

Results In the 12 weeks post-diagnosis, for a large majority of respondents there was a reduction in the expected number of casual partners who would be infected: 76% of participants eliminated risk of onward transmission entirely. However, a small proportion still presented a transmission risk. Overall, reductions in HIV transmission risk behaviour post-diagnosis would have reduced estimated secondary transmission during primary HIV infection (PHI) from been 33 (23–37) to 12 (6–14)—a reduction of 62% (32%–83%). Diagnosis after PHI produces a more modest reduction in transmission by missing the high-infectivity period.

Conclusions Diagnosis of PHI can produce a large proportionate reduction in HIV-transmission events by reducing transmission-risk behaviour. Due to the high infectivity but short duration of primary infection, even short-term behaviour change can significantly reduce transmission. Later diagnosis is less effective, whilst early diagnosis requires frequent or highly-targeted testing. Whilst further work is required to determine the costs of different testing strategies, our quantification of the number of infections averted is an essential component of an assessment of the cost-effectiveness of strategies to increase early diagnoses of HIV infection.

01-S11.04 TARGETING THE USE OF HIV RNA SCREENING TO MAXIMISE YIELD AND MINIMISE COST: NYC HEALTH DEPARTMENT STD CLINICS, 2008–2010

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Background Nucleic acid amplification testing (NAAT) is an important tool for identifying acute HIV infection (AHI), a period of high infectivity when antibody is undetectable. NAAT pooling methods (pNAAT) help contain the costs of screening for AHI. In 2008 NYC STD clinics began routine pNAAT screening for all rapid antibody negative specimens; it was standard of care in all nine clinics by 2009. A pattern of risk factors among AHI cases detected during universal screening suggested the feasibility of using targeted screening to maximise the yield of AHI cases detected while minimising costs of screening.

Methods Using medical record data, we reviewed cases of AHI diagnosed in nine NYC STD clinics for 2008–2009. From these we developed targeting criteria for AHI screening, and compared yields and costs before and after targeting was implemented.

Results Targeted screening began in May 2010 and included the following risk criteria: MSM, females who have had sex with MSM,

sex with an injection drug user, exchange sex for money or drugs, shared injection drug works, or recent victim of sexual assault. Prior, 42 696 specimens were screened by pNAAT from June through December 2009, yielding 23 AHI cases (5.4 cases/10 000 specimens). Of these cases, there were 21 males, including 15 who have sex with men (MSM) (71%, 15/21), 1 female, and 1 transgender. The mean age for patients was 30 years; racial/ethnic breakdown was: 57% Black, 39% Hispanic, 13% white, 4% other. Subsequently, 5280 specimens were screened by pNAAT from June through December 2010, representing an 88% decrease in testing compared to the same period during the previous year. A total of 18 AHI cases (34.1/10 000 specimens) were detected; all were MSM. The mean age was 29 years and racial/ethnic breakdown was: 44% Black, 28% Hispanic, 28% white, 5% Asian. Cost data are provided in Abstract O1-S11.04 table 1.

Abstract O1-S11.04 Table 1 Cost effectiveness of targeted AHI screening

	Universal	Targeted
Average pooled AHI specimens per month	5700	770
Annual cost of pooled AHI screening	\$650 000	\$91 296
Annual yield	33	35
Average total cost per month	\$54 167	\$7608
Average cost per AHI case identified	\$19 697	\$2608

Conclusion AHI screening increases case detection compared to using antibody tests alone. After initial investment in the effort, we were able to cut the cost per case identified by over sevenfold. This approach may make AHI screening more feasible/affordable in settings with patients at very high risk of newly-acquiring HIV.

