Welcome to **HIV this month!** In this issue, we cover the following topics:

1. **HIV testing and treatment**
   - Less than half of HIV-positive people identified through HBTC link to care in large community study in KwaZulu-Natal
   - Women are successful in promoting HIV self-testing in Kenyan men
   - Increased adolescent testing
   - Antiretroviral therapy: being reborn into uncertainty

2. **Combination prevention**
   - A booster dose of HIV prevention

3. **Key populations**
   - New evidence in support of opioid substitution therapy as a key HIV programme for people who inject drugs
   - Unique needs of gay men in sub-Saharan Africa identified with respondent-driven sampling
   - Does place of sex change risk behaviours among men who have sex with men?
   - Fishing, injection drug use and HIV risk

4. **Elimination of gender inequalities**
   - High rates of intimate partner violence against women in Tanzania

5. **Elimination of stigma**
   - Perceived stigma may lead to increased experienced stigma among people living with HIV

6. **Financing**
   - Viral load testing is more cost-effective than CD4 testing
   - Increased economic resources can reduce sexual vulnerability in young women

7. **Health systems and services**
- Improved survival with lymphoma in the antiretroviral therapy era
- Ending deaths in people with TB and HIV – still some way to go
- Changing norms: lessons from HIV advocacy for NCDs prevention

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Peter Godfrey-Faussett and Celeste Sandoval
UNAIDS
1. HIV testing and treatment

Access to HIV care in the context of universal test and treat: challenges within the ANRS 12249 TasP cluster-randomized trial in rural South Africa.


Introduction: We aimed to quantify and identify associated factors of linkage to HIV care following home-based HIV counselling and testing (HBHCT) in the ongoing ANRS 12249 treatment-as-prevention (TasP) cluster-randomized trial in rural KwaZulu-Natal, South Africa.

Methods: Individuals ≥16 years were offered HBHCT; those who were identified HIV positive were referred to cluster-based TasP clinics and offered antiretroviral treatment (ART) immediately (five clusters) or according to national guidelines (five clusters). HIV care was also available in the local Department of Health (DoH) clinics. Linkage to HIV care was defined as TasP or DoH clinic attendance within three months of referral among adults not in HIV care at referral. Associated factors were identified using multivariable logistic regression adjusted for trial arm.

Results: Overall, 1323 HIV-positive adults (72.9% women) not in HIV care at referral were included, of whom 36.9% (n=488) linked to care <3 months of referral (similar by sex). In adjusted analyses (n=1222), individuals who had never been in HIV care before referral were significantly less likely to link to care than those who had previously been in care (<33% vs. >42%, p<0.001). Linkage to care was lower in students (adjusted odds-ratio [aOR]=0.47; 95% confidence interval [CI] 0.24-0.92) than in employed adults, in adults who completed secondary school (aOR=0.68; CI 0.49-0.96) or at least some secondary school (aOR=0.59; CI 0.41-0.84) versus ≤ primary school, in those who lived at 1 to 2 km (aOR=0.58; CI 0.44-0.78) or 2-5 km from the nearest TasP clinic (aOR=0.57; CI 0.41-0.77) versus <1 km, and in those who were referred to clinic after ≥2 contacts (aOR=0.75; CI 0.58-0.97) versus those referred at the first contact. Linkage to care was higher in adults who reported knowing an HIV-positive family member (aOR=1.45; CI 1.12-1.86) versus not, and in those who said that they would take ART as soon as possible if they were diagnosed HIV positive (aOR=2.16; CI 1.13-4.10) versus not.

Conclusions: Fewer than 40% of HIV-positive adults not in care at referral were linked to HIV care within three months of HBHCT in the TasP trial. Achieving universal test and treat coverage will require innovative interventions to support linkage to HIV care.

Abstract Full-text [free] access

Editor's notes: The UNAIDS treatment target set for 2020 aims for at least 90 percent of all people living with HIV to be diagnosed, at least 90 percent of people diagnosed to receive antiretroviral therapy, and for treatment to be effective and consistent enough in at least 90 percent of people on treatment to suppress the virus. This would result in about 73% of all HIV-positive people being virally suppressed.

This manuscript describes the linkage to care after being diagnosed HIV-positive during home-based testing and counselling (HBTC) in a Treatment as Prevention trial in KwaZulu-Natal, South Africa. About 30% of consenting participants were HIV-positive. Some 43% of these participants were new diagnoses, 26% had previously been diagnosed but never accessed care, and about 31% had already accessed HIV care but dropped out of care. The authors found disappointingly low linkage
proportions: fewer than 40% of participants diagnosed through HBTC accessed an HIV clinic within three months of referral.

Although stigma is a commonly cited barrier to adherence, the authors did not find an association between perceived stigma and linkage to care. They did find that people with HIV-positive family members were more likely to access HIV care than people who did not, and suggest that this might be because they are more confident in disclosing their status and more likely to receive family support.

These findings are particularly relevant in the context of the results of the parent Treatment as Prevention trial, which were reported at the AIDS2016 conference in Durban. The trial found no effect on HIV incidence of offering immediate ART, mainly due to the low rates of linkage to care following HIV diagnosis. This underscores that while HBTC is useful to ensure that HIV-positive people know their status, further programmes are necessary to maximise the number of people linked to care and initiating ART.

Promoting male partner HIV testing and safer sexual decision making through secondary distribution of self-tests by HIV-negative female sex workers and women receiving antenatal and post-partum care in Kenya: a cohort study.


Background: Increased uptake of HIV testing by men in sub-Saharan Africa is essential for the success of combination prevention. Self-testing is an emerging approach with high acceptability, but little evidence exists on the best strategies for test distribution. We assessed an approach of providing multiple self-tests to women at high risk of HIV acquisition to promote partner HIV testing and to facilitate safer sexual decision making.

