Impact of learning HIV status on contraceptive use in the MIRA trial. *J Fam Plann Reprod Health Care*. Oct; 2011 37(4):204–8. [PubMed: 21746799]
37. Kancheva Landolt N, Ramautarsing RA, Phanuphak N, et al. Factors associated with the use of irreversible contraception and continuous use of reversible contraception in a cohort of HIV-positive women. *Contraception*. Nov 21.2012
38. Bankole A, Biddlecom AE, Dzekedzeke K. Women's and men's fertility preferences and contraceptive behaviors by HIV status in 10 sub-Saharan African countries. *AIDS Educ Prev*. Aug; 2011 23(4):313–28. [PubMed: 21861606]
39. Jhangri GS, Heys J, Alibhai A, Rubaale T, Kipp W. Unmet need for effective family planning in HIV-infected individuals: results from a survey in rural Uganda. *J Fam Plann Reprod Health Care*. 2012; 38:23–29. [PubMed: 21795262]
40. Petrunev T, Minichiello SN, McDowell M, Wilcher R. Meeting the contraceptive needs of key populations affected by HIV in Asia: an unfinished agenda. *AIDS Res Treat*. 2012; 2012:792649. [PubMed: 22991656]
41. Marrazzo, JM.; Cates, W. Reproductive Tract Infections, Including HIV and Other Sexually Transmitted Infections. In: Hatcher, RA.; Trussell, J.; Nelson, A.; Cates, W.; Kowal, D.; Policar, M., editors. *Contraceptive Technology*. 20th Edition. Ardent Media; 2011.
42. Day, S.; Graham, S.; Masese, L., et al. Is Depot Medroxyprogesterone Acetate likely to increase infectivity in HIV-1+ women receiving ART?. 20th Conference on Retroviruses and Opportunistic Infections; Atlanta, GA. 2013.
- \*\*43. World Health Organization Department of Reproductive Health and Research. *Hormonal Contraception and HIV Technical Statement*. WHO; Geneva, Switzerland: 2012.

