



Contraception and HIV risk in ASPIRE

Jared Baeten

University of Washington

MTN Regional Meeting, Cape Town, September 2018

Coming up at R4P

Risk of HIV
African
contraception



ing South
riety of
rospective

Wits Reproductive Health

burg, South Africa

Elizabeth R. Brown^{2,3}, Dar
Harkoo⁶, Gonasagrie N

rendevi Pather⁵, Ishana
^{3,9}, Jared M. Baeten³

Background

Whether the use of certain forms of contraception increases the risk of HIV acquisition in women is a question of global public health importance, particularly for African settings where HIV prevalence and unmet family planning needs are **both** high

Background

The greatest potential concern has centered on the use of injectable depot medroxyprogesterone acetate (DMPA) – in a recent meta-analysis, the magnitude of effect was 1.40 (95% CI 1.23-1.59) (Polis et al. 2016)

Limited data are available to assess HIV-1 risk for other contraceptive methods, including norethisterone enanthate (NET-EN), intrauterine devices (IUDs), and hormonal implants.

BOOSTER SHOTS: ODDITIES, MUSINGS AND NEWS FROM THE HEALTH WORLD

Africa study suggests hormonal contraceptive tie to HIV infection



Contraceptive Used in Africa May

By PAM BELLUCK
Published: October 3, 2011

The most popular contraceptive for women in east Africa, a hormone shot given every three months, may double the risk the women will become infected with HIV, a large study published Monday. And when it is used by HIV-infected women, their male partners are twice as likely to become infected if they had used no contraception.

04.10.11
Updated 13:23

HIV could spread if birth control injections increase, warn scientists

Researchers call for new guidelines for women using family planning services in Aids-hit areas

NEW YORKER FREE TOTE
SUBSCRIBE
\$1 A WEEK
NEW YORKER

OCTOBER 4, 2011
NEWS CULTURE BOOKS SCIENCE & TECH BUSINESS MAGAZINE AUDIO
AIDS AND CONTRACEPTIVES: BAD CHOICES IN AFRICA
BY MICHAEL SPECTER

Back

Female hormonal contraception linked to higher HIV risk



Women who use hormonal birth control are roughly twice as likely to become infected with HIV or pass on the AIDS virus to their partner, according to a study published on Tuesday.

The research was carried out among 3,790 heterosexual couples in Africa where one partner had the human immunodeficiency virus (HIV) while the other was uninfected. The findings, if confirmed, have serious repercussions for HIV prevention.

Miguna Miguna Uhuru won propaganda war but lost legal battle



NO. 1287
WEDNESDAY, OCTOBER 5, 2011
KSh40/00

Building online Nairobi Council starts e-Construction permits
Property: Page 38
FRESH, INDEPENDENT, DIFFERENT
the STAR
CONTRACEPTIVES DOUBLE HIV RISK
BY JOHN MICHANGI
THE most popular contraceptive in Kenya doubles the risk of women becoming infected with HIV, a new study shows. Use of the injectable contraceptive also increases the risk of HIV-positive women infecting their male partners. The results prompt a public health...

Birth control method blamed for HIV risk



The potentially high risk of blood clots in women using birth control under various brand names in Kenya, such as a progestin...

Contraceptives double HIV risk

hormonal contraception causes biological changes, cells that line the vagina or cervix and that influence susceptibility to HIV. Renee Heffron, an epidemiologist and co-author of the study, however, said the research examining whether the hormone changes genital tissue or vaginal mucus had been inconclusive. "It could be that progression immunologic changes in the vagina and cervix or could increase the HIV's ability to replicate," Charles Morrison, senior director of clinical sciences at FHI 360, an NGO whose work includes researching the intersection of family planning and HIV told the US media. Researchers also found that there was more HIV in the genital fluid of those using hormonal contraception than those who were not, which could explain why men might have an increased risk of infection from women using injectables. The researchers also found that oral contraceptives increased risk of HIV, but the number of pill users in the study was too small. Morrison suggested that women using birth control often use condoms. The study however excluded the possibility that because couples used oral contraceptives were less likely to use condoms. Effective contraceptives in Kenya include Depo Provera. Most of the US-based manufacturer of Depo Provera, New York Times on the saying officials had not yet read it. The study's authors however said the injectables used by the African women were probably generic. Depo Provera has never been approved for use as a contraceptive in the US. It is reportedly because it bleeds, weight gain, headache.



BIRIKY: A nurse shows one of the most widely used contraceptives

Methods

Within a randomized trial of the dapivirine vaginal ring for HIV prevention, MTN020/ASPIRE, we assessed HIV incidence by contraceptive method.