Methods: In this cohort study, HIV-negative women aged 18-39 years were recruited at two sites in Kisumu, Kenya: a health facility with antenatal and post-partum clinics and a drop-in centre for female sex workers. Participants gave informed consent and were instructed on use of oral fluid based rapid HIV tests. Participants enrolled at the health facility received three self-tests and those at the drop-in centre received five self-tests. Structured interviews were conducted with participants at enrolment and over 3 months to determine how self-tests were used. Outcomes included the number of self-tests distributed by participants, the proportion of participants whose sexual partners used a self-test, couples testing, and sexual behaviour after self-testing.

Findings: Between Jan 14, 2015, and March 13, 2015, 280 participants were enrolled (61 in antenatal care, 117 in post-partum care, and 102 female sex workers); follow-up interviews were completed for 265 (96%). Most participants with primary sexual partners distributed self-tests to partners: 53 (91%) of 58 participants in antenatal care, 91 (86%) of 106 in post-partum care, and 64 (75%) of 85 female sex workers. 82 (81%) of 101 female sex workers distributed more than one self-test to commercial sex clients. Among self-tests distributed to and used by primary sexual partners of participants, couples testing occurred in 27 (51%) of 53 in antenatal care, 62 (68%) of 91 from post-partum care, and 53 (83%) of 64 female sex workers. Among tests received by primary and non-primary sexual partners, two (4%) of 53 tests from participants in antenatal care, two (2%) of 91 in post-partum care, and 41 (14%) of 298 from female sex workers had positive results. Participants reported sexual intercourse with 235 (62%) of 380 sexual partners who tested HIV-negative, compared with eight (18%) of 45 who tested HIV-positive (p<0.0001); condoms were used in all eight intercourse events after positive results compared with 104 (44%) after of negative results.
Four participants reported intimate partner violence as a result of self-test distribution: two in the post-partum care group and two female sex workers. No other adverse events were reported.

Interpretation: Provision of multiple HIV self-tests to women at high risk of HIV infection was successful in promoting HIV testing among their sexual partners and in facilitating safer sexual decisions. This novel strategy warrants further consideration as countries develop self-testing policies and programmes.

Abstract access

Editor's notes: This paper presents a novel approach to promoting HIV self-testing strategies among men and couples, by distributing self-tests through social and sexual networks of women. Women attending antenatal clinics, post-partum care, and sex workers were briefly trained on how to use the Ora-Quick self-test kit, and then given five kits to take with them and give to people in their networks. This strategy allowed women and their partners to choose when and where they tested, often together and in the comfort of their own environments. The majority of women reported having distributed self-test kits to partners/clients and undertaking couples testing. Further, according to participant’s report, 58% of people testing positive linked to HIV care (and linkage was unknown in 35%). Interestingly, the on-the-spot, or point-of-sex testing allowed individuals to decide whether to continue with sexual encounters according to status, which reportedly proved to be especially useful to the female sex workers. There were four reported cases of violence resulting from test use, and this should be closely watched in future research. This is the first study to assess the potential for secondary distribution of HIV self-test kits by multiple populations of women to promote HIV testing in their male partners, and overall, the results indicate that this model is a promising strategy for promoting further HIV-testing, leading the field closer to the UNAIDS 90-90-90 treatment target and improved HIV prevention as well.

Increased adolescent HIV testing with a hybrid mobile strategy in Uganda and Kenya.


Objective: We sought to increase adolescent HIV testing across rural communities in east Africa and identify predictors of undiagnosed HIV.

Design: Hybrid mobile testing.

Methods: We enumerated 116 326 adolescents (10-24 years) in 32 communities of Uganda and Kenya (SEARCH: NCT01864603): 98 694 (85%) reported stable (≥6 months of prior year) residence. In each community we performed hybrid testing: 2-week multi-disease community health campaign (CHC) that included HIV testing, followed by home-based testing of CHC non-participants. We measured adolescent HIV testing coverage and prevalence, and determined predictors of newly-diagnosed HIV among HIV+ adolescents using multivariable logistic regression.

Results: 86 421 (88%) stable adolescents tested for HIV; coverage was 86%, 90%, and 88% in early (10-14), mid (15-17) and late (18-24) adolescents, respectively. Self-reported prior testing was 9%, 26%, and 55% in early, mid and late adolescents tested, respectively. HIV prevalence among adolescents tested was 1.6% and 0.6% in Ugandan women and men, and 7.1% and 1.5% in Kenyan women and men, respectively. Prevalence increased in mid-adolescence for women, and late adolescence for men. Among HIV+ adolescents, 58% reported newly-diagnosed
HIV. In multivariate analysis of HIV+ adolescents, predictors of newly-diagnosed HIV included male gender (OR = 1.97 [95%CI: 1.42-2.73]), Ugandan residence (OR = 2.63 [95%CI: 2.08-3.31]), and single status (OR = 1.62 [95%CI: 1.23-2.14] vs. married).

Conclusions: The SEARCH hybrid strategy tested 88% of stable adolescents for HIV, a substantial increase over the 28% reporting prior testing. The majority (57%) of HIV+ adolescents were new diagnoses. Mobile HIV testing for adults should be leveraged to reach adolescents for HIV treatment and prevention.

Abstract access

Editor's notes: Ending the AIDS epidemic requires much greater focus on adolescents, among whom HIV associated deaths is a leading cause of death in sub-Saharan Africa. Critical behaviours that are likely to impact on future health, such as risky sexual behaviour, often begin in adolescence. However, it is estimated that less than a third of adolescents in sub-Saharan Africa have been tested for HIV. In this paper, the authors report the impact of a hybrid community-based mobile testing approach to increase HIV testing among adolescents in rural communities in East Africa. This model, which does not rely on accessing schools or clinics, is very suitable for this age group, given the low rates of school attendance among female adolescents and the low use of clinic-based services by adolescents. A high rate of HIV testing was achieved, and testing for HIV in a multi-disease context may have enabled adolescents to access testing without fear of being stigmatised. However, uptake of testing is only the first stage in the HIV prevention and treatment cascade, and further data on the proportion of people testing positive who link to care and start treatment, and people testing negative who link to prevention services, are necessary.

