



USAID
FROM THE AMERICAN PEOPLE



PEPFAR
U.S. President's Emergency Plan for AIDS Relief



TECHNICAL BRIEF

HORMONAL CONTRACEPTION AND HIV

September 2013

BACKGROUND

This brief was produced in collaboration with the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) and the Office of Population and Reproductive Health at the U.S. Agency for International Development (USAID).

What is the purpose of this brief?

To summarize current epidemiological evidence regarding use of hormonal contraception (HC) and:

- Whether HIV-negative women will acquire HIV
- Whether women living with HIV will transmit HIV to their male sex partner(s)
- Whether women living with HIV will experience faster HIV disease progression
- Whether women living with HIV using antiretroviral therapy (ART) will experience drug-drug interactions

Who should read this brief?

- National policy makers responsible for HIV and/or family planning programming
- U.S. Government family planning and HIV program managers at headquarters and in the field
- HIV and family planning implementing partners

COMMON METHODS OF HORMONAL CONTRACEPTION

Type of Contraceptive	Provision Frequency
Oral contraceptive pills	
Combined oral contraceptive pill ("the pill")	Taken daily
Progestin-only pill (POPs)	Taken daily
Progestogen-only injectables	
Depo medroxyprogesterone acetate (DMPA)	Injected every 3 months
Norethisterone enanthate (NET-EN)	Injected every 2 months
Long-acting contraceptive methods	
Implant	Can last up to 5 years
Levonorgestrel intrauterine device (hormonal IUD)	Can last up to 5 years

EVIDENCE AND RECOMMENDATIONS

What published evidence and recommendations are available regarding use of HC among HIV-negative women?

- HC use does not protect against HIV acquisition; all individuals at risk of HIV should be encouraged to use condoms consistently and correctly.
- The most recent World Health Organization (WHO) guidance (2012)¹ recommends no restriction on the use of any HC method for women at high risk of HIV, and it contains a special clarification for women at high risk of HIV who use progestogen-only injectable contraception, such as DMPA or NET-EN.

1. Does use of an HC method increase a woman's risk of HIV acquisition?

- Due to the inconclusive nature of the body of evidence on possible increased risk of HIV acquisition with use of progestogen-only injectable contraception,² women at high risk of HIV using progestogen-only injectable contraception should be strongly advised also to use condoms (male or female) consistently and correctly and to take other HIV preventive measures.¹
- Available data do not suggest an increased risk of HIV acquisition with use of oral contraceptive pills.²
- There are limited data on whether methods such as contraceptive implants, patches, rings, or hormonal IUDs may or may not impact the risk of HIV acquisition.²
- Improving and reinforcing messaging on dual method use (i.e., use of a condom plus a highly effective contraceptive) to simultaneously prevent unintended pregnancy and acquisition/transmission of sexually transmitted infections including HIV is critical.
- Additional relevant evidence³⁻⁷ that has become available since the 2012 WHO guidance and that is published in the peer-reviewed literature will be reviewed at the next WHO technical consultation, planned for 2014. This evidence will include:
 - Several sensitivity analyses conducted by Heffron et al. to address concerns that their original estimates (which suggested a doubling of risk in HIV acquisition with use of injectable contraception) may have been due to certain types of confounding bias. The sensitivity analyses supported their original findings.³

-An analysis by McCoy et al. suggested that neither oral nor injectable contraceptives were significantly associated with an increased risk of HIV acquisition, but the authors noted uncertainty in the effect of injectable contraception on HIV risk.⁴

on the potential reduced effectiveness of these methods when used simultaneously with certain ART regimens, and be offered alternative methods for their consideration.

What published evidence and recommendations are available regarding the use of hormonal contraception for women living with HIV?

- HC use does not protect against onward HIV transmission; all individuals living with HIV should be encouraged to use condoms consistently and correctly.
- The most recent WHO guidance (2012) recommends no restriction on the use of any HC method for women living with HIV.¹

1. Does use of an HC method increase the risk of female-to-male HIV transmission?

- A systematic review⁸ identified one study⁹ among serodiscordant couples assessing oral contraceptive pills or injectable contraception that suggested an increased risk of female-to-male HIV transmission with use of injectables. This study did not suggest a statistically significant association between oral contraceptive pills and female-to-male HIV transmission.⁹ Additional studies explicitly designed to test if various forms of HC increase risk of female-to-male HIV transmission are needed.⁸
- The systematic review also identified multiple studies assessing proxy measurements (e.g., genital HIV viral load or plasma HIV viral load) for HIV infectivity (e.g., the risk of transmitting HIV to an uninfected partner) among women living with HIV using HC. These studies had mixed findings, with some suggesting evidence of increased infectivity with use of HC, some suggesting evidence of decreased infectivity with use of HC, and some suggesting no effect.⁸
- A recent publication suggests that the hormonal IUD does not increase HIV infectivity.¹⁰