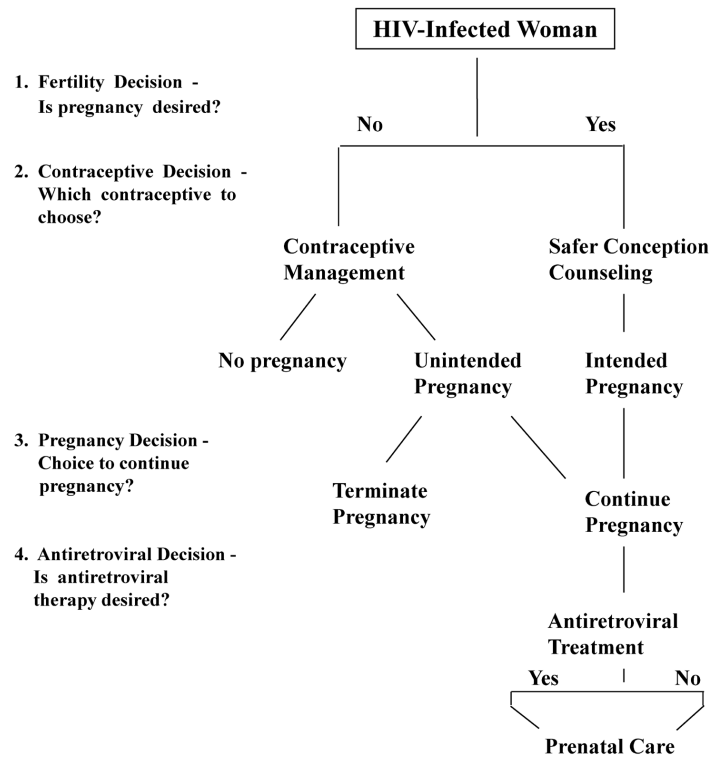
44. Heffron R, Donnell D, Rees H, et al. Use of hormonal contraceptives and risk of HIV-1 transmission: a prospective cohort study. *Lancet Infect Dis.* Jan; 2012 12(1):19–26. [PubMed: 21975269]
45. Brickley DB, Almers L, Kennedy CE, et al. Sexual and reproductive health services for people living with HIV: a systematic review. *AIDS Care.* Mar; 2011 23(3):303–14. [PubMed: 21347893]
46. Lindegren ML, Kennedy CE, Bain-Brickley D, et al. Integration of HIV/AIDS services with maternal, neonatal and child health, nutrition, and family planning services. *Cochrane Database Syst Rev.* 2012; 9:CD010119. [PubMed: 22972150]
47. Gay J, Hardee K, Croce-Galis M, et al. What works to meet the sexual and reproductive health needs of women living with HIV/AIDS. *J Int AIDS Soc.* 2011; 14:56. [PubMed: 22098625]
- \*48. Khu NH, Vwalika B, Karita E, et al. Fertility goal-based counseling increases contraceptive implant and IUD use in HIV-discordant couples in Rwanda and Zambia. *Contraception.* Nov 12.2012
49. Stephenson R, Vwalika B, Greenberg L, et al. A randomized controlled trial to promote long-term contraceptive use among HIV-serodiscordant and concordant positive couples in Zambia. *Journal of Womens Health.* Apr; 2011 20(4):567–74.
- \*50. Wall KM, Vwalika B, Haddad L, et al. Impact of long-term contraceptive promotion on incident pregnancy: a randomized controlled trial among HIV positive couples in Lusaka, Zambia. *J Acquir Immune Defic Syndr.* Nov 29.2012
51. Kosgei RJ, Lubano KM, Shen C, et al. Impact of integrated family planning and HIV care services on contraceptive use and pregnancy outcomes: a retrospective cohort study. *J Acquir Immune Defic Syndr.* Dec 15; 2011 58(5):e121–6. [PubMed: 21963940]
52. McCarraher DR, Vance G, Gwarzo U, et al. Changes in contraceptive use following integration of family planning into ART services in Cross River State, Nigeria. *Studies in Family Planning.* 2011; 42(4):283–90. [PubMed: 22292247]
53. Chibwesha CJ, Li MS, Matoba CK, et al. Modern contraceptive and dual method use among HIV-infected women in Lusaka, Zambia. *Infect Dis Obstet Gynecol.* 2011; 2011:261453. [PubMed: 22007138]
54. Schaan MM, Taylor M, Puvimanasinghe J, et al. Sexual and reproductive health needs of HIV-positive women in Botswana - a study of health care worker's views. *AIDS Care.* 2012; 24(9):1120–5. [PubMed: 22568549]
55. Smit JA, Church K, Milford C, et al. Key informant perspectives on policy- and service-level challenges and opportunities for delivering integrated sexual and reproductive health and HIV care in South Africa. *BMC Health Serv Res.* 2012; 12:48. [PubMed: 22369041]
- \*56. Mutemwa R, Mayhew S, Colombini M, et al. Experiences of health care providers with integrated HIV and reproductive health services in Kenya: a qualitative study. *BMC Health Serv Res.* 2013; 13:18. [PubMed: 23311431]
57. Ghanotakis E, Peacock D, Wilcher R. The importance of addressing gender inequality in efforts to end vertical transmission of HIV. *J Int AIDS Soc.* 2012; 15(Suppl 2):17385. [PubMed: 22789642]
58. Ramirez-Ferrero E, Lusti-Narasimhan M. The role of men as partners and fathers in the prevention of mother-to-child transmission of HIV and in the promotion of sexual and reproductive health. *Reprod Health Matters.* Dec; 2012 20(39 Suppl):103–9. [PubMed: 23177685]
59. Sherr L, Croome N. Involving fathers in prevention of mother to child transmission initiatives--what the evidence suggests. *J Int AIDS Soc.* 2012; 15(Suppl 2):17378. [PubMed: 22789641]
60. Brusamento S, Ghanotakis E, Tudor Car L, et al. Male involvement for increasing the effectiveness of prevention of mother-to-child HIV transmission (PMTCT) programmes. *Cochrane Database Syst Rev.* Oct 17.2012 10:CD009468. [PubMed: 23076959]
61. Mofenson, LM. Progress in eliminating maternal-to-fetal transmission of HIV. 20th Conference on Retroviruses and Opportunistic Infections; Atlanta, GA. 2013.
62. Gates, M. Contraception is not controversial. TEDxChange. 2012. Available from: <http://www.youtube.com/watch?v=S4M2JPOQPrA>

