AIDSFree Prevention Update

January 2015

Welcome to the AIDSFree Prevention Update, a new 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. You are receiving this email because you previously subscribed to the AIDSTAR-One HIV Prevention Update.

In this issue:

In Focus

NIH-Sponsored PROMISE Study Identifies Superior Drug Regimen for Preventing Mother-to-Child HIV Transmission

How Can We Get Close to Zero? The Potential Contribution of Biomedical Prevention and the Investment Framework towards an Effective Response to HIV

Combination HIV Prevention among MSM in South Africa: Results from Agent-Based Modeling

Behavioral Interventions

Factors Underlying the Success of Behavioral HIV-Prevention Interventions for Adolescents: A Meta-Review

Behavior Change Pathways to Voluntary Medical Male Circumcision: Narrative Interviews with Circumcision Clients in Zambia

Male Circumcision, Alcohol Use and Unprotected Sex among Patrons of Bars and Taverns in Rural Areas of North-West Province, South Africa

Biomedical Interventions

Risk Compensation Following Male Circumcision: Results from a Two-Year Prospective Cohort Study of Recently Circumcised and Uncircumcised Men in Nyanza Province, Kenya

First Population-Level Effectiveness Evaluation of a National Program to Prevent HIV Transmission from Mother to Child, South Africa

Combination Interventions

Effects of a Couple-Based Intervention to Reduce Risks for HIV, HCV, and STIs among Drug-Involved Heterosexual Couples in Kazakhstan: A Randomized Controlled Trial

The AIDSFree Prevention Update is made possible by the generous support of the American people with support from the U. S. President's Emergency Plan for AIDS Relief (PEPFAR) and the U.S. Agency for International Development (USAID) under the Cooperative Agreement Strengthening High Impact Interventions for an AIDS-free Generation (AIDSFree), number AID-OAA-A-14-00046. AIDSFree is implemented by JSI Research & Training Institute, Inc. with partners Abt Associates Inc., Elizabeth Glaser Pediatric AIDS Foundation, EnCompass LLC, IMA World Health, The International HIV/AIDS Alliance, Jhpiego Corporation, and PATH. The authors' views expressed in this publication do not necessarily reflect the views of USAID or the U.S. Government.

Structural Interventions

The Impact of SASA!, A Community Mobilization Intervention, on Reported HIV-Related Risk Behaviors and Relationship Dynamics in Kampala, Uganda

Intimate Partner Violence and HIV in Ten Sub-Saharan African Countries: What Do the Demographic and Health Surveys Tell Us?

Multiple Sexual Partnerships among Female Adolescents in Rural Uganda: The Effects of Family Structure and School Attendance

The SHAZ! Project: Results from a Pilot Randomized Trial of a Structural Intervention to Prevent HIV among Adolescent Women in Zimbabwe

Male Partner Influence on Women's HIV Prevention Trial Participation and Use of Pre-exposure Prophylaxis: The Importance of "Understanding"

Epidemiological Interventions

Recent HIV Prevalence Trends among Pregnant Women and all Women in Sub-Saharan Africa: Implications for HIV Estimates

NIH-Sponsored PROMISE Study Identifies Superior Drug Regimen for Preventing Mother-to-Child HIV Transmission

***National Institutes of Health (NIH) News*, November 17, 2014.**

The ongoing PROMISE (Promoting Maternal-Infant Survival Everywhere) trial compared the safety and effectiveness of three drug regimens for preventing vertical transmission of HIV. The randomized clinical study enrolled 3,485 HIV-positive pregnant or postpartum women who were not receiving HIV treatment, and over 3,200 HIV-exposed infants of these women in India, Malawi, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe. The women were randomly assigned to receive either Option A (giving women zidovudine in early pregnancy, nevirapine during labor, and tenofovir and emtricitabine after delivery), or one of two three-drug regimens (Option B or B+). The first cocktail combined lamivudine, zidovudine, and ritonavir-boosted lopinavir (the lamivudine combination); the second combined tenofovir, emtricitabine, and ritonavir-boosted lopinavir (the tenofovir combination). Seroconversion occurred in 0.5 percent of infants whose mothers received the lamivudine combination, and 0.6 percent of infants whose mothers received the tenofovir combination. By comparison, 1.8 percent of infants whose mothers received Option A became infected. Women who received the lamivudine combination also had fewer severe pregnancy complications than those who received the tenofovir combination. In addition, fewer infants whose mothers received the lamivudine combination died within two weeks of birth, compared to infants whose mothers received the tenofovir combination or Option A. These findings supported implementation of Option B or B+, and suggested that the lamivudine combination may be the safer of the two triple drug options.