2. Does use of an HC method accelerate a woman's rate of HIV disease progression?

- The preponderance of evidence indicates no association between HC use and rate of HIV disease progression.^{11,12}

3. Are drug-drug interactions expected for women living with HIV who use an HC method as well as ART?

- Recent reviews suggest that certain ART medications (most likely protease inhibitors, the non-nucleoside reverse transcriptase inhibitors efavirenz and nevirapine, and cobicistat-boosted elvitegravir) may potentially reduce the effectiveness of combined oral contraceptives and possibly also of contraceptive implants.^{13,14}
- DMPA and the hormonal IUD appear to maintain contraceptive efficacy when taken with ART, though additional data are needed.^{13,14}
- Women on ART who choose to use combined oral contraceptive pills or contraceptive implants should receive counseling

IMPLICATIONS FOR POLICIES AND PROGRAMS

How can the global health community balance the (potentially) competing risks of unintended pregnancy and HIV acquisition?

- If a method of HC is found to increase HIV risk, this risk must be balanced against the life-saving benefits of using highly effective contraceptive methods to prevent unintended pregnancy.
- Recent modeling studies have, under the assumption that use of injectable contraception increases HIV risk, assessed the impact of reducing injectable contraceptive use on overall public health outcomes, including impacts on HIV infections and on maternal mortality resulting from unintended pregnancy.
- One such modeling study concluded, "Unless the true effect size approaches [a more than doubling in risk], it is unlikely that reductions in injectable hormonal contraception could result in a public health benefit, with the possible exception of those countries in southern Africa with the largest HIV epidemics."¹⁵ Other studies have reached generally similar conclusions.¹⁶⁻¹⁸
- Thus, policy options that would result in the greatest public health benefit depend not only upon the magnitude of any potential association between injectable contraception and HIV acquisition, but also on the epidemiological context of a given country, such as the HIV prevalence, the maternal mortality rate, the prevalence of injectable contraceptive use, and the contraceptive method options available in that country.
- Prevention of unintended pregnancy among women living with HIV remains important, so women living with HIV can better manage their right to choose the number, timing, and spacing of their pregnancies, and in order to safeguard women's and infants' health, including reducing vertical (mother-to-child) transmission of HIV.

What does this evidence mean for policy makers and health care providers in general?

- At the national policy and program strategy level, countries may consider:
 - Expanding access to HIV testing and counseling services within family planning service delivery points, given the importance of knowing one's HIV status in the selection of an appropriate contraceptive method^{19,20}
 - Utilizing the recent WHO HC-HIV guidelines¹ to update or develop their own guidelines based on their national health policies, needs, priorities, resources, and epidemiological context
 - Broadening the contraceptive method mix to expand options available to women

- Ensuring that contraceptive counseling appropriately informs women of the risks and benefits of all contraceptive methods to facilitate informed choice
- Improving and reinforcing messaging on dual method use of a condom plus a highly effective contraceptive to simultaneously prevent unintended pregnancy and transmission/acquisition of sexually transmitted infections including HIV
- Ensuring the availability and promotion of male and female condoms at family planning service delivery points

What does this evidence mean for policy makers and health care providers serving HIV-negative women?

- Women at high risk of HIV infection can use all available HC methods.
- As with anyone at high risk of HIV, women at high risk of HIV who select DMPA or NET-EN should be strongly advised to also use condoms (male or female) consistently and correctly and to also take other HIV preventive measures, such as ART initiation for HIV-positive partners where appropriate, and potentially in the future, pre-exposure prophylaxis if this measure is adopted as part of national guidelines.
- Any potential increase in HIV acquisition risk with use of an HC method must be balanced against risks of:
 - Unintended pregnancy, including maternal morbidity and mortality, unsafe abortion, and infant mortality
 - Any potential increase in risk of HIV acquisition that may possibly be associated with pregnancy itself²¹⁻²⁴
- Family planning programs might consider this issue within the broader context of ensuring access to a wider contraceptive method mix and promoting universal coverage of voluntary family planning services.

What does this evidence mean for policy makers and health care providers serving women living with HIV?

- Women living with HIV can use all available HC without concerns related to HIV disease progression.