01-S11.05 ADOLESCENT SEXUAL INTERCOURSE AND NEIGHBOURHOOD SOCIAL DISORDER

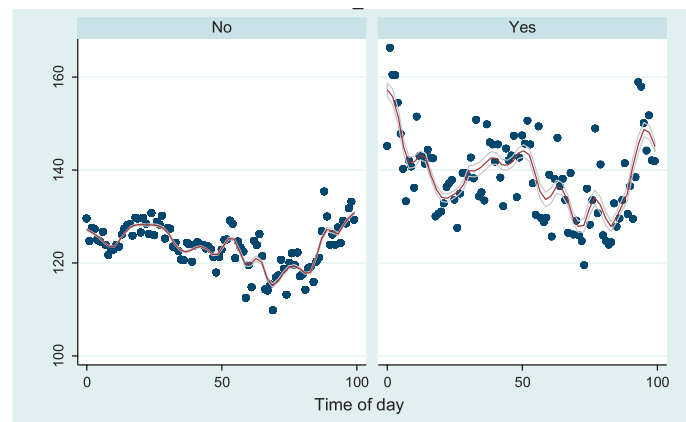
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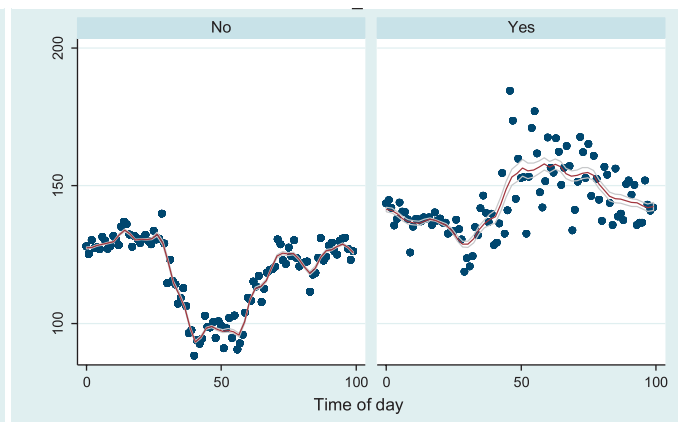
Background Little is known about how and where an adolescent lives and spends time relates to her health-related behaviours. Social disorder, or where crime occurs, is associated with various health outcomes but few have considered its association with adolescent

NON-SCHOOL DAY

Sexual intercourse



SCHOOL DAY



Abstract O1-S11.05 Figure 1 Average 200 m crime counts by time of day/day of week and self-reported sexual intercourse in the last 30 days.

sexual behaviour. Our objective was to assess whether contextual exposure to social disorder is correlated with self-reported sexual intercourse among adolescent girls.

Design and Methods Girls (N=48), aged 14–16, were recruited from a single geographic urban area and monitored for 1 week using a GPS-enabled cell phone. Adolescents completed an ACASI survey on self-reported sexual intercourse in the last 30 days. In addition to recorded home and school address, phones transmitted location data every 5 min (travel points). Using ArcGIS, we defined social disorder as aggregated point-level Unified Crime Report data within a 200 metre Euclidian buffer from home and each travel point. Using Stata, we analysed how social disorder exposures differed among girls who reported having sex or not.

Results Girls reporting sexual activity spent less time at home (30.9% vs 55.7%, $p<0.001$) and more time at least 5 km away from home (29.5% vs 12.4%, $p=0.01$). Girls who reported sex in the last 30 days lived in areas of higher social disorder than girls not reporting sex ($p=0.01$). There were no significant differences in exposure to social disorder based on travel data among girls reporting sex or not, however. Exposure to social disorder varied by school/non-school day as well as time of day. [Abstract O1-S11.05 figure 1].

Conclusions Even within neighbourhoods, social disorder surrounding the home as defined by crime within a 1-block radius correlates with adolescent sexual intercourse behaviour. Although adolescents reporting having sex are less likely to spend time at home and more likely to be further from home than girls not reporting sex, the areas where they travel to are not different in terms of social disorder.

O1-S11.06 BURDEN OF GENITAL DISCHARGE PATHOGENS AND ASSOCIATED CHARACTERISTICS OF ASYMPTOMATIC HIV-INFECTED PATIENTS IN JOHANNESBURG, SOUTH AFRICA

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Background The prevalence of asymptomatic STIs and urethritis/cervicitis pathogen-associated patient characteristics were determined among patients attending a HIV treatment centre in Johannesburg.