What will become of me if they take this away? Zimbabwean women’s perceptions of “free” ART.


The evolution of antiretroviral therapies (ART) has redefined HIV infection from a life-threatening disease to a chronic manageable condition. Despite ART, HIV infection remains a serious health burden in Zimbabwe, particularly among women of reproductive age. In this interpretive phenomenology study, we interviewed 17 women with advanced HIV infection to uncover and understand their experiences of living with HIV infection in the ART era. Two themes (knowing the restorative power of ART and the heavy burden of being infected with HIV) reflected the women’s experiences. ART brought physical and mental relief, but did not change the sobering reality of poverty or the challenges posed by the infective nature of HIV. The heavily donor-funded Zimbabwean ART program has been a success story, but there is uncertainty over its long-term sustainability. In resource-limited countries, clinicians and other stakeholders should continue to focus on HIV prevention as the cornerstone of HIV programming.

Abstract access

Editor’s notes: In Zimbabwe, as in much of sub-Saharan Africa, women are disproportionately affected by HIV infection. In 2013, women comprised 59% of adults living with HIV. Between 2007 and 2010, women accounted for 64% of people enrolled on ART in the country. Currently only 77% of women in clinical need of ART have access to it with most accessing it through a government and donor-funded ‘cost-free’ programme. For women in Zimbabwe, living with HIV infection, normal life
not only depends on the assurance of uninterrupted access to ART, but also the ability to get married and bear children.

The authors of this paper report on Zimbabwean women’s experiences of living with HIV infection while on ART. The study was nested within an ongoing clinical trial. Women were interviewed through in-depth, individual, face-to-face, open-ended interviews.

The authors identify a number of important implications of the findings of this study. First, many women, in addition to concerns about their health, also had to contend with the effects of extreme poverty and gender inequality. For HIV treatment programmes to be successful, health care providers and policy makers should incorporate poverty reduction and gender equity components. Second, funding provisions should be put in place to ensure continued supplies of medications in order to reduce the reliance on external donor funding. Third, there is a need to clarify and strengthen policies regarding the continuation of treatment after the completion of a clinical trial to ensure participants’ continued access. Fourth, given the ability of ART to transform HIV into a chronic disease, reproductive health service provision should be prioritized to enable people living with HIV to have children if they wish. Further, and particularly in the light of these challenges, HIV prevention should be centralised as a focal point of HIV programming in order to reduce HIV incidence.

2. Combination prevention

Adolescent HIV risk reduction in the Bahamas: results from two randomized controlled intervention trials spanning elementary school through high school.


To address global questions regarding the timing of HIV-prevention efforts targeting youth and the possible additional benefits of parental participation, researchers from the USA and The Bahamas conducted two sequential longitudinal, randomized trials of an evidence-based intervention spanning the adolescent years. The first trial involved 1360 grade-6 students and their parents with three years of follow-up and the second 2564 grade-10 students and their parents with two years of follow-up. Through grade-12, involvement in the combined child and parent-child HIV-risk reduction interventions resulted in increased consistent condom-use, abstinence/protected sex, condom-use skills and parent-child communication about sex. Receipt of the grade-6 HIV-prevention intervention conferred lasting benefits regarding condom-use skills and self-efficacy. Youth who had not received the grade-six intervention experienced significantly greater improvement over baseline as a result of the grade-10 intervention. The HIV-risk reduction intervention delivered in either or both grade-6 and grade-10 conferred sustained benefits; receipt of both interventions appears to confer additional benefits.

Abstract access

Editor's notes: Prevention of HIV infection in adolescents is key to combating HIV. In the Bahamas, two school-based programmes for adolescents were evaluated to answer key questions about the effect of school-based activities at different ages in adolescence, and the effect of including parental participation. This paper focused on the additional effect of a programme in mid-adolescence (age 15 to 16) following an earlier programme (at age 10 to 11). The early- and mid-adolescent programmes were similar. There were eight sessions based on Protection Motivation Theory, using discussion and role play to increase knowledge and skills regarding sexual-risk avoidance, with the aim of changing
behaviour. Both included a component for parents and children together, and both were effective at improving HIV knowledge, and reported condom-use skills and intentions.

Results illustrated that the early-adolescent programme had sustained effects throughout the following six years, and the mid-adolescent programme acted as a ‘booster’, conferring additional benefits including increased rates of reported consistent condom use and abstinence/protected sexual intercourse and increased condom-use skills. Participants who did not receive the early-adolescent programme gained more benefit from the mid-adolescent programme but had lower scores than youth who had both. Parental involvement was important, especially regarding condom-use skills. Although the results are promising, there is potential for biased reporting of self-reported behavioural outcomes, and it would be good to confirm these findings with biological outcomes including unplanned pregnancy and HSV-2 infection.

3. Key populations

Impact of opioid substitution therapy on antiretroviral therapy outcomes: a systematic review and meta-analysis.


Background: HIV-positive people who inject drugs (PWID) frequently encounter barriers accessing and remaining on antiretroviral treatment (ART). Some studies have suggested that opioid substitution therapy (OST) could facilitate PWID’s engagement with HIV services. We conducted a systematic review and meta-analysis to evaluate the impact of concurrent OST use on ART-related outcomes among HIV-positive PWID.

Methods: We searched Medline, PsycInfo, Embase, Global Health, Cochrane, Web of Science, and Social Policy and Practice databases for studies between 1996 to November 2014 documenting the impact of OST, compared to no OST, on ART outcomes. Outcomes considered were: coverage and recruitment onto ART, adherence, viral suppression, attrition from ART, and mortality. Meta-analyses were conducted using random effects modelling, and heterogeneity assessed using Cochran’s Q test and I² statistic.