- Questions remain with respect to whether injectable contraception may increase the risk of HIV transmission to a male partner. As ART rollout increases, any such increased risk of HIV transmission would be strongly decreased, since correct and consistent ART use greatly reduces the chance of HIV transmission.²⁵
- Any potential increase in the risk of HIV transmission to men with use of an HC method must be balanced against:
 - Risk of unintended pregnancy, including maternal morbidity and mortality, unsafe abortion, and infant mortality
 - Risk of unintended pregnancy and vertical transmission from mother to child, which contributes to rates of pediatric HIV infection
 - Any potential increase in risk of female-to-male HIV transmission that may possibly be associated with pregnancy itself²¹
- Regardless of the contraceptive method used, women living with HIV should be counseled about the importance of combining their chosen method with effective HIV prevention interventions, including condoms and ART initiation, and potentially in the future, pre-exposure prophylaxis for their partners if this measure is adopted as part of national guidelines.
- Women living with HIV should be counseled that certain ART regimens may render some HC methods (oral contraceptive pills and implants) less effective, but that ART is unlikely to have an impact on the efficacy of DMPA and hormonal IUDs.

LOOKING FORWARD

- The U.S. Government supports research to develop safe, affordable, acceptable, and accessible multipurpose prevention technologies to simultaneously prevent unintended pregnancies and acquisition of sexually transmitted infections, including HIV.
- The U.S. Government supports research to improve knowledge on the potential link between HC and HIV;²⁶ a collaborative working group is actively working on how to obtain more definitive evidence.
- The U.S. Government is supporting development of a communication tool for providers and policy makers on the issue of HC and HIV.
- The Office of the Global AIDS Coordinator and USAID's Office of Population and Reproductive Health will keep you informed of any new developments in this area that may impact your programming.

USEFUL RESOURCES

- WHO Technical Statement on Hormonal Contraception and HIV, February 2012: http://apps.who.int/iris/bitstream/10665/70811/1/WHO_RHR_12.08_eng.pdf
- HIV and Hormonal Contraception, Frequently Asked Questions, UNAIDS and WHO: http://www.who.int/reproductivehealth/publications/family_planning/FAQ_HIV_hormonal_contraception.pdf
- PEPFAR FY2013 Technical Considerations (pages 273-281): <http://www.pepfar.gov/reports/guidance/technical/index.htm>
- PEPFAR FY2013 COP Guidance (pages 51-53): <http://www.pepfar.gov/reports/guidance/cop2013/index.htm>
- PEPFAR Blueprint: <http://www.pepfar.gov/documents/organization/201386.pdf>
- UNFPA: Preventing HIV and Unintended Pregnancies: Strategic Framework 2013-2015: http://www.unfpa.org/webdav/site/global/shared/documents/publications/2012/PreventingHIV_UnintendedPregnancies_SF2011_2015.pdf
- UNFPA SRH & HIV Linkages Resource Pack: This site includes a variety of documents, searchable by topic area: <http://www.srh-hivlinkages.org/en/index.html>
- For more information on the contents of this brief, contact Dr. Chelsea Polis at cpolis@usaid.gov.