For more information:

- Read the PROMISE study launch announcement
- Visit ClinicalTrials.gov (study identifiers NCT01061151 and NCT01253538)

How Can We Get Close to Zero? The Potential Contribution of Biomedical Prevention and the Investment Framework towards an Effective Response to HIV

Stover, J., Hallett, T. B., Wu, Z. *PLoS ONE* (November 5, 2014), Vol. 9, pp. 1–9.

The authors modeled the impact of three new prevention technologies: test and treat (T&T), pre-exposure prophylaxis (PrEP), and HIV vaccination in 24 countries that account for 85 percent of new infections. They divided the adult population into 11 main risk groups, and modeled the impact of each new technology by itself: (1) providing antiretroviral therapy (ART) to 40–60 percent of HIV-positive adults with CD4 counts >500 cells/ml; (2) providing PrEP to men who have sex with men, female sex workers, and discordant couples in all countries, and to adolescents in hyper-endemic countries; (3) providing HIV vaccine to 40–70 percent of adults in generalized epidemics, and to 30–60 percent of high-risk populations in concentrated epidemics. The model showed that expanding ART coverage in line with the World Health Organization's (WHO) 2013 treatment guidelines could reduce annual new infections by 83 percent by 2050. However, introducing each new intervention led to significant reductions in HIV incidence and mortality; for example, T&T reduced new infections in 2050 by 6–10 percent. The authors concluded that while scaling up the 2013 WHO guidelines had the greatest impact, the addition of all four interventions could reduce the new infection rate to as low as 80,000 per year by 2050.

View Abstract

Combination HIV Prevention among MSM in South Africa: Results from Agent-Based Modeling

Brookmeyer, R., Boren, D., Baral, S. D., et al. *PLoS ONE* (November 2014), Vol. 9, Issue 11, pp. 1–9.

Agent-based modeling simulates interactions between individuals (agents) who may change their behavior in response to other agents, or to changes in the environment. The authors of this study developed an agent-based model to determine the effectiveness of combination HIV prevention interventions among men who have sex with men (MSM) in South Africa. They assessed 163 HIV prevention packages that included four components: antiretroviral therapy (ART) for HIV-positive persons with CD4 count >350; pre-exposure prophylaxis (PrEP) for high-risk uninfected persons; behavioral interventions to reduce rates of unprotected anal intercourse (UAI); and campaigns to increase HIV testing. They then used the agent-based model to identify a four-component HIV prevention package suitable for MSM in South Africa. This package consisted of 50 percent ART coverage for persons who were not already receiving ART, 50 percent PrEP coverage for high-risk persons, 15 percent UAI reduction, and a 50 percent increase in HIV testing among MSM. This package, the authors said, could prevent about 34 percent of HIV infections over a five-year period. Also, the 15 percent reduction in UAI prevented 21 percent of infections--the largest incremental impact on infections within this package. The authors concluded that a combination prevention package consisting of these interventions at the coverage described could be effective in preventing new HIV infections among MSM in South Africa.

View Abstract

Behavioral Interventions

Factors Underlying the Success of Behavioral HIV-Prevention Interventions for Adolescents: A Meta-Review

Protogerou, C., & Johnson, B. T. *AIDS and Behavior* (October 2014), Vol 18, pp. 1847–1863.