Results: We identified 4685 articles, and 32 studies conducted in North America, Europe, Indonesia and China were included. OST was associated with a 69% increase in recruitment onto ART (HR=1.69, 95% confidence interval (CI): 1.32-2.15), a 54% increase in ART coverage (OR=1.54; 95% CI: 1.17-2.03), a two-fold increase in adherence (OR=2.14, 95% CI: 1.41-3.26), and a 23% decrease in the odds of attrition (OR=0.77, 95% CI:0.63-0.95). OST was associated with a 45% increase in odds of viral suppression (OR=1.45, 95%CI:1.21-1.73), but there was limited evidence from six studies for OST decreasing mortality for PWID on ART (HR=0.91, 95% CI:0.65-1.25).

Conclusions: These findings support the use of OST, and its integration with HIV services, to improve the HIV treatment and care continuum amongst HIV-positive PWID.

Abstract access

Editor’s notes: This is a very important study contributing new evidence on how opioid substitution therapy can help in the treatment and prevention of HIV among people who inject drugs. This review provides key evidence in support of opioid substitution therapy as a cornerstone HIV treatment and
prevention programme. This evidence is essential given the growing number of HIV infections among people who inject drugs globally, particularly in eastern Europe and sub-Saharan Africa. There is a wealth of evidence from systematic reviews and mathematical modelling to illustrate how the use of opioid substitution therapy decreases risk of HIV acquisition at an individual-level. It can also reduce HIV prevalence and incidence at the population level. This review is important in that it illustrates how opioid substitution therapy can facilitate HIV treatment. Findings illustrate that opioid substitution therapy works by increasing adherence to HIV treatment, decreasing attrition from treatment and increasing odds of viral suppression reducing the odds of onwards HIV transmission. In addition to this important review, there is also a need to understand the role opioid substitution therapy might have in increasing uptake of HIV testing. This review does not address that question. It is notable that few studies on impact of opioid substitution therapy on HIV treatment outcomes and uptake included in the review were identified in low-income countries or eastern Europe where need is greatest. This partly reflects the lack of opioid substitution therapy programmes in that region, particularly the Russian Federation. This is also the case in sub-Saharan Africa where opioid substitution therapy programmes are newly established and yet to be evaluated. Future research is necessary to understand how opioid substitution therapy might work: (1) where transmission of HIV is predominantly sexual and (2) where injecting drug use occurs within very different social and economic contexts.

Respondent-driven sampling as a recruitment method for men who have sex with men in southern sub-Saharan Africa: a cross-sectional analysis by wave.


Objectives: Respondent-driven sampling (RDS) is a popular method for recruiting men who have sex with men (MSM). Our objective is to describe the ability of RDS to reach MSM for HIV testing in three southern African nations.

Methods: Data collected via RDS among MSM in Lesotho (N=318), Swaziland (N=310) and Malawi (N=334) were analysed by wave in order to characterise differences in sample characteristics. Seeds were recruited from MSM-affiliated community-based organisations. Men were interviewed during a single study visit and tested for HIV. X² tests for trend were used to examine differences in the proportions across wave category.

Results: A maximum of 13-19 recruitment waves were achieved in each study site. The percentage of those who identified as gay/homosexual decreased as waves increased in Lesotho (49% to 27%, p<0.01). In Swaziland and Lesotho, knowledge that anal sex was the riskiest type of sex for HIV transmission decreased across waves (39% to 23%, p<0.05, and 37% to 19%, p<0.05). The percentage of participants who had ever received more than one HIV test decreased across waves in Malawi (31% to 12%, p<0.01). In Lesotho and Malawi, the prevalence of testing positive for HIV decreased across waves (48% to 15%, p<0.01 and 23% to 11%, p<0.05). Among those living with HIV, the proportion of those unaware of their status increased across waves in all study sites although this finding was not statistically significant.

Conclusions: RDS that extends deeper into recruitment waves may be a promising method of reaching MSM with varying levels of HIV prevention needs.
Editor’s notes: The HIV risk profile of gay men and other men who have sex with men have not been well-characterised within sub-Saharan African countries. These key populations are traditionally difficult to reach for purposes of estimating the prevalence of HIV and of behavioural risk factors, and for prevention outreach. This study enrolled recruiters from community based organizations which served gay men and other men who have sex with men in Malawi, Lesotho and Swaziland. Each of these ‘seeds’ could recruit up to three participants. Each subsequent participant could recruit another three participants into a new ‘wave’. The profiles of participants changed in each setting with each additional recruitment wave. Men in Swaziland were less likely to know that anal sex was the riskiest type of sex, men in Malawi were less likely to have ever tested for HIV, and men in Lesotho were less likely to have disclosed their sexual orientation to family members. This type of respondent-driven sampling can be replicated to identify men who are removed from community-based organisations, and to identify their unique service needs. Future research can consider whether the hardest-to-reach men are also people at highest risk of HIV infection.

Is location of sex associated with sexual risk behaviour in men who have sex with men?
Systematic review of within-subjects studies.


To understand associations between location of sex and sexual risk, it is most helpful to compare sexual encounters within persons. We systematically reviewed within-subjects comparisons of sexual encounters reported by men who have sex with men (MSM) with respect to location of sex. Within-subjects comparisons of sexual risk and location of sex were eligible if they collected data post-1996 from samples of MSM. We independently screened results and full-text records in duplicate. Of 6336 de-duplicated records, we assessed 138 full-text studies and included six, most of which compared unprotected anal intercourse against other anal intercourse. This small, but high quality, body of evidence suggests that associations between attendance at sex-on-premises venues and person-level sexual risk may be due to overall propensity towards unprotected sex. However, there may be some location factors that promote or are associated with serononconcordant unprotected anal intercourse. Health promoters may wish to focus on person-level characteristics.