REFERENCES

1. World Health Organization. Hormonal contraception and HIV: Technical statement. Geneva, Switzerland; 2012.
2. Polis CB, Curtis KM. Use of hormonal contraceptives and HIV acquisition in women: a systematic review of the epidemiological evidence. *Lancet Infectious Diseases* 2013; 13(9):797–808.
3. Heffron R, Rees H, Mugo N, Baeten J. Authors' reply: Use of hormonal contraceptives and risk of HIV-1 transmission. *Lancet Infectious Diseases* 2012; 12(7): 510–1.
4. McCoy SI, Zheng W, Montgomery ET, Blanchard K, van der Straten A, de Bruyn G, et al. Oral and injectable contraception use and risk of HIV acquisition among women in sub-Saharan Africa. *AIDS* 2013; 27(6): 1,001–9.
5. Lutalo T, Musoke R, Polis CB, Serwadda D, Makumbi F, Nalugoda F, et al. Effects of Hormonal Contraceptive Use on HIV Acquisition in Women and Transmission to Men among HIV-discordant Couples, Rakai, Uganda (paper #563). 19th Conference on Retroviruses and Opportunistic Infections; 2012; Seattle, WA; 2012.
6. Chirenje MZ. Association Between Hormonal Contraception and HIV Infection in HPTN 035. *Microbicides* 2012; 2012; Sydney, Australia; 2012.
7. Crook A, Rees H, Ramjee G, Kamali A, Kapiga S, Chisembele M, et al. Hormonal contraception and risk of HIV: an analysis of data from the microbicides development programme trial. 20th Conference on Retroviruses and Opportunistic Infections; 2013; Atlanta, GA; 2013.
8. Polis CB, Phillips SJ, Curtis KM. Hormonal contraceptive use and female-to-male HIV transmission: a systematic review of the epidemiologic evidence. *AIDS* 2013; 27(4): 493–505.
9. Heffron R, Donnell D, Rees H, Celum C, Mugo N, Were E, et al. Use of hormonal contraceptives and risk of HIV-1 transmission: a prospective cohort study. *Lancet Infect Dis* 2012; 12(1): 19–26.
10. Coleman JS, Mwachari C, Balkus J, Sanguli L, Muliro A, Agnew K, et al. Effect of the levonorgestrel intrauterine device on genital HIV-1 RNA shedding among HIV-1-infected women not taking antiretroviral therapy in Nairobi, Kenya. *Journal of Acquired Immune Deficiency Syndromes* 2013; 63(2): 245–8.
11. Phillips SJ, Curtis KM, Polis CB. Effect of hormonal contraceptive methods on HIV disease progression: a systematic review. *AIDS* 2013; 27(5): 787–94.
12. Heffron R, Mugo N, Ngure K, Celum C, Donnell D, Were E, et al. Hormonal contraceptive use and risk of HIV-1 disease progression. *AIDS* 2013; 27(2): 261–7.
13. Tseng A, Hills-Niemenen C. Drug interactions between antiretrovirals and hormonal contraceptives. *Expert Opin Drug Metab Toxicol* 2013; 9(5): 559–72.
14. Robinson JA, Jamshidi R, Burke AE. Contraception for the HIV-positive woman: a review of interactions between hormonal contraception and antiretroviral therapy. *Infect Dis Obstet Gynecol* 2012; 2012: 890160.
15. Butler AR, Smith JA, Polis CB, Gregson S, Stanton D, Hallett TB. Modelling the global competing risks of a potential interaction between injectable hormonal contraception and HIV risk. *AIDS* 2013; 27(1): 105–13.
16. Jain AK. Hormonal contraception and HIV acquisition risk: implications for individual users and public policies. *Contraception* 2012; 86(6): 645–52.
17. Jain A. Erratum to “Hormonal contraception and HIV acquisition risk: implications for individual users and public policies” [*Contraception* 86 (2012) 645–652]. *Contraception* 2013; 88: 195.
18. Rodriguez MI, Reeves MF, Caughey AB. Evaluating the competing risks of HIV acquisition and maternal mortality in Africa: a decision analysis. *BJOG* 2012; 119(9): 1,067–73.
19. Office of the Global AIDS Coordinator. PEPFAR Blueprint: Creating an AIDS-free generation; 2012.
20. U.S. President's Emergency Plan for AIDS Relief. Guidance for the prevention of sexually transmitted HIV infections; 2011.
21. Mugo NR, Heffron R, Donnell D, Wald A, Were EO, Rees H, et al. Increased risk of HIV-1 transmission in pregnancy: a prospective study among African HIV-1-serodiscordant couples. *AIDS* 2011; 25(15): 1,887–95.
22. Gray RH, Li X, Kigozi G, Serwadda D, Brahmabhatt H, Wabwire-Mangen F, et al. Increased risk of incident HIV during pregnancy in Rakai, Uganda: a prospective study. *Lancet* 2005; 366(9492): 1,182–8.
23. Reid SE, Dai JY, Wang J, Sicalwe BN, Akpomimie G, Cowan FM, et al. Pregnancy, contraceptive use, and HIV acquisition in HPTN 039: relevance for HIV prevention trials among African women. *J Acquir Immune Defic Syndr* 2010; 53(5): 606–13.
24. Morrison CS, Wang J, Van Der Pol B, Padian N, Salata RA, Richardson BA. Pregnancy and the risk of HIV-1 acquisition among women in Uganda and Zimbabwe. *AIDS* 2007; 21(8): 1,027–34.
25. Cohen MS, Chen YQ, McCauley M, et al. Prevention of HIV-1 infection with early antiretroviral therapy. *N Engl J Med* 2011; 365: 493–505.
26. Polis CB, Westreich D, Balkus J, Heffron R, and participants of the 2013 HC-HIV observational analysis meeting. The effect of hormonal contraception on HIV acquisition: analytic approaches and challenges in observational data. *AIDS* 2013 (in press).