The authors analyzed quantitative and qualitative reviews published to date to identify characteristics of successful HIV prevention interventions for adolescents aged 10–19, focusing on reduction of sexual risk-taking. After examining five eligible meta-analyses and six qualitative reviews, they identified four categories (factors) of interventions that were associated with reduced sexual risk-taking: (1) use of behavior change techniques (e.g., training to enhance motivation and build skills in cognitive behavior); (2) participant characteristics (e.g., age and vulnerability to contracting sexually transmitted infections including HIV); (3) application of design features (e.g., application of theory, formative research); (4) and socio-ecological features (e.g., supportive school environment). The findings showed that behavioral interventions had positive outcomes in at least one of the following: improving knowledge about HIV or safer sex, self-efficacy, delaying next sexual intercourse, encouraging abstinence, decreasing frequency of sex or number of partners, and increasing condom use. Of the four categories examined, the first, use of behavior change techniques (such as practicing communication and negotiation skills) was most closely linked to reduced sexual risk-taking; the fourth category, socio-ecological features, was the least effective. The authors concluded by endorsing the efficacy of behavioral HIV prevention interventions for adolescents, and called for formative research for full implementation of each of the four elements discussed.

View Abstract

Behavior Change Pathways to Voluntary Medical Male Circumcision: Narrative Interviews with Circumcision Clients in Zambia

Price, J. E., Phiri, L., Mulenga, D, et al. *PLoS ONE* (November 2014), Vol. 9, No. 11, e111602.

This qualitative study showed that tailored messages, delivered by an appropriate "messenger," are critical to the acceptance of voluntary medical male circumcision (VMMC). The authors interviewed a sample of 40 married and unmarried men over age 18 in two VMMC clinics in Lusaka, Zambia to understand how these men first became interested in circumcision, what brought them to the VMMC clinic, and whether the medical sector met their needs. At the two high-volume clinics (>30 VMMC services daily), the authors conducted interviews in line with the Stages of Change behavioral theory to document the men's VMMC-seeking behavior from the time they first learned about adult circumcision to the time when they entered the medical facility to seek the procedure. A major finding was that the messenger was as important as the message in the decision-making process. The interviews showed that messages about VMMC play an important role on men's behavior change; but the men also expressed the need for messages tailored to their specific needs and concerns about VMMC. Also, their frequent reference to peers and friends underscored that peer-to-peer messages play an important role in behavior change. The interviewees stressed that clinics should avoid turning men away (due to lack of supplies, for example), since this may discourage some men from returning to the clinic.

View Abstract

Male Circumcision, Alcohol Use and Unprotected Sex among Patrons of Bars and Taverns in Rural Areas of North-West Province, South Africa

Nkosi, S., Sikweyiya,Y., Kekwaletswe, C. T., et al. *AIDS Care* (November 27, 2014), pp. 1–6, E-publication ahead of print.

The authors of this study examined the relative importance of alcohol consumption and both medical male circumcision (MMC) and traditional male circumcision (TMC) as correlated with unprotected sex; and compared the risk of unprotected sex between traditionally circumcised and medically circumcised tavern-going men from two rural villages in North West province, South Africa. The 314 study participants were asked to respond to an interviewer-administered structured questionnaire about their demographic characteristics, alcohol use, circumcision status, method of circumcision (i.e., traditional or medical), and condom use behavior in the past six months. The authors used a 10-item Alcohol Use Disorders Identification Test (AUDIT) approach to assess the participants' alcohol consumption. Using descriptive analyses and bivariate and multivariate logistic regression analysis, they showed that age, education, relationship status, alcohol consumption, and TMC were independently significantly associated with unprotected sex. Additionally, the study found that TMC men had a higher risk of engaging in unprotected sex than MMC men. The authors concluded that more research is needed to better understand factors that could account for differences in behavior between TMC and MMC men. They also urged including interventions to reduce alcohol consumption and encourage protective behavior among TMC men within HIV prevention education.

View Abstract

Risk Compensation Following Male Circumcision: Results from a Two-Year Prospective Cohort Study of Recently Circumcised and Uncircumcised Men in Nyanza Province, Kenya

Westercamp, N., Agot, K., Jaoko, W., et al. *AIDS and Behavior* (September 18, 2014), Vol. 18, pp. 1764–1775.

