AIDSFree Prevention Update

March 2016

This is the March 2016 edition of the AIDSFree Prevention Update, an initiative of the Strengthening High Impact Interventions for an AIDS-free Generation (AIDSFree) Project. The AIDSFree Prevention Update is your monthly snapshot of current peer-reviewed literature and state-of-the-art program resources, tools, and curricula on HIV prevention.

In this issue:

In Focus

Global Epidemiology of Drug Resistance after Failure of WHO Recommended First-line Regimens for Adult HIV-1 Infection: A Multicentre Retrospective Cohort Study

Welcome to the Preexposure Prophylaxis Revolution

Combination Social Protection for Reducing HIV Risk Behavior amongst Adolescents in South Africa

Behavioral Prevention

A Global Research Synthesis of HIV and STI Biobehavioural Risks in Female-to-male Transgender Adults

Biomedical Prevention

Two Large Studies Show IPM's Monthly Vaginal Ring Helps Protect Women Against HIV

The Promise of Intravaginal Rings for Prevention: User Perceptions of Biomechanical Properties and Implications for Prevention Product Development

Gendered Differences in the Perceived Risks and Benefits of Oral PrEP among HIV-serodiscordant Couples in Kenya

Implementation and Operational Research: Community-Based Adherence Clubs for the Management of Stable Antiretroviral Therapy Patients in Cape Town, South Africa: A Cohort Study

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Structural Prevention

Perpetration and Victimization of Intimate Partner Violence Among Young Men and Women in Dar es Salaam, Tanzania

HIV-related Stigma and HIV Prevention Uptake Among Young Men Who Have Sex with Men and Transgender Women in Thailand

What Determines HIV Prevention Costs at Scale? Evidence from the Avahan Programme in India

Why Increasing Availability of ART Is Not Enough: A Rapid, Community-based Study on How HIV-related Stigma Impacts Engagement to Care in Rural South Africa

Does Marital Status Matter in an HIV Hyperendemic Country? Findings from the 2012 South African National HIV Prevalence, Incidence and Behaviour Survey

Reports, Guidelines & Tools

PEPFAR Technical Considerations for Country/Regional Operational Plan (COP/ROP) 2016 Guidance

Strengthening Linkages between Clinical and Social Services for Children and Adolescents Who Have Experienced Sexual Violence: A Companion Guide

Global Epidemiology of Drug Resistance after Failure of WHO Recommended First-line Regimens for Adult HIV-1 Infection: A Multicentre Retrospective Cohort Study

The TenoRes Study Group. *The Lancet Infectious Diseases* (January 2016), doi: http://dx.doi.org/10.1016/S1473-3099(15)00536-8.

This global assessment examined outcomes of genotypic testing for drug resistance after virological failure with first-line tenofovir-containing regimen, focusing on the combination of a cytosine analog (lamivudine or emtricitabine) and a non-nucleotide reverse-transcriptase inhibitor (NNRTI; efavirenz or nevirapine). The authors defined tenofovir resistance as the presence of K65R/N or K70E/G/Q mutations in the reverse transcriptase gene. Among 1,926 individuals from 36 countries, the prevalence of tenofovir resistance was highest in low- and middle-income regions. Prevalence of cytosine analog resistance was highest in sub-Saharan Africa and Latin America and lowest in western Europe. Cytosine analog resistance was less common than NNRTI resistance across all regions except eastern Africa. Of the 700 patients with tenofovir resistance in the dataset, 65 percent were resistant to both cytosine analog and NNRTI drugs. Patients with tenofovir-resistant viruses were likely to be resistant to one or both accompanying drugs, and thus demonstrated profound compromise of their regimen, compared with those without tenofovir resistance. The authors concluded that optimizing treatment programs and conducting effective surveillance for transmission of drug resistance is crucial in light of recent World Health Organization (WHO) recommendations that in resource-limited settings, tenofovir should replace thymidine analogs (zidovudine and stavudine) as part of the NNRTI backbone treatment in first-line regimens.

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Welcome to the Preexposure Prophylaxis Revolution

Baeten, J., McCormack, S. *Current Opinion in HIV & AIDS* (January 2016), 11(1):1–2, doi: 10.1097/COH.0000000000000225.