We limited analyses to participants from the South African sites and to women who used DMPA, the alternative injectable norethisterone enanthate (NET-EN), implants, or copper IUDs.

Methods

Contraceptive method was assessed as a time-dependent exposure.

Multivariable models adjusted for trial randomization arm, age, sexual behavior, menstrual bleeding, and incident sexually transmitted infections.

Results

2629 women were enrolled and followed in the MTN020/ASPIRE trial, 1426 from South Africa, of whom 1136 contributed to this analysis.

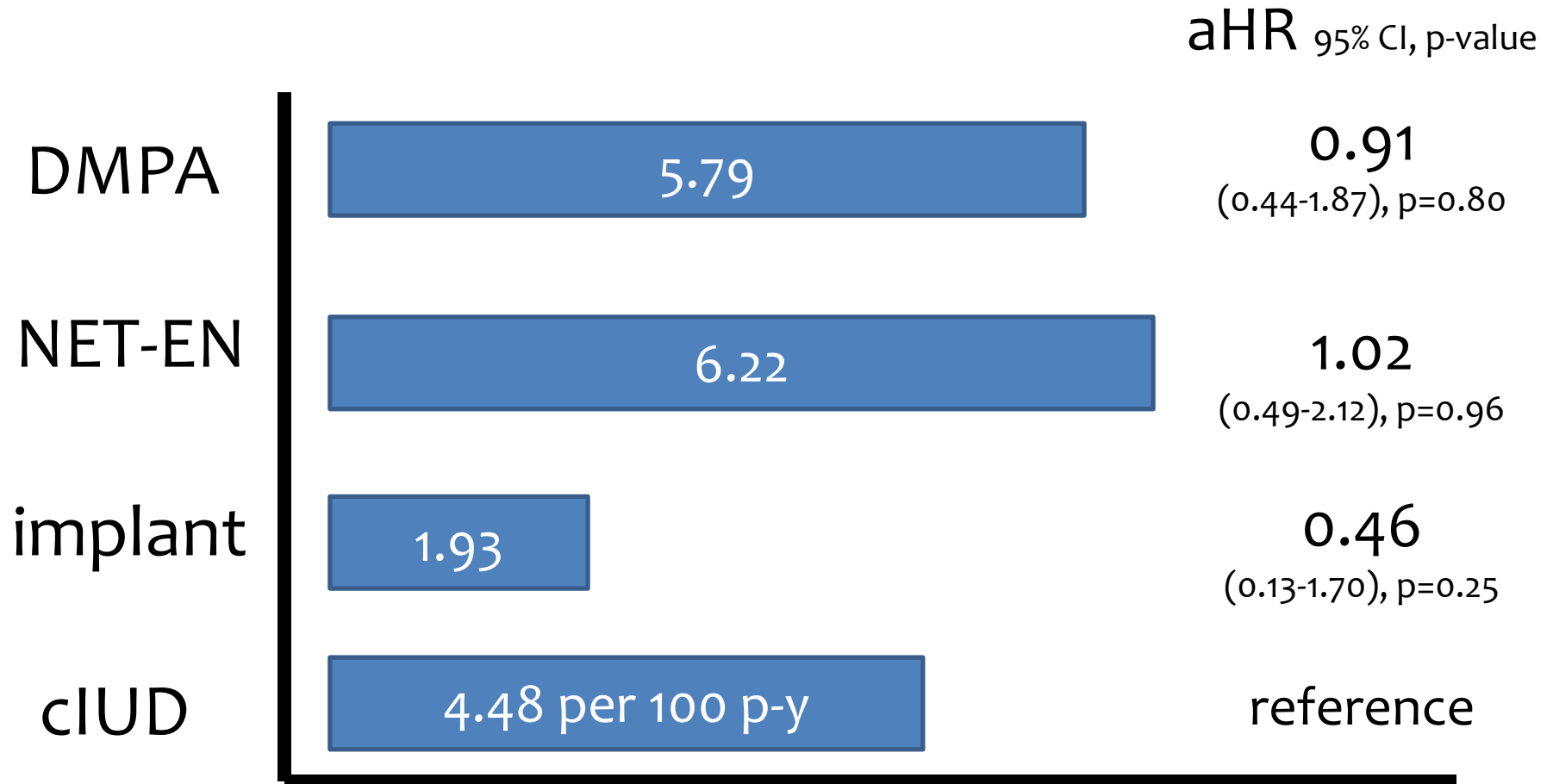
Median age was 24 years (interquartile range 21-29), 7% were married, and 32% used a condom at the last sex act at baseline.