This study was the first to compare long-term changes in HIV risk perception and sexual risk behavior in men before and after circumcision. The study, conducted in the context of a Kenyan national voluntary medical male circumcision (VMMC) initiative, took place in three districts of Nyanza Province (two rural, one urban) and enrolled men seeking VMMC services at participating health facilities. Enrollees included 1,588 men in the circumcision group and 1,598 uncircumcised men in the control group. During follow-up visits at 6, 12, 18, and 24 months, all study participants underwent visual examination to confirm circumcision status, completed the study questionnaire, were encouraged to attend HIV testing and counseling, and viewed HIV educational videos, but did not receive any direct risk reduction counseling. The authors found no evidence of risk compensation in men following circumcision. The proportion of men reporting condom use at last sexual encounter increased for both groups, with a significant increase among circumcised men (30 percent, versus 6 percent in the control group). The authors concluded that the study found no evidence of risk compensation, and that risk compensation is unlikely to affect the scale-up of VMMC programs in Kenya and elsewhere.

View Abstract

First Population-Level Effectiveness Evaluation of a National Program to Prevent HIV Transmission from Mother to Child, South Africa

Goga, A. E., Dinh, T. H., Jackson, D. J., et al. *Journal of Epidemiology & Community Health* (November 2014), pp. 1–9, doi: 10.1136/jech-2014-204535, E-publication ahead of print.

The authors reported on the first population-level study to assess the effect of South Africa's national program for preventing mother-to-child transmission (PMTCT) of HIV. They conducted a facility-based survey of 10,178 caregiver-infant pairs recruited from 565 clinics, focusing on vertical HIV transmission occurring between four and eight weeks post-partum. Data collection included interviews with caregivers, record reviews, and infant dried blood spots to identify HIV-exposed infants (HEI) and HIV-infected infants. During analysis the authors categorized antiretroviral (ARV) use in terms of the type of treatment described through self-reporting: (1) triple ARV treatment; (2) prophylaxis (>10 weeks, ≤10 weeks, and incomplete); (3) no antenatal ARV, and (4) missing ARV information. The study found that nationally, 32 percent of live infants were HEI; mother-to-child transmission (MTCT) within the time assessed was 3.5 percent. Among HEI, 29.4 percent were born to mothers on triple ARV treatment; 55.6 percent on prophylaxis; 9.5 percent to mothers receiving no antenatal ARV; and 5.5 percent with missing ARV information. The authors concluded that South Africa's PMTCT program has achieved country-level success, reducing early MTCT to <5 percent in a high-HIV-prevalence African setting. However, more research is needed on long-term infant HIV-free survival, and on the population-level effect of various PMTCT regimens.

View Abstract

Combination Interventions

Effects of a Couple-Based Intervention to Reduce Risks for HIV, HCV, and STIs among Drug-Involved Heterosexual Couples in Kazakhstan: A Randomized Controlled Trial

El-Bassel, N., Gilbert, L., Terlikbayeva, A., et al. *Journal of Acquired Immunodeficiency Syndrome* (October 1, 2014), Vol. 67, No. 2, pp. 196–203.

The authors of this article described a randomized controlled trial in Kazakhstan to address the co-occurring epidemics of HIV and hepatitis C virus (HCV) infection among persons who inject drugs (PWID). This study tested the efficacy of a behavioral, couple-based intervention aimed at reducing: (1) incidence of unprotected sex and of HIV, HCV, and other sexually transmitted infections (STIs), and (2) unsafe injection practice among PWID and their partners. A total of 300 eligible participants were recruited from health clinics, harm reduction service centers, and PWID networks in the city of Almaty. Participants were randomly assigned to either a five-session risk reduction (RR) intervention, or a five-session wellness promotion (WP) intervention (the control group). At the 12-month follow-up, participants in the RR arm had 51 percent lower incidence of HIV infection and 69 percent lower HVC infection than the WP control participants. Participants in the RR arm also showed a 42 percent lower incidence of unprotected sex with their partners, compared to those in the WP arm. The authors concluded that behavioral interventions can provide significant impact to HIV/HCV/STI prevention efforts, and should be scaled up for PWID in harm reduction programs, drug treatment, and criminal justice settings.