Abstract access

Editor’s notes: Venues where gay men and other men who have sex with men, have sex, fit broadly into three categories. These are: i) sex-on-premises venues (indoor locations outside the home e.g. bathhouses, saunas, sex clubs, porn cinemas, public sex parties), ii) public sex environments (cruising locations / beats e.g. outdoor parks) and iii) homes of sexual partners. Men will usually have anonymous sexual encounters or sex with casual partners in the first two location categories. Use of specific locations for sex may be associated with specific sexual risk-taking at the person level. However, it is unclear if sexual risk is greater in certain venues compared to others. Is there a ‘location effect’ on sexual risk? Or put in a different way, does the same person behave differently (in terms of sexual risk), depending on the venue where they are having sex? To examine this, it is necessary to compare several sexual encounters within respondents at different sex locations. The authors of this paper systematically reviewed studies which reported within-subjects comparisons analysing the encounter-level association between location of sex and sexual risk behaviours among gay men and other men who have sex with men.
Six studies were included in the final review – four from the United States and two from Australia. It was not possible to conduct a meta-analysis due to differences in defining venue and sexual risk behaviours. Overall, the authors found little evidence of differences between condomless versus protected anal intercourse between public and private locations for sex. Additional studies are necessary, including how smartphone-mediated sex seeking is changing the locations and risk environment where gay men and other men will have sex with men. Research from other countries and contexts is also warranted.

The association between psychosocial and structural-level stressors and HIV injection drug risk behavior among Malaysian fishermen: a cross-sectional study.


Background: Malaysian fishermen have been identified as a key-affected HIV population with HIV rates 10 times higher than national rates. A number of studies have identified that psychosocial and structural-level stressors increase HIV injection drug risk behaviors. The purpose of this paper is to examine psychosocial and structural-level stressors of injection drug use and HIV injection drug risk behaviors among Malaysian fishermen.

Methods: The study employs a cross-sectional design using respondent driven sampling methods. The sample includes 406 fishermen from Pahang state, Malaysia. Using multivariate logistic regressions, we examined the relationship between individual (depression), social (adverse interactions with the police), and structural (poverty-related) stressors and injection drug use and risky injection drug use (e.g., receptive and non-receptive needle sharing, frontloading and back-loading, or sharing drugs from a common container).

Results: Participants below the poverty line had significantly lower odds of injection drug use (OR 0.52, 95 % CI: 0.27-0.99, p = 0.047) and risky injection drug use behavior (OR 0.48, 95 % CI: 0.25-0.93, p = 0.030). In addition, participants with an arrest history had higher odds of injection use (OR 19.58, 95 % CI: 9.81-39.10, p < 0.001) and risky injection drug use (OR 16.25, 95 % CI: 4.73-55.85, p < 0.001). Participants with depression had significantly higher odds of engaging in risky injection drug use behavior (OR 3.26, 95 % 1.39-7.67, p = 0.007). Focusing on participants with a history of injection drug use, we found that participants with depression were significantly more likely to engage in risky drug use compared to participants below the depression cutoff (OR 3.45, 95 % CI: 1.23-9.66, p < 0.02).

Conclusions: Findings underscore the need to address psychosocial and structural-level stressors among Malaysian fishermen to reduce HIV injection drug risk behaviors.

Abstract Full-text [free] access

Editor’s notes: There is an increasing amount of research on high rates of HIV infection among people living in fishing communities in parts of Africa and Asia. There is also a lot of information on factors which put people in these fishing communities at risk of HIV infection. This paper is, however, the first study to look in detail at the association between risky injection drug use behaviours and HIV among fishermen. The authors of this fascinating and important paper provide a detailed analysis on the association between, what they call, individual, social and structural factors which contribute to risk. Interestingly, poorer fishermen were at less risk than fishermen who were better off, perhaps because poorer men could not afford the costs of injection drugs. However, the fear of the police, and the risk of arrest, resulted in injection practices which increased the risk of HIV infection. The authors
note that the association between symptoms of depression and risky injection drug use may be an outcome of this behaviour rather than the cause. The authors highlight how fishermen using injection drugs to manage stress and risk in their lives, may compound the stress they face by this behaviour. The paper illustrates, very clearly, the complex relationship there often is between individual behaviours and the structural and social context. The authors provide very useful pointers for unpacking risk and HIV-infection in other similar populations.

4. Elimination of gender inequalities

Magnitude and factors associated with intimate partner violence in mainland Tanzania.


Background: In Tanzania like in many sub-Saharan countries the data about Intimate Partner Violence (IPV) are scarce and diverse. This study aims to determine the magnitude of IPV and associated factors among ever partnered women in urban mainland Tanzania.

Methods: Data for this report were extracted from a big quasi-experimental survey that was used to evaluate MAP (MAP - Men as Partners) project. Data were collected using standard questions as those in big surveys like Demographic and Health Surveys. Data analyses involved descriptive statistics to characterize IPV. Associations between IPV and selected variables were based on Chi-square test and we used binary logistic regression to assess factors associated with women’s perpetration to physical IPV and Odds Ratio (OR) as outcome measures with their 95% confidence intervals (CI).

Results: The lifetime exposure to IPV was 65 % among ever-married or ever-partnered women with 34, 18 and 21 % reporting current emotional, physical and sexual violence respectively. Seven percent of women reported having ever physically abused partners. The prevalence of women perpetration to physical IPV was above 10 % regardless to their exposure to emotional, physical or sexual IPV.

Conclusions: IPV towards women in this study was high. Although rates are low, there is some evidence to suggest that women may also perpetrate IPV against their partners. Based on hypothesis of IPV and HIV co-existence, there should be strategies to address the problem of IPV especially among women.