Results

At some time during follow-up, 725 (64%) used DMPA, 455 (40%) NET-EN, 257 (23%) contraceptive implants, and 219 (19%) copper IUDs.

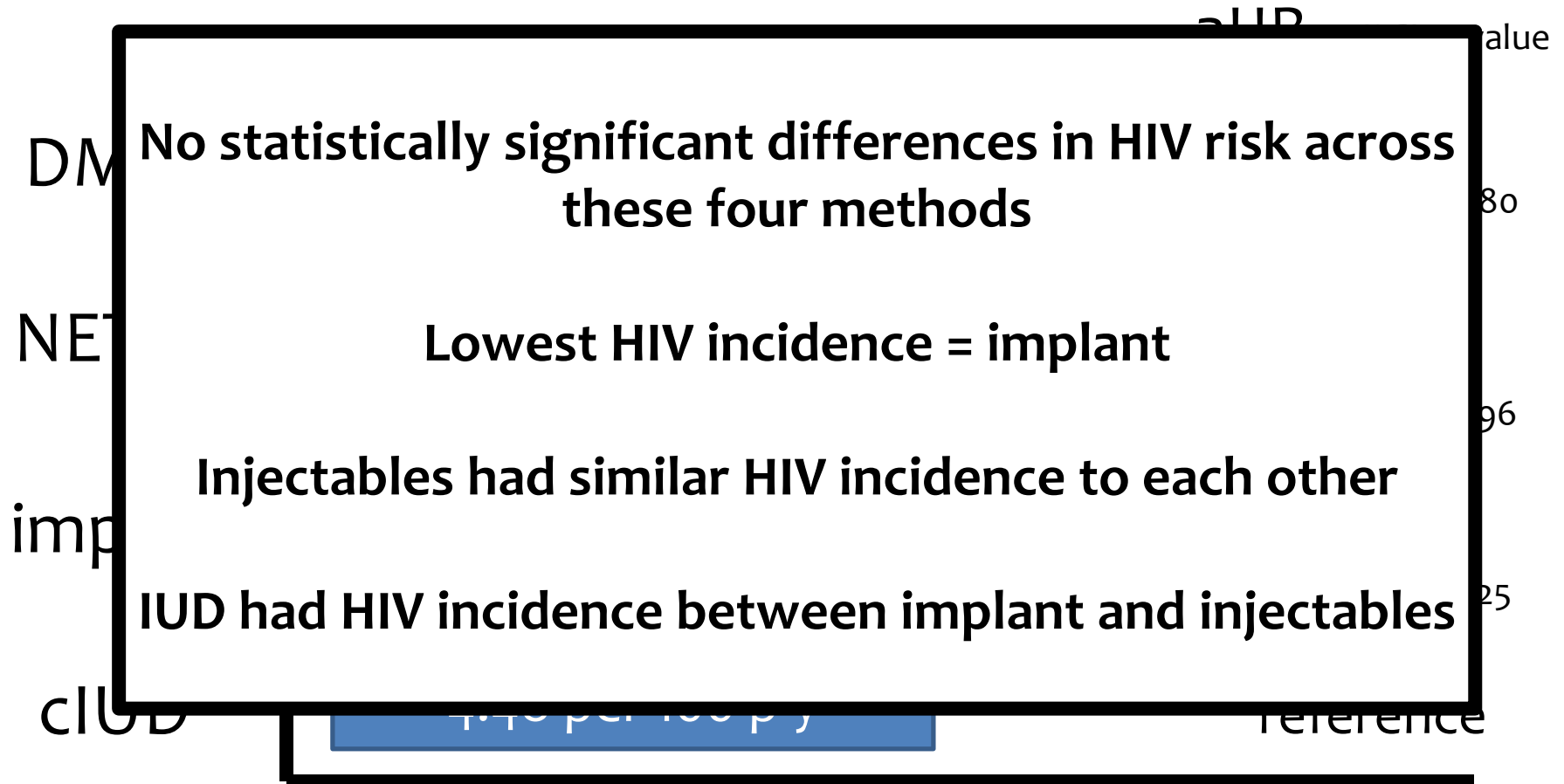
A total of 95 incident HIV infections were observed over 22,293 follow-up visits, for an overall HIV incidence of 5.6 per 100 person-years.

Results



HIV incidence →

Results



Summary

HIV incidence was high in this population of young South African women, emphasizing the importance of the question of whether contraceptive method influences HIV susceptibility.

We found no statistically significant differences in HIV incidence by contraceptive method.

Discussion

Across eastern and southern Africa, injectable methods are the most popular contraceptive used.

In South Africa, the country with largest HIV epidemic globally, half of women using contraception use injectable progestin methods.