View Abstract

Structural Interventions

The Impact of SASA!, A Community Mobilization Intervention, on Reported HIV-Related Risk Behaviors and Relationship Dynamics in Kampala, Uganda

Kyegombe, N., Abramsky, T., Devries, K. M., et al. *Journal of the International AIDS Society* (November 2014), Vol. 17, E-publication.

Start, Awareness, Support and Action (SASA!) is a community mobilization intervention that seeks to prevent intimate partner violence (IPV) and reduce HIV-related risk behaviors at the community level. The authors assessed the community-level effect of SASA! on primary and secondary outcomes for IPV, HIV-related risk behaviors, and relationship dynamics. This research, conducted between 2007 and 2012 in two administrative divisions of Kampala, Uganda, included four intervention and four control sites. Two cross-sectional surveys were conducted at baseline and follow-up (1,583 and 2,532 participants, respectively, from randomly selected households), with separate quantitative analyses for male and female respondents. Men's reported condom use at last intercourse with their partner was higher in the intervention group (41 percent) compared to men in the control group (22 percent). Men in the intervention group were also 50 percent more likely to have tested for HIV. Women in the intervention group felt significantly more able to refuse sex with their partner than women in the control groups. In addition, more women in the intervention group reported relationship improvements, including joint decision-making and open communication with their partner. The authors concluded that a community-level intervention such as SASA! can improve relationship dynamics and reduce HIV-related risk behaviors between intimate partners.

View Abstract

Intimate Partner Violence and HIV in Ten Sub-Saharan African Countries: What Do the Demographic and Health Surveys Tell Us?

Durevall, D., Lindskog, A. *The Lancet Global Health* (November 2014), doi: 10.1016/S2214-109X (14)70343-2, E-publication.

This study systematically analyzed the association between intimate partner violence (IPV) and HIV in women in 10 sub-Saharan African countries. The authors used data from 2014 Demographic and Health (DHS) surveys to determine the conditions in which the association between IPV and HIV infection was recorded. These DHS datasets, nationally representative for women aged 15–49 years, included HIV testing and a complete domestic violence module. The authors collected data (findings from blood spot samples from eligible men and binary indicators [yes or no] from eligible women in randomly selected households) to assess physical, sexual, and emotional violence, controlling behavior, and combinations of the above; and compared these indicators in IPV-exposed women with those in non-exposed women. The findings confirmed that IPV was associated with significantly higher risk of HIV among women. Analysis of risks by indicator also revealed details about the effects of specific male behavior. For example, controlling male behavior and physical and emotional violence increased the probability of HIV infection for all women, whereas sexual violence was a significant HIV risk only in the sample of women in their first union. The authors concluded that HIV prevention programs in high HIV prevalence areas should focus on men with controlling behavior in addition to those with violent behavior.

View Abstract

Multiple Sexual Partnerships among Female Adolescents in Rural Uganda: The Effects of Family Structure and School Attendance

Pilgrim, N. A., Ahmed, S., Gray, R. H., et al. *International Journal of Adolescent Medicine and Health* (November 2014), doi: 10.1515/ijamh-2014-0032, E-publication ahead of print.

Family structure and school attendance are believed to play a critical role in adolescents' sexual behaviors, providing direct emotional, social, and economic support, as well as positive or negative role models. The authors of this study sought to clarify the influence of families and school attendance on young women's sexual risk behaviors, so as to identify new HIV prevention strategies for this group. The authors analyzed the most recent available survey interviews for 2,337 unmarried girls aged 15–19 years who were enrolled in the Rakai Community Cohort Study in rural Uganda between 2001 and 2008. The analysis was stratified by age (15–17 and 18–19 years) and school status (in or out of school). The findings showed that in both age groups, girls living with their biological father reported lower risk behaviors, including fewer sexual partners, compared do those living with a stepfather or in another family structure. In addition, adolescents currently enrolled in school reported fewer partners over the past year, suggesting that school attendance is associated with lower risk behavior. The authors concluded that HIV prevention interventions for adolescent girls should consider both family structures and school attendance status.