Abstract Full-text [free] access

Editor’s notes: This paper adds to the growing evidence of the extent of intimate partner violence in the United Republic of Tanzania perpetrated towards women and some evidence of intimate partner violence against men. The authors conducted a cross-sectional study to evaluate the CHAMPION (Channeling Men’s Positive Involvement in a National HIV/AIDS Response) study in one district in six regions in Tanzania (Dar es Salaam, Kagera, Mbeya, Mwanza, Tabora and Ruvuma). The authors did not find any association between the prevalence of intimate partner violence and demographic characteristics. This was unlike other studies, which found an association between intimate partner violence and age, education and marital status. This may have been due to limitations in the design of the study, but may also suggest that intimate partner violence is widespread across age and education. The paper strengthens calls for more programmes to address intimate partner violence.
5. Elimination of stigma

A transactional approach to relationships over time between perceived HIV stigma and the psychological and physical well-being of people with HIV.


Rationale: Cross-sectional studies demonstrate that perceived discrimination is related to the psychological and physical well-being of stigmatized people. The theoretical and empirical foci of most of this research is on how racial discrimination undermines well-being. The present study takes a transactional approach to examine people with HIV, a potentially concealable stigma.

Hypothesis: The transactional approach posits that even as discrimination adversely affects the psychological well-being of people with HIV, psychological distress also makes them more sensitive to perceiving that they may be or have been stigmatized, and may increase the chances that other people actually do stigmatize them.

Methods: This hypothesis was tested in a longitudinal study in which 216 New England residents with HIV were recruited to complete measures of perceived HIV stigma and well-being across three time points, approximately 90 days apart. This study also expanded on past research by assessing anticipated and internalized stigma as well as perceived discrimination.

Results: Results indicated that all of these aspects of HIV stigma prospectively predicted psychological distress, thriving, and physical well-being. Equally important, psychological distress and thriving also prospectively predicted all three aspects of HIV stigma, but physical well-being did not.

Conclusion: These findings suggest that people with HIV are ensnared in a cycle in which experiences of stigma and reduced psychological well-being mutually reinforce each other.

Abstract access

Editor’s notes: Stigma can act as a barrier to the delivery and uptake of HIV care. This study investigated the transactional approach to understanding stigma. The authors sought to determine whether psychological stress due to perceptions of discrimination causes people living with HIV to be more sensitive to perceiving stigma. Then in turn whether this makes it more likely that they will be stigmatized. The authors examined data from a longitudinal study of 216 participants in New England in the United States. The study was embedded within a larger study protocol that sought to answer a broad range of research questions. Participants responded to a questionnaire which asked questions about participants’ perceived stigma based on the HIV Stigma Scale developed by Berger and colleagues in 2001. The authors used three subscales to measure enacted, anticipated, and internalized stigma. Participants responded to questions on a 5-point subscale of strongly disagree (scored as 1) to strongly agree (scored as 5) to questions about the three different types of stigma. The authors analysed associations between perceived, internalized, and experienced stigma. The authors concluded that understanding the transactional relationship between HIV-associated stigma and psychological stress is important for developing and implementing effective HIV-associated stigma programmes. Perceptions of stigma may lead to increases in perceived and experienced stigma among people living with HIV. This study suggests that future programmes that seek to address HIV-associated stigma should incorporate an understanding of the transactional relationship between psychological stress and perceived and experienced stigma.
6. Financing

Laboratory monitoring of antiretroviral therapy for HIV infection: cost-effectiveness and budget impact of current and novel strategies.


Background: Optimal laboratory monitoring of antiretroviral therapy (ART) for human immunodeficiency virus (HIV) remains controversial. We evaluated current and novel monitoring strategies in Cote d'Ivoire, West Africa.

Methods: We used the Cost-Effectiveness of Preventing AIDS Complications -International model to compare clinical outcomes, cost-effectiveness, and budget impact of 11 ART monitoring strategies varying by type (CD4 and/or viral load [VL]) and frequency. We included "adaptive" strategies (biannual then annual monitoring for patients on ART/suppressed). Mean CD4 count at ART initiation was 154/µL. Laboratory test costs were CD4=$11 and VL=$33. The standard of care (SOC; biannual CD4) was the comparator. We assessed cost-effectiveness relative to Cote d'Ivoire's 2013 per capita GDP ($1500).

Results: Discounted life expectancy was 16.69 years for SOC, 16.97 years with VL confirmation of immunologic failure, and 17.25 years for adaptive VL. Mean time on failed first-line ART was 3.7 years for SOC and <0.9 years for all routine/adaptive VL strategies. VL failure confirmation was cost-saving compared with SOC. Adaptive VL had an incremental cost-effectiveness ratio (ICER) of $4100/year of life saved compared with VL confirmation and increased the 5-year budget by $310/patient compared with SOC. Adaptive VL achieved an ICER <1x GDP if second-line ART and VL costs simultaneously decreased to $156 and $13, respectively.

Conclusions: VL confirmation of immunologic failure is more effective and less costly than CD4 monitoring in Cote d'Ivoire. Adaptive VL monitoring reduces time on failing ART, is cost-effective, and should become standard in Cote d'Ivoire and similar settings.

Abstract access

Editor's notes: Monitoring whether or not people are able to effectively use HIV antiretroviral therapy (ART) to suppress viral load is important to maintaining individual and population health. There are two ways to monitor whether or not people are able to adhere to ART, assessing CD4 cell count or viral load. These tests require different amounts of expensive laboratory resources. This paper explores 11 ways in which ART regimens can be monitored in Cote d'Ivoire to assess the potential impact and cost-effectiveness of different strategies compared to current care (twice-yearly CD4 tests). The authors estimate that adding viral load failure confirmation to current practice would be cost saving. Adaptive viral load monitoring is found to be cost-effective. This approach involves decreasing monitoring from twice-annually to annually among people who present with suppressed viral loads for one year. In many countries, viral load monitoring is not generally available. This research is important because it illustrates that viral load monitoring strategies can be cost saving compared to CD4 counts, in line with WHO recommendations.