This editorial summarized the opportunities and challenges presented by pre-exposure prophylaxis (PrEP) as a new prevention tool, including moving PrEP to scale and next steps for advancing this field. The authors discussed several aspects of expanding PrEP, including behaviors required for its successful use (testing, engagement with the health system, and adherence); social factors affecting use (stigma and gender considerations); and public health and policy implications (costs and legal frameworks). They stressed that although PrEP and HIV treatment sometimes seem to oppose one another, they share important commonalities and synergies. For example, since providers are key to PrEP provision, understanding their experiences and attitudes is essential for optimizing PrEP delivery. The editorial also discussed the costs, cost-effectiveness, and affordability of PrEP, which are common concerns among policymakers and other stakeholders. The current perception is that entire groups will need PrEP—an enormous expense in both developed and developing countries. The authors said that in all settings, some individuals—not all populations—will access PrEP first. They concluded that PrEP promises significant contributions to global HIV programs, but since implementation is only just beginning,

programs should consider offering PrEP first to the "low-hanging fruit": those high-risk individuals who already know that they need greater protection than is currently available.

View Full Editorial

Combination Social Protection for Reducing HIV Risk Behavior amongst Adolescents in South Africa

Cluver, L.D., Orkin, M.F., Yakubovich, A.R., and Sherr, L. *Journal of Acquired Immune Deficiency Syndromes* (January 2016), e-publication ahead of print.

This prospective longitudinal study assessed which social protection interventions are most effective, and whether combining social protection measures confer greater benefits than stand-alone interventions. Between 2009 and 2012, the authors interviewed 3,516 adolescents (aged 10–18) in urban and rural South Africa, measuring 14 social protection and social care provisions at baseline and one-year follow-up. Among girls who received none of the social protection interventions examined, past-year incidence of economic sex (transactional and age-disparate sex) was 10.5 percent. Incidence dropped to 6.8 percent with parental monitoring; 5.7 percent with a child-focused grant; and 4.1 percent with free schooling. Incidence was 3.6 percent with parental monitoring and a child grant; 2.6 percent with monitoring and free school; 2.1 percent with a grant and free school; and 2.1 percent with all three interventions. Unprotected or multiple-partner sex also decreased (15% without intervention; 10% with parental monitoring or school feeding; and 7% with both interventions). Among boys, incidence of risky sex was 18.7 percent without interventions. This risk diminished to 3.5 percent among boys who received free school, parental monitoring, and teacher support. The authors concluded that combination social protection is more effective than stand-alone interventions; appropriate combinations of cash transfers, free schooling, school feeding, parental monitoring, and teacher support have the potential to reduce adolescents' risks of HIV.

View Abstract

Behavioral Prevention

A Global Research Synthesis of HIV and STI Biobehavioural Risks in Female-to-male Transgender Adults

Reisner, S.L., Murchison, G.R. *Global Public Health* (January 2016):1–22, e-publication ahead of print.

Assessing the risks of HIV infection and sexually transmitted infections (STIs) in female-to-male transgender persons (FTMs) is difficult because data on this population are very limited. The authors reviewed 25 peer-reviewed studies published online before August 2014 and 11 grey literature reports providing FTM-specific data on sexual risk behavior, HIV status, or STI infection. They were unable to identify any data on biomedical prevention strategies, such as microbicides or HIV pre-exposure prophylaxis in FTMs. Moreover, FTMs were typically excluded from drug efficacy trials, even those that include transgender women. There were no studies using longitudinal cohort designs to examine FTMs' sexual behavior over time, and epidemiologic studies on sexual risk among FTMs were mainly from the

U.S. or Canada. The authors made several recommendations to guide future research efforts: (1) capture transgender identity in health surveillance systems to understand HIV and STI prevalence in these populations; (2) develop validated and standardized sexual risk assessments that are acceptable to transgender and non-transgender populations alike; and (3) acknowledge the range of gender identities in FTMs, considering both the potential challenges and protective effects of non-binary identity (gender identity that is neither exclusively male nor exclusively female) for sexual health.

View Abstract

Biomedical Prevention

Two Large Studies Show IPM's Monthly Vaginal Ring Helps Protect Women Against HIV

International Partnership for Microbicides (IPM) (papers presented at Conference on Retroviruses and Opportunistic Infections [CROI] February 2016).

Findings from two African trials, presented February 22 at the 2016 CROI, showed that a vaginal ring containing the antiretroviral drug dapivirine can reduce women's HIV risk by as much as 60 percent in those aged 25 and older. The ring, developed by the nonprofit organization International Partnership for Microbicides (IPM), is the first long-acting HIV prevention method designed specifically for women. Over 4,500 women in four sub-Saharan African countries participated in the two studies, ASPIRE (A Study to Prevent Infection with a Ring for Extended Use) and The Ring Study. The studies found an overall reduction in HIV risk of 27 percent and 31 percent, respectively. For women under age 21, however, the ring offered minimal protection—a finding believed to result from inconsistent use. Despite these mixed results, researchers, activists, and women themselves applauded the availability of a microbicide-based, woman-centered prevention method. Unlike condoms and other HIV prevention methods, the vaginal ring enables women themselves to use HIV protection without informing or seeking approval from their partners. The device is safe to use and can be left in place for a month. IPM anticipates further research on the ring before its broader release, including studies on combining microbicidal and contraceptive functions, and on longer-lasting protection.