In 2017, WHO recommended that women using progestogen-based injectables be advised that current evidence on HIV risk associated with DMPA are concerning but inconclusive.

Discussion

The (almost finished) Evidence for Contraceptive Options and HIV Outcomes (ECHO) trial is directly testing the HIV acquisition between DMPA, cIUD and the levonorgestrel implant using a randomized design www.echo-consortium.com.

These ASPIRE results emphasize that we cannot predict the ECHO results.



Limitations

Our results are limited by the sample size and observational nature of data, but provide one of the only head-to-head comparisons to date of HIV incidence across contraceptive methods, particularly for IUDs and implants.

Conclusion

Implants had the lowest point estimate for HIV incidence, and IUDs had the risk comparable to injectable methods in multivariate models.

These results emphasize that robust, prospective studies, such as ECHO, which will provide head to head comparisons, are needed to define better the relative HIV risks across different contraceptive methods, an urgent priority for women and policymakers.

MTN-020/ASPIRE Study Team

Leadership: Jared Baeten (protocol chair), Thesla Palanee-Phillips (protocol co-chair), Elizabeth Brown (protocol statistician), Katie Schwartz and Ashley Mayo (FHI 360), Lydia Soto-Torres (DAIDS medical officer)

Study sites:

- **Malawi: Blantyre site (Malawi College of Medicine-John Hopkins University Research Project):** Bonus Makanani, Taha Taha
- **Malawi: Lilongwe site (University of North Carolina Project):** Francis Martinson, Lameck Chinula
- **South Africa: Cape Town site (University of Cape Town):** Lulu Nair, Linda-Gail Bekker
- **South Africa: Durban eThekweni site (Centre for AIDS Programme of Research in South Africa):** Leila Mansour
- **South Africa: Durban – Botha’s Hill, Chatsworth, Isipingo, Tongaat, Umkomaas, Verulam sites (South African Medical Research Council):** Anamika Premrajh, Arendevi Pather, Logashvari Naidoo, Nishanta Singh, Nitesha Jeenarain, Samantha Siva, Vaneshree Govender, Vimla Naicker, Zakir Gaffoor, Simone Hendricks, Shaamilah Suleman, Gita Ramjee
- **South Africa: Johannesburg site (Wits Reproductive Health and HIV Institute):** Thesla Palanee-Phillips
- **Uganda: Kampala site (Makerere University-Johns Hopkins University Research Collaboration):** Flavia Matovu Kiweewa, Brenda Gati, Clemensia Nakabiito
- **Zimbabwe: Chitungwiza-Seke South, Chitungwiza-Zengeza, Harare-Spilhaus sites (University of Zimbabwe College of Health Sciences Clinical Trials Unit):** Nyaradzo Mgodli, Felix Mhlanga, Portia Hunidzarira, Zvavahera Chirenje

Microbicides Trials Network Leadership and Operations Center (University of Pittsburgh, Magee-Womens Research Institute, University of Washington, FHI 360, New York State Psychiatry Institute, Population Council, RTI International): Sharon Hillier, Ian McGowan, Ivan Balan, Katherine Bunge, Beth Galaska, Morgan Garcia, Cindy Jacobson, Judith Jones, Ashley Mayo, Barbara Mensch, Elizabeth Montgomery, Patrick Ndase, Kenneth Ngure, Rachel Scheckter, Devika Singh, Kristine Torjesen, Ariane van der Straten, Rhonda White

Microbicides Trials Network Laboratory Center (Magee-Womens Research Institute, University of Pittsburgh, Johns Hopkins University): Craig Hendrix, Edward Livant, Mark Marzinke, John Mellors, Urvi Parikh

Microbicides Trials Network Statistical and Data Management Center (Fred Hutchinson Cancer Research Center): Elizabeth Brown, Jennifer Berthiaume, Marla Husnik, Karen Patterson, Melissa Peda, Barbra Richardson, Daniel Szydlo

US National Institutes of Health: Nahida Chakhtoura, Donna Germuga, Cynthia Grossman, Diane Rausch, Lydia Soto-Torres

International Partnership for Microbicides: Zeda Rosenberg, Annalene Nel

ASPIRE & HOPE participants and their communities and Community Working Group

The International Partnership for Microbicides provided the study rings.

The Microbicide Trials Network is funded by the National Institute of Allergy and Infectious Diseases (UM1AI068633, UM1AI068615, UM1AI06707), with co-funding from the Eunice Kennedy Shriver National Institute of Child Health and Human Development and the National Institute of Mental Health, all components of the U.S. National Institutes of Health.