Economic resources and HIV preventive behaviors among school-enrolled young women in rural South Africa (HPTN 068).
Individual economic resources may have greater influence on school-enrolled young women’s sexual decision-making than household wealth measures. However, few studies have investigated the effects of personal income, employment, and other financial assets on young women’s sexual behaviors. Using baseline data from the HIV Prevention Trials Network (HPTN) 068 study, we examined the association of ever having sex and adopting sexually-protective practices with individual-level economic resources among school-enrolled women, aged 13-20 years (n = 2533). Age-adjusted results showed that among all women employment was associated with ever having sex (OR 1.56, 95 % CI 1.28-1.90). Among sexually-experienced women, paid work was associated with changes in partner selection practices (OR 2.38, 95 % CI 1.58-3.58) and periodic sexual abstinence to avoid HIV (OR 1.71, 95 % CI 1.07-2.75). Having money to spend on oneself was associated with reducing the number of sexual partners (OR 1.94, 95 % CI 1.08-3.46), discussing HIV testing (OR 2.15, 95 % CI 1.13-4.06), and discussing condom use (OR 1.99, 95 % CI 1.04-3.80). Having a bank account was associated with condom use (OR 1.49, 95 % CI 1.01-2.19). Economic hardship was positively associated with ever having sex, but not with sexually-protective behaviors. Maximizing women's individual economic resources may complement future prevention initiatives.

Abstract access

Editor’s notes: Young women bear a disproportionate amount of the burden of the HIV epidemic in Africa. There are strong socioeconomic drivers of the epidemic, and gender inequalities and poverty combine to make adolescent girls and young women particularly vulnerable to HIV infection. Economic programmes have been used in many countries to influence specific behaviours and to improve health outcomes. However, the evidence of their effectiveness in the context of HIV prevention is mixed. This study examined the association of individual economic resources with sexual behaviour in adolescent girls and young women. Although people with greater economic resources were more likely to have had sex, thus increasing their exposure to HIV infection, they were also more likely to engage in behaviours that were protective against HIV. Not all economic resources had a positive effect on behaviour, underscoring the fact that sexual decision-making is complex and multi-faceted. The study population was unmarried, in school, and living with at least one parent or guardian, so the findings may not be generalisable to young women who are out of school or in less stable living arrangements. Improving the individual economic status of adolescent girls and young women may have a positive impact on HIV prevention behaviour. However, women’s choices may be constrained by social norms and entrenched inequalities. This study raises further questions about how economic resources may influence HIV risk in young women, but also in young men.

7. Health systems and services

Evolution of HIV-associated lymphoma over 3 decades.


Introduction: The emergence of combined antiretroviral therapy (cART) and improvements in the management of opportunistic infections have altered the HIV epidemic over the last 30 years. We
aimed to assess changes to the biology and outcomes of HIV-associated lymphomas over this period at the national center for HIV oncology in the United Kingdom.

Methods: Clinical characteristics at lymphoma diagnosis have been prospectively collected since 1986, along with details of lymphoma treatment and outcomes. The clinical features and outcomes were compared between 3 decades: pre-cART decade (1986-1995), early-cART decade (1996-2005), and late-cART decade (2006-2015).

Results: A total of 615 patients with HIV-associated lymphoma were included in the study: 158 patients in the pre-cART era, 200 patients in the early-cART era, and 257 patients in the late-cART era. In more recent decades, patients were older (P < 0.0001) and had higher CD4 cell counts (P < 0.0001) at lymphoma diagnosis. Over time, there has also been a shift in lymphoma histological subtypes, with an increase in lymphoma subtypes associated with moderate immunosuppression. The overall survival for patients with HIV-associated lymphoma has dramatically improved over the 3 decades (P < 0.0001).

Conclusion: Over the last 30 years, the clinical demographic of HIV-associated lymphomas has evolved, and the outcomes have improved.

Abstract access

Editor’s notes: Lymphomas are the second most common malignancy after Kaposi’s sarcoma among people living with HIV in Europe, Australia and northern America. This study examined how the biology and rates of survival have changed since combination antiretroviral therapy (cART) became available.

People living with HIV and diagnosed with lymphoma over the past thirty years in a specialist oncology centre in the United Kingdom were included in the study. The mean age at diagnosis of lymphoma increased over time, most likely reflecting improvement in life expectancy with cART. As would be expected, the mean CD4 count and the proportion of people with a suppressed viral load at lymphoma diagnosis increased, while proportion with an AIDS-defining illness before lymphoma diagnosis declined significantly.

This study demonstrated a shift of the histological subtypes of lymphoma that are associated with less severe immunosuppression, for example the proportion of primary CNS lymphoma (PCNSL) and diffuse large B-cell lymphoma (DLBCL), which are associated with severe immunosuppression, declined, while the proportion of Burkitt’s lymphoma and Hodgkin’s lymphoma (associated with less profound immunosuppression) increased.

A key finding of this study was the significantly improved overall survival of people with lymphoma. The improved survival is not explained by changes in histological subtypes of lymphoma over time, as improvement in prognosis was observed for each histological subtype. The substantial improvement in overall survival is attributable to a number of factors. They include the availability of cART, attention to opportunistic infection prophylaxis, improved supportive care for people undergoing lymphoma treatment as well as improved modalities of lymphoma treatment. Such modalities include efficacious drugs that can be safely co-administered with cART, e.g., rituximab, novel agents and use of autologous stem cell transplants.

High mortality in tuberculosis patients despite HIV interventions in Swaziland.

Setting: All health facilities providing tuberculosis (TB) care in Swaziland.

Objective: To describe the impact of human immunodeficiency virus (HIV) interventions on the trend of TB treatment outcomes during 2010-2013 in Swaziland; and to describe the evolution in TB case notification, the uptake of HIV testing, antiretroviral therapy (ART) and cotrimoxazole preventive therapy (CPT), and the proportion of TB-HIV co-infected patients with adverse treatment outcomes, including mortality, loss to follow-up and treatment failure.