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The Promise of Intravaginal Rings for Prevention: User Perceptions of Biomechanical Properties and Implications for Prevention Product Development

Morrow Guthrie, K., Vargas, S., Shaw, J.G., et al. *PLOS One* (December 2015), doi: 10.1371/journal.pone.0145642.

This study examined perceptions of four prototype intravaginal rings (IVRs) among current and previous contraceptive ring users to inform the design of IVRs for various prevention functions. The authors conducted four semi-structured focus groups with a total of 21 urban women in the northeastern U.S. The discussions included: (1) perceptions of the IVR insertion process; (2) conditions in which an IVR might come out of the vagina; (3) physical awareness of IVRs in previous users; and (4) the potential effects of prototype IVRs on sexual experience. Women identified pliability (or flexibility), including both

materials used and size of the IVR, as the most important IVR property. Pliability had implications for ring insertion and vaginal placement, comfort during daily use, and comfort for both partners during vaginal intercourse. When asked about the ring size, participants responded that the greater the ring's capacity to hold a drug, the more likely it would be to work and/or work for longer periods of time (in the case of long-term products). The authors concluded that addressing users' perceptions will help product developers design IVRs that achieve optimum adherence and hence, optimum effectiveness.

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Gendered Differences in the Perceived Risks and Benefits of Oral PrEP among HIV-serodiscordant Couples in Kenya

Carroll, J.J., Ngure, K., Heffron, R., et al. *AIDS Care* (January 2016), e-publication ahead of print.

The authors of this qualitative study conducted focus groups and individual interviews with 33 HIV-seropositive participants (18 women, 15 men) and 35 seronegative (18 women, 17 men) to explore perceived risks, benefits, and barriers to using daily oral pre-exposure prophylaxis (PrEP) in heterosexual, HIV-serodiscordant couples. Findings showed that serostatus affected men and women differently in terms of their ability to make medical decisions in their households. Seronegative women within couples reported that their husbands decided whether either partner would initiate antiretrovirals or PrEP. HIV-positive men (the partners of seronegative women) also said that they decided for themselves and their spouses. Among female-seropositive couples, women said that while men made most medical decisions, women could sometimes find ways to control their own decisions. However, many HIV-seronegative men characterized medical decision-making as a shared responsibility. Regarding risk reduction, HIV-positive women reported that their HIV-negative partners frequently refused to use condoms; but in couples with HIV-positive men, neither partner mentioned struggles with condom use. When asked about the treatment regimen, HIV-seropositive women said their husbands felt that seropositive women should carry the pill burden alone. The authors concluded that successful delivery of PrEP will require an understanding of key social factors, especially the impacts of gender and intra-couple responses to HIV serostatus.

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Implementation and Operational Research: Community-Based Adherence Clubs for the Management of Stable Antiretroviral Therapy Patients in Cape Town, South Africa: A Cohort Study

Grimsrud, A., Lesosky, M., Kalombo, C., et al. *Journal of Acquired Immune Deficiency Syndromes* (January 2016), 71(1):e16–e23, doi: 10.1097/QAI.0000000000000863.

This study described loss to follow-up (LTFU) and viral rebound (persistent detectable levels of HIV in the blood) in antiretroviral therapy (ART) among patients attending community-based adherence clubs (CACs) and compared these outcomes to those of patients managed in community health centers (CHC). The analysis included 8,150 adults initiating ART from 2002 to 2012 in a public-sector facility, who were followed until the end of 2013. CACs, led by a community health care worker and supported by a nurse, comprised groups of 25 to 30 patients. CACs met every two months for group counseling, a brief symptom screening, and distribution of ART. The authors reported that overall, 94 percent of CAC

patients were retained on ART after 12 months, and patients in CACs were associated with a decreased risk of LTFU compared with those in CHCs, irrespective of age, sex, year of ART initiation, or CD4 cell count at ART initiation. The exception was for youth aged 16–24 years; in this group, risks of LTFU were similar between the CAC and CHC models. These findings, the authors said, point to the potential of community-based models of care contributing to the achievement of global treatment targets while supporting long-term retention in care.