**Key Points**

- While the importance of family planning to achieving the end of new pediatric HIV infection is recognized in relevant policy statements, few PMTCT programs have increased access to contraception for HIV-infected women and couples who do not wish to become pregnant.
- A shift in how PMTCT programs are conceptualized, implemented and evaluated is needed to better address the contraceptive needs of HIV-infected women and accelerate progress toward ending new pediatric HIV infection.
- More widespread implementation of evidence-based approaches to integrating family planning and HIV services can enhance the contribution of family planning to ending pediatric HIV.

**Figure 1.****Expanded PMTCT Cascade**

Preventing unintended pregnancies among women living with HIV – element 2 of a comprehensive PMTCT program – requires a broader PMTCT cascade that leverages entry points before and after antenatal care, labor and delivery services to address unmet need for family planning.



**Figure 2.**

#### Reproductive Choices for Women with HIV

Ascertaining the fertility intentions of women living with HIV is fundamental to protecting their reproductive health and rights and preventing mother-to-child transmission of HIV.

Whether a woman desires pregnancy informs other sexual and reproductive decisions and drives access to appropriate services, including safer conception counseling and antiretroviral therapy services if pregnancy is desired, family planning if pregnancy is not desired, and abortion services (where legal) if an unwanted pregnancy occurs.

Source: Adapted from Wilcher & Cates, 2009 [18]

**Table 1**

## Unmet need for family planning and unintended pregnancy

Citation	Location	Target population	Unmet need for family planning
<i>Harrington, et al.</i> [24]	Kenya	Female ART clients	Two-thirds of clients expressing an FP need were only using condoms or no contraceptive method
<i>Tesfaye, et al.</i> [25]	Ethiopia	Male and female ART clients	42.2% reported wanting additional children; 25.7% were currently using FP
<i>Nattabi, et al.</i> [27]	Uganda	Male and female HIV clinic clients	59.3%
<i>Wayal, et al.</i> [33]	India	HIV-infected and HIV-uninfected female sex workers	61%
<i>Jhangri, et al.</i> [39]	Uganda	HIV-infected and HIV-uninfected males and females	75.0% among HIV-infected clients (being on ART was not associated with having lower unmet need); 33.8% among HIV-uninfected clients
<i>Petrune, et al.</i> [40]	Asia region (review)	Key populations (most at risk for and living with HIV)	47% among FSWs in China and 60% in Bangladesh
Citation	Location	Target population	Proportion of current or most recent pregnancies that were unintended
<i>King, et al.</i> [22]	Uganda	Female ART clients and their partners	Most of the women and their partners from the categories of pregnant, aborted or had delivered recently stated that the pregnancy was unintended
<i>Kikuchi, et al.</i> [26]	Rwanda	Female ART clients	62.7%
<i>Crede, et al.</i> [28]	South Africa	Postpartum HIV-infected and HIV-uninfected women	61.6% (HIV-infected) 63.2% (HIV-uninfected)
<i>Wanyenze, et al.</i> [29]	Uganda	Male and female ART clients	43% (53% among women vs. 26% among men)
<i>Polls, et al.</i> [31]	Uganda	HIV-infected women	47.8%
<i>Petrune, et al.</i> [40]	Asia region (review)	Key populations (most at risk for and living with HIV)	10.3% to 70% (data from 2 studies covering 6 countries)