HIV transmission risk-factors among men living with HIV wanting a pregnancy in Uganda

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Introduction

- With a high fertility (5.1 children per woman[1]) and HIV prevalence (7% among adults[2]), Uganda is an ideal setting to study HIV transmission reduction in the context of reproductive goals among people affected by HIV (people living with HIV or partnered with someone living with HIV).
- Globally, HIV transmission between HIV-serodifferent couples who conceive a child contributes to the estimated 1.7 million HIV infections and 160,000 perinatal transmissions in 2018.[3]
- Gender norms not only harm women but also men; these norms decrease the likelihood of male engagement in safer sex practices and HIV care.[4]
- Across the world, men fall short of the 90-90-90 targets compared to women. In sub-Saharan Africa, men accounted for 41% of people living with HIV, yet 53% of AIDS-related deaths in 2016.[4]
- Engaging men in safer conception care is an opportunity to protect men's health as well as avert HIV infections among women and children.
- **Objective:** To assess HIV transmission risk-factors among a cohort of men living with HIV (MLWH), partnered with HIV-uninfected or serostatus unknown women, planning for pregnancy.

Methods

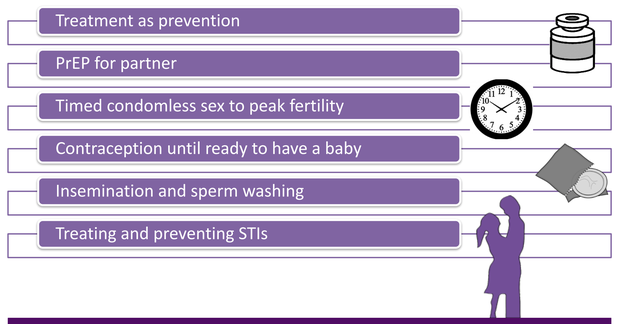
- **Study Design:** Pilot, cohort study to assess the impact of integrated safer conception counseling on HIV-related outcomes among a cohort of 50 MLWH.
- **Recruitment / Study Setting:** Participants were primarily recruited from the Healthy Families Clinical Program, a program focused on safer conception counseling for couples and individuals affected by HIV integrated into the HIV clinic at Mbarara Regional Referral Hospital in southwestern, rural Uganda.

Table 1. Study procedures

	Enrollment	3 Months	6 Months
Comprehensive questionnaire	X		
Safer conception counseling		X	X
HIV-RNA testing	X		X
STI screening	X		
Pregnancy partner invited	X	X	X

- **Inclusion criteria:**
  - Adult (≥18 yo) men living with HIV, in a partnership with a woman who is not living with HIV or HIV-serostatus unknown, and planning for pregnancy in the next year.
- **Outcomes**
  - Prevalence of factors known to increase risk of HIV transmission: no antiretroviral therapy (ART) use, participant's perceived partner HIV acquisition risk, lack of HIV disclosure, detectable HIV-RNA, STI prevalence.
  - HIV seroconversion among female partner via HIV rapid testing
- **Lab Procedures:**
  - HIV-RNA via GeneXpert quantitative testing
  - STI screening:
    - GeneXpert nucleic acid amplification testing for *Neisseria gonorrhoeae, Chlamydia trachomatis,* and *Trichomonas vaginalis,*
    - Immunochromatographic testing confirmed by rapid plasma reagin to test for syphilis
    - All participants with STIs were offered treatment
  - HIV rapid testing and beta-hCG testing for pregnancy partner
- **Data:** Recorded via REDCap and analyzed with STATA using descriptive statistics.