View Abstract

Structural Prevention

Perpetration and Victimization of Intimate Partner Violence Among Young Men and Women in Dar es Salaam, Tanzania

Mulawa, M., Kajula, L.J., Yamanis, T.J., et al. *Journal of Interpersonal Violence* (January 2016), pii: 0886260515625910, e-publication ahead of print.

This analysis compared baseline rates of victimization and perpetration of three forms of intimate partner violence (IPV)—psychological, physical, and sexual—among sexually active men and women. Participants comprised 1,113 men and 226 women who were enrolled in an HIV-and gender-based violence prevention trial in Dar es Salaam, Tanzania from October 2013 to March 2014. Both men and women (34.8% and 35.8%, respectively) reported experiencing any form of IPV victimization over the past year. Men and women reported similar prevalence of psychological and sexual victimization; however, more women than men reported physical IPV victimization. Men and women reporting psychological victimization reported only that form of IPV, while most men and women experiencing either physical or sexual victimization also experienced psychological violence. Rates of IPV victimization among perpetrators were remarkably high; both male and female perpetrators (approximately 70% and 80%, respectively) also reported IPV victimization within the last year. While this study could not assess whether victimization and perpetration occurred within the same relationship, the high overlap between victimization and perpetration suggested that IPV may be bidirectional, with men and women concurrently engaging in conflict in their relationships. The authors concluded that interventions should include a broader "family violence" or "partner violence" approach to reduce violence perpetrated by both genders.

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HIV-related Stigma and HIV Prevention Uptake Among Young Men Who Have Sex with Men and Transgender Women in Thailand

Logie, C.H., Newman, P.A., Weaver, J., et al. *AIDS Patient Care and STDs* (February 2016), 30(2):92-100, doi: 10.1089/apc.2015.0197.

This study explored associations between HIV-related stigma and (1) socio-demographic variables; (2) types of HIV vulnerability (gay entertainment employment, sex work, forced sex, and stigma); and (3) HIV prevention uptake (condom use, HIV testing, rectal microbicide) among men who have sex with men (MSM) and transgender (TG) women in Thailand. A total of 408 young MSM and TGs aged 18–30 years, recruited from April to August 2013, completed self-administered questionnaires. Two-thirds (65.7%) of participants worked at gay entertainment venues; 55.6 percent reported having been paid for sex, and 33.8 percent reported having paid other partners for sex during the past three months. There were no significant differences by type of HIV vulnerability between HIV-positive and HIV-negative or untested participants. Participants reporting higher total HIV-related stigma scores were less likely to have been tested for HIV, and were less willing to use a rectal microbicide. The authors concluded that having experienced HIV-related stigma was directly associated with low uptake of both HIV testing and microbicide use. The authors suggested that HIV interventions and research among young MSM and TGs in Thailand should address multiple dimensions of HIV-related stigma as a correlate of risk and a barrier to accessing prevention.

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What Determines HIV Prevention Costs at Scale? Evidence from the Avahan Programme in India

Lépine, A., Chandrashekar, S., Shetty, G., et al. *Health Economics* (February 2016), 25(1):67–82, doi: 10.1002/hec.3296.

To inform the design of HIV programs that provide grants to nongovernmental organizations (NGOs), the authors collected economic costs of HIV prevention delivered during the first four years of the Indian Avahan initiative, the world's largest HIV prevention project. Avahan has produced one of the largest cost datasets globally, collected from 138 NGOs in 64 districts of four Indian states from 2004 to 2007. The program monitored all recurrent costs (personnel, building operating expenses, travel, supplies for addressing sexually transmitted infections or STIs, monitoring, outreach and training, condom supplies, and indirect expenses) and capital costs (buildings, equipment, furniture, vehicles, initial training, insurance and deposits, and start-up). For each participating NGO, costs were disaggregated by activity and input type. The authors found that program design characteristics (such as NGO size, community involvement, the quality of outreach, and STI service delivery strategy) significantly influenced average costs; environmental or population influences had less impact. Higher total costs did not necessarily suggest increased inefficiency. Sometimes, higher total costs included technical assistance that improved efficiency at the NGO level by enhancing service quality. The authors urged program managers to consider these findings when designing and implementing HIV prevention and other public health programs to ensure that the greatest number of beneficiaries can receive essential services using the resources available.