Design: A retrospective descriptive study using aggregated national TB programme data.

Results: Between 2010 and 2013, TB case notifications in Swaziland decreased by 40%, HIV testing increased from 86% to 96%, CPT uptake increased from 93% to 99% and ART uptake among TB patients increased from 35% to 75%. The TB-HIV co-infection rate remained around 70% and the proportion of TB-HIV cases with adverse outcomes decreased from 36% to 30%. Mortality remained high, at 14-16%, over the study period, and anti-tuberculosis treatment failure rates were stable over time (<5%).

Conclusion: Despite high CPT and ART uptake in TB-HIV patients, mortality remained high. Further studies are required to better define high-risk patient groups, understand the reasons for death and design appropriate interventions.

Abstract Full-text [free] access

Editor’s notes: This article adds to the body of evidence describing a reduction in TB case notifications at national level at a time of increasing coverage of antiretroviral therapy. Despite the apparent strengthening of the HIV treatment cascade in people with TB, mortality remained high. Around one in seven people with TB and HIV died during TB treatment, and additional deaths may have occurred in people lost to follow-up or with no outcome evaluation.

This analysis using aggregated data does not allow for detailed understanding of why people with TB and HIV died. The authors raise a number of important questions arising from these results. To achieve World Health Organization End TB target of reducing TB deaths by 90% by 2030, we need to understand where to focus resources for maximum impact.

Although not the focus of this paper, it is notable that there appeared to be a relatively stable TB case notification rate in HIV negative people across the four-year study period. This is a reminder that although TB/HIV programmes may be the key to reducing TB mortality, broader population-level programmes to interrupt TB transmission will be required to drive down TB incidence rates.

Ability of HIV advocacy to modify behavioral norms and treatment impact: a systematic review.


Background: HIV advocacy programs are partly responsible for the global community's success in reducing the burden of HIV. The rising wave of the global burden of noncommunicable diseases (NCDs) has prompted the World Health Organization to espouse NCD advocacy efforts as a possible preventive strategy. HIV and NCDs share some similarities in their chronicity and risky behaviors, which are their associated etiology. Therefore, pooled evidence on the effectiveness of HIV advocacy programs and ideas shared could be replicated and applied during the conceptualization of NCD advocacy programs. Such evidence, however, has not been systematically reviewed to address the effectiveness of HIV advocacy programs, particularly programs that aimed at changing public behaviors deemed as risk factors.
Objectives: To determine the effectiveness of HIV advocacy programs and draw lessons from those that are effective to strengthen future noncommunicable disease advocacy programs.

Search methods: We searched for evidence regarding the effectiveness of HIV advocacy programs in medical databases: PubMed, The Cumulative Index to Nursing and Allied Health Literature Plus, Educational Resources and Information Center, and Web of Science, with articles dated from 1994 to 2014.

Search criteria. The review protocol was registered before this review. The inclusion criteria were studies on advocacy programs or interventions. We selected studies with the following designs: randomized controlled design studies, pre-post intervention studies, cohorts and other longitudinal studies, quasi-experimental design studies, and cross-sectional studies that reported changes in outcome variables of interest following advocacy programs. We constructed Boolean search terms and used them in PubMed as well as other databases, in line with a population, intervention, comparator, and outcome question. The flow of evidence search and reporting followed the standard Preferred Reporting Items for Systematic Reviews and Meta-analyses guidelines.

Data collection and analysis: We selected 2 outcome variables (i.e., changing social norms and a change in impact) out of 6 key outcomes of advocacy interventions. We assessed the risk of bias for all selected studies by using the Cochrane risk-of-bias tool for randomized studies and using the Risk of Bias for Nonrandomized Observational Studies for observational studies. We did not grade the collective quality of evidence because of differences between the studies, with regard to methods, study designs, and context. Moreover, we could not carry out meta-analyses because of heterogeneity and the diverse study designs; thus, we used a narrative synthesis to report the findings.

Main results: A total of 25 studies were eligible, of the 1463 studies retrieved from selected databases. Twenty-two of the studies indicated a shift in social norms as a result of HIV advocacy programs, and 3 indicated a change in impact. We drew 6 lessons from these programs that may be useful for noncommunicable disease advocacy: (1) involving at-risk populations in advocacy programs, (2) working with laypersons and community members, (3) working with peer advocates and activists, (4) targeting specific age groups and asking support from celebrities, (5) targeting several, but specific, risk factors, and (6) using an evidence-based approach through formative research.

Author conclusions: HIV advocacy programs have been effective in shifting social norms and facilitating a change in impact.

Public health implications: The lessons learned from these effective programs could be used to improve the design and implementation of future noncommunicable disease advocacy programs.

Abstract access

Editor’s notes: This article presents the results of a systematic review to answer a question about the effectiveness of HIV advocacy in changing social norms and changing impact among key populations. The review was conducted to learn from effective HIV advocacy and apply similar strategies for the prevention and reduction of the global burden of non-communicable diseases. The review included quantitative research only. After searching 3320 articles, 25 articles met the inclusion criteria. The HIV advocacy activities reviewed ranged from local and mass campaigns using a variety of media, to social marketing, celebrities, drama, promotional activities and counselling. Changes in social norms were assessed using six specific variables, for example testing behaviour change or HIV-associated stigma. Changes in impact were analysed in two aspects, changes in HIV
transmission and in adherence to antiretroviral therapy. The review has found significant evidence of the effect of HIV advocacy on the outcomes of interest. The authors highlight lessons from HIV advocacy that might be useful for future non-communicable diseases advocacy. These included the vital role of peer-educator and of lay members of the community and the involvement of key populations in programmes that focus on them. In addition, there is a need to tailor programmes to specific (rather than multiple) risks using local and salient evidence.