View Abstract

The SHAZ! Project: Results from a Pilot Randomized Trial of a Structural Intervention to Prevent HIV among Adolescent Women in Zimbabwe

Dunbar, M. S., Kang Dufour, M. S., Lambdin, B, et al. *PLoS ONE* (November 2014), doi: 10.1371/journal.pone.0113621.

Shaping the Health of Adolescents in Zimbabwe (SHAZ!) is a randomized controlled trial comparing the HIV prevention impact of a combined intervention package (including life-skills and health education, vocational training, micro-grants, and social supports) to the impact of life skills and health education alone. This study assessed the impact of adding a *livelihoods intervention* (financial literacy education and a choice of vocational

training); and *integrated social support* (guidance counseling to help participants navigate challenges, along with self-selected adult mentors) to the combined SHAZ! intervention package. The study included 315 eligible female adolescents aged 16–19 years who were randomly assigned to the intervention or control group. Intervention participants received the livelihood and integrated social support interventions, in addition to the other SHAZ! interventions that all participants received. The study found that intervention participants had lower risk of transactional sex [IOR=0.64, 95% CI (0.50, 0.83)], and a higher likelihood of using a condom with their current partner [IOR=1.79, 95% CI (1.23, 2.62)] over time compared to baseline. There was also evidence of fewer unintended pregnancies among intervention participants [HR=0.61, 95% CI (0.37, 1.01)], although this relationship achieved only marginal statistical significance. The authors concluded that future HIV prevention packages for adolescent females should include interventions for vocational training and micro-grants along with other interventions.

View Abstract

Male Partner Influence on Women's HIV Prevention Trial Participation and Use of Pre-exposure Prophylaxis: The Importance of "Understanding"

Montgomery, E. T., van der Straten, A., Stadler, J., et al. *AIDS and Behavior* (November 2014), E-publication ahead of print.

Male partners are believed to have significant influence over their female partner's ability to negotiate about and use female-controlled HIV prevention methods. The authors of this study investigated how men influenced their female partner's ability to participate in the ongoing Vaginal and Oral Interventions to Control the Epidemic (VOICE) trial, specifically the VOICE C arm, which examined social and structural influences on women's use of antiretroviral tablets or a vaginal gel. The authors recruited 102 randomly selected trial participants in Johannesburg, South Africa. They conducted in-depth and ethnographic interviews and focus group discussions with the female participants, and in-depth interviews and focus group discussions with 22 male partners. Data analysis showed that many male partners did not fully understand or trust the research, and as a result discouraged their female partner's use of the product or participation in the study. The study also found that because of the men's reluctance to agree with their participation in the study, women were less likely to disclose their use of the product. The authors concluded that research is needed to identify and test strategies to proactively involve male partners in order to enhance women's involvement and commitment to these trials.

View Abstract

Epidemiological Interventions

Recent HIV Prevalence Trends among Pregnant Women and all Women in Sub-Saharan Africa: Implications for HIV Estimates

Eaton, J. W., Rehle, T. M., Jooste, S., et al. *AIDS* (November 2014), Vol. 28, Supplement 4, pp. 507–514.

This study examined data from 13 sub-Saharan African countries to determine whether recent HIV prevalence trends among pregnant women are representative of general population trends. The authors used nationally representative household-based HIV prevalence survey data from the 13 countries, dividing their examination into two time periods: 2003–2008, and 2009–2012. For each time period, they calculated the percentage of

pregnant women, HIV prevalence among all women, and HIV prevalence among currently pregnant women; they then compared HIV prevalence trends among all women aged 15–49 years. The results showed that HIV prevalence trends among currently pregnant women aged 15–24 years were similar to trends for all women aged 15–24 years. This is consistent with previous research findings, suggesting that prevalence trends among young women attending antenatal care (ANC) were in fact representative of prevalence trends in all young women. However, HIV prevalence trends among older pregnant women were significantly lower than HIV prevalence for all older women. The authors concluded that given the difference in prevalence patterns for older pregnant women versus those for all older women, HIV prevalence surveillance among ANC attendees should be collected by age.

View Abstract