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Why Increasing Availability of ART Is Not Enough: A Rapid, Community-based Study on How HIV-related Stigma Impacts Engagement to Care in Rural South Africa

Treves-Kagan, S., Steward, W.T., Ntswane, L., et al. *BMC Public Health* (January 2016), 16(1):87. doi: 10.1186/s12889-016-2753-2.

This study examined the effect of stigma on access to antiretroviral therapy (ART) in settings where ART was available in almost all local health clinics. The authors conducted secondary analysis of data from a rapid community-based qualitative assessment for a combination HIV prevention project in two districts of South Africa. Transcriptions of 31 interviews and focus group discussions showed that community perceptions still strongly associated HIV with promiscuity and adultery. HIV-positive community members could thus be treated differently or be socially isolated both from the general community and from family. Participants, especially those from key populations (youth, sex workers, and men who have sex with men) also reported feeling stigmatized by health care providers. They described using strategies to manage who learns of their HIV status, mostly avoiding disclosure by describing their HIV infection as some other condition. Simply being seen at a health clinic meant risking exposure of one's HIV status. This perception was considered a major barrier to accessing health facilities for testing or treatment, and a reason for delaying access to care until advanced sickness. The authors underlined the urgency of increasing cultural acceptance of being seropositive, integrating HIV care into general primary care, and normalizing access to health care by men and young people.

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Does Marital Status Matter in an HIV Hyperendemic Country? Findings from the 2012 South African National HIV Prevalence, Incidence and Behaviour Survey

Shisana, O., Risher, K., Celentano, D.D., et al. *AIDS Care: Psychological and Socio-medical Aspects of AIDS/HIV* (November 2015), 28(2):234-241, doi: 10.1080/09540121.2015.1080790.

The authors of this study analyzed findings from the 2012 South African National HIV Prevalence, Incidence and Behavior Survey to clarify the relationship between marital status and HIV in the South African population. Of 17,356 respondents aged 16 years or older who provided specimens for HIV testing, 5,930 (34.2%) were married and living together; 589 (3.4%) were married but living separately; 1,743 (10.0%) were cohabitating with their partner; 3,958 (22.8%) were in a steady relationship but not living with their partner; and 5,136 (29.6%) were single, divorced, or widowed. Analysis showed that individuals who were married and living together were significantly less likely to be HIV-positive compared to all other marital status groups. Being married and living apart was associated with significantly increased odds of being HIV-positive, compared to being married and living together. The highest HIV incidence rate was found in the cohabiting group: 10.8 times higher than the incidence among participants who were married and living together. The authors concluded that given declining marriage rates and poor economic conditions in South Africa, messages on prevention should target unmarried and cohabiting people, and communicate that living together while unmarried carries the highest risk among all marital statuses in South Africa.

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Reports, Guidelines & Tools

PEPFAR Technical Considerations for Country/Regional Operational Plan (COP/ROP) 2016 Guidance

U.S. President's Emergency Plan for AIDS Relief (PEPFAR) (February 2016).

PEPFAR has released technical considerations for Country/Regional Operational Plan (COP/ROP) Fiscal Year 2016. These substantially revised technical considerations include input from Chiefs of Mission and provide new details on PEPFAR's technical support to countries. The technical considerations include funding memos and country-specific applications. PEPFAR will support countries for one-time commodities funds to immediately expand drug availability. Additionally, PEPFAR will continue working with countries to move immediately to provision of antiretroviral therapy for all persons living with HIV (Test and START) by adapting and implementing the 2015 World Health Organization (WHO) guidelines.

View Technical Considerations

Strengthening Linkages between Clinical and Social Services for Children and Adolescents Who Have Experienced Sexual Violence: A Companion Guide

Levy, M., Messner, L., Duffy, M., and Casto, J. Strengthening High Impact Interventions for an AIDS-free Generation (AIDSFree) Project (2016).

This document, produced by the Strengthening High Impact Interventions for an AIDS-free Generation (AIDSFree) Project, serves as a companion guide to the 2012 *Clinical Management of Children and Adolescents Who Have Experienced Sexual Violence: Technical Considerations for PEPFAR Programs*, which provides step-by-step guidance on the appropriate clinical/forensic care for children and adolescents who have experienced sexual violence and exploitation. The companion guide provides a basic framework, examples, resources, and contact information to help providers and managers understand the needs of young people who have experienced sexual abuse, and to ensure comprehensive care beyond the clinical exam. Comprehensive care for this vulnerable group includes facilitating linkages with critical social and community services; taking additional steps to help children and adolescents obtain information and support their needs; and contributing to changes in sociocultural norms that perpetuate a culture of violence and silence, increasing vulnerability and the potential for HIV risk.

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