Methods Consenting consecutive HIV-infected patients, asymptomatic for symptoms/signs of genital discharge, were screened over 12 months for gonorrhoea, trichomoniasis, chlamydial and *Mycoplasma genitalium* infections using a real-time PCR assay. Bacterial vaginosis (BV) and Candida were detected by microscopy (women only). Serological assays diagnosed syphilis (RPR/TPPA) and herpes simplex type 2 (IgG ELISA) infections. Patients returned at 2 weeks; those with positive results were treated and given contact slips for partners. If available, patients' most recent CD4 (83%) and viral load (VL) (60%) results were recorded. Demographic, clinical and behavioural data were collected by nurse-administered questionnaire. A descriptive analysis was conducted to obtain frequency distributions of patient and STI prevalence data. Associations were investigated using the χ^2 test at a 5% level of significance. A multiple logistic regression model was fitted to find factors associated with urethritis/cervicitis pathogens.

Results 1109 patients were enrolled (551 men, 558 women). Compared with men, women were younger with a mean age [SD] of 35.0 [7.3] vs 37.9 [7.9] years ($p<0.001$), reported more STIs in the past year (65.5% vs 56.5%, $p=0.002$), were less likely to know their

partner's HIV status (53.1% vs 62.3%, $p=0.007$), were more likely to be on HAART (70.4% vs 59.7%, $p<0.001$) with an undetectable VL (81.0% vs 69.9%, $p<0.001$) and a higher mean [SD] CD4 count of 346 [203] vs 232 [173] cells/mm³ ($p<0.001$). Urethritis/cervicitis pathogens were detected in 119/558 (21.3%) women and 90/550 (16.4%) men ($p=0.035$). BV and Candida were detected in 155 (28.0%) and 101 (18.3%) women, respectively. Detection of urethritis/cervicitis pathogens was associated with recent sexual intercourse with a regular partner (adjusted OR, aOR 1.64, 95% CI 1.08% to 2.48%). Trichomoniasis was associated with female gender (aOR 2.45, 95% CI 1.39% to 4.32%) and sub-optimal condom use with regular partners (aOR 2.04, 95% CI 1.23% to 3.41%).

Conclusions Urethritis/cervicitis pathogens were highly prevalent among this asymptomatic population. The benefit of introducing such STI screening programmes to improve reproductive health and HIV prevention efforts requires further study.

Social and behavioural aspects of prevention oral session 1—Changes over time: evolution of individual and population level patterns

O2-S1.01 DEVELOPMENTAL CHANGES IN MASCULINITY, SEXUAL BEHAVIOUR, AND STI RISK AMONG ADOLESCENT BOYS

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Background Successful STI prevention for younger boys should tap into a cultural understanding of boys' romantic and sexual relationships. However, little data exist. We describe developmental changes in boys' relationships, masculinity, sexual behaviour, and STI risk across adolescence.

Methods After IRB approval, thirty-three 14–16-year-old boys were recruited from a teen clinic serving high STI prevalence urban areas, and participated in 3 one-hour qualitative interviews, approximately 6–9 months apart. Urine was tested for gonorrhoea, chlamydia and trichomonas using DNA-based tests. Over 80% were retained at each follow-up. Baseline interviews were coded, then each boy's three interviews were read as a group, looking for changes across the interviews in relationship experience, masculine beliefs, sexual communication and decision-making, sexual experiences, and STI prevention.

Results Mean age was 14.9 years, all were Medicaid-eligible (low income), 90% were African American, and 16/33 were sexually experienced. We observed changes over time in relationships, masculinity, and sexual decision-making. At baseline, boys described girls as having more relationship power, with girls frequently initiating relationships and the decision to have sex. As boys gained experience, they perceived themselves as having more agency, and initiating sex more often. At baseline, we observed low levels of masculine beliefs, with many boys wanting meaningful and emotionally involved relationships, few viewing sex as a conquest, and most worrying about their own relationship and sexual competency. Three trajectories of masculinity emerge. A small number of Players embodied a subset of masculine beliefs that included sex as a conquest, women as objects, and lack of emotional involvement. "Emotionally distant" was more common; these boys described initially trusting girls, "being burned" by someone they had been close to, and then not investing emotionally so as not to be hurt again. "Caretakers," also a small minority, emphasised men's role to protect and care for women. Sexual communication, mostly indirect or nonverbal at baseline, became more direct. Despite a baseline interest in sex within relationships, experiences of 1st sex were generally outside of relationships.