Figure 1. Safer conception counseling procedures



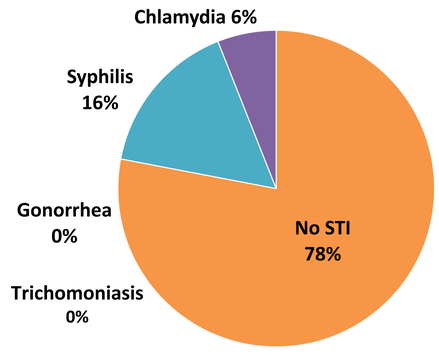
Results

Table 2. Enrollment characteristics of 50 MLWH participants

Demographic	N (%) or Median (IQR)
Age	36.5 (32-43)
Secondary school education or higher	25 (50%)
Employed	47 (94%)
Household monthly income UGX*	200,000 (120,000 – 500,000)
Married or living as married w. partner	49 (98%)
Age of primary partner	28 (24-30)
Primary partner HIV-uninfected	47 (94%)
≥2 sexual partners in the past 3 months	13 (26%)
Condom use at last sex	24 (48%)
Number of children	3 (2-4)

*3,700 Ugandan shillings (UGX) approximately equals $1 USD

Figure 2. Among 50 MLWH participants, 22% of men had a curable sexually transmitted infection at enrollment



Results

Table 3. Enrollment HIV transmission risk-factors of 50 MLWH participants

Outcome	N (%) or Median (IQR)
Did not access antiretroviral therapy	2 (4%)
Participant's perceived partner HIV-acquisition risk is none, low, or medium	34 (64%)
Did not disclose HIV-serostatus to primary partner	4 (8%)
Detectable HIV-RNA	4 (8%)
One or more enrollment STI	11 (22%)
At least one of the above HIV transmission risk factors	**42 (84%)**

*Among those who screened at least one child for HIV, (N=36)

Figure 3. HIV-RNA across study visits among 50 MLWH participants

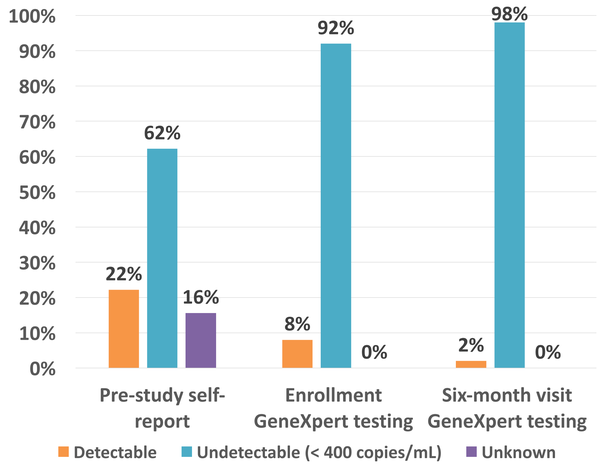


Table 4. Participant retention and outcomes for female pregnancy partners of men living with HIV.

Outcome	Enrollment	3 Months	6 Months
Male participant attendance	50 (100%)	47 (94%)	47 (94%)
Female partner attendance	0 (0%)	21 (45%)	27 (57%)
Female partner pregnancy	X	X	8 (30%)
Female partner HIV acquisition	X	X	0 (0%)

0% *of female pregnancy partners acquired HIV*

Discussion

- Even among a cohort with high prevalence of ART use, HIV disclosure, and suppressed HIV-RNA, most men had at least one enrollment HIV transmission risk-factor (Table 3). Safer conception programming has the potential to mitigate all of these HIV transmission risk-factors.
- A low proportion of men (8%) had detectable HIV-RNA copies and this proportion decreased to 2% at six months after engaging in safer conception care. These results indicate that safer conception programming could contribute to better HIV-control for men and decreased HIV transmission risk for female partners and conceived children. Future work will evaluate impacts of safer conception programming for men who are not yet in care.



Figure 4. Mbarara Regional Referral Hospital

- Nearly one-quarter of men had curable STIs, which could cause significant repercussions for the health of men, pregnancy partners, and neonates. STI screening of male pregnancy partners should be a part of safer conception programming to prevent STI transmission and recurrence.
- Engaging men in safer conception programming was associated with HIV-uninfected or serostatus unknown female partner engagement. No women acquired HIV despite 30% of women conceiving a child.
- Integration of comprehensive sexual and reproductive health into HIV care for men and women is critical to cultivating the health of individuals and families living with and/or affected by HIV.

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