

**Methods** January–December 2010, we collected information on demographic and behavioural risks in the past 12 months from MSM seeking anonymous HIV testing. We examined risks for HIV infection and calculated population attributable fractions (PAFs) to identify relative contributions of exposures to overall infection.

**Results** Overall, 81 (2.7%) newly diagnosed infections were identified among 3045 men. Men were median age 31, 64% white, 9% black, 17% Hispanic, and 10% other race/ethnicity. 14% had been diagnosed with an STI in the past year. Among clients for whom behavioural data were available (98%), black race, STI history, receptive anal intercourse (RAI), not always using condoms for RAI,  $\geq 3$  partners for RAI, methamphetamine use, sex with an HIV positive partner, and sex with a partner of unknown serostatus were associated with an increased odds of HIV infection in univariate analysis. The univariate association between methamphetamine use and HIV infection was partially mediated by sexual risk behaviour. In multivariable logistic regression, black race (OR, 1.7; 95% CI 1.2 to 2.4), STI history (OR, 2.0; 95% CI 1.1 to 3.6), not always using condoms for RAI (OR, 2.6; 95% CI 1.5 to 4.6), and RAI with  $\geq 3$  partners (OR, 2.2; 95% CI 1.3 to 3.9) were significantly associated with HIV infection. Adjusted PAFs were 13.7% (95% CI -1.4 to -26.6) for STI history; 36.7% (95% CI 12.2 to 54.4) for not always using condoms for RAI; and 28.8% (95% CI 5.5 to 46.3) for  $\geq 3$  RAI partners. The total combined PAF for these factors adjusted for race/ethnicity was 58.8% (95% CI 28.5 to 72.0). While 81% of HIV-infected men reported at least one risk factor and 11% reported all three, overall, 51% of men screened had at least one of these factors: STI history (14%); not always using condoms for RAI (32%); and  $\geq 3$  RAI partners (27%).

**Conclusions** STI history, inconsistent condom use, and  $\geq 3$  sex partners for RAI accounted for 59% of new HIV infections, but were present in half those tested. While we identified behaviours for intervention content, we did not identify sub-groups to target. Interventions that address condom use efficacy and reducing numbers of partners for RAI, including the effect of substance use on sexual decision making, should be considered for men reporting these risks.

**P2-S6.11 THE COST-EFFECTIVENESS OF SCREENING MEN WHO HAVE SEX WITH MEN FOR RECTAL CHLAMYDIAL AND GONOCOCCAL INFECTION TO PREVENT HIV INFECTION**

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**Background** Men who have sex with men (MSM) who have a current or recent history of rectal gonococcal (GC) or chlamydial (CT) infection are at greater risk for HIV than men with no history of rectal infection. This increased risk may be due to biological or behavioural factors. Screening and treating MSM for rectal CT/GC infection may help reduce any increased biological susceptibility to HIV infection and identify men at increased risk of HIV infection.

**Methods** We used a Markov state-transition model to examine the potential impact of screening MSM for rectal CT/GC infection. Observational data from San Francisco were used to estimate the incidence of rectal CT/GC in MSM, including repeat infection, and the HIV incidence in MSM with and without current or recent rectal CT/GC infection. Men were categorised into four risk strata based on the number of rectal infections they had experienced. We assumed the increased risk of HIV infection was due to a combination of factors: biological (relevant only when a given person had an untreated rectal CT/GC infection) and behavioural (relevant for a period of time after a rectal CT/GC infection was treated or resolved

without treatment). The quality-adjusted life year (QALY) reduction due to HIV infection, the direct costs for testing and treatment for CT/GC, and the direct lifetime medical costs per case of HIV were drawn from the literature. In sensitivity analyses we varied assumptions about the duration of rectal CT/GC infection, biological vs behavioural attribution of the increased risk of HIV infection in those with rectal CT/GC, and incidence of repeat rectal CT/GC infection. We assumed a fixed proportion of MSM (both HIV-infected and HIV-uninfected) would be screened annually. HIV prevention was the only benefit of screening that we assessed; we did not include other health and economic benefits of treating rectal CT/GC.

**Results** In many scenarios, screening MSM for rectal CT/GC infection was cost-saving in that the discounted cost of screening and treatment was less than the discounted cost of averted HIV infections see Abstract P2-S6.11 Table 1. The cost per QALY gained through rectal CT/GC screening ranged from  $< \$0$  to \$50 000 in almost all scenarios examined, except when the elevated HIV risk in MSM with rectal infection was mostly attributed to behavioural factors rather than biological.

**Conclusions** Preliminary results suggest that screening MSM for rectal CT/GC infection can be a cost-effective intervention to reduce HIV infection.

Abstract P2-S6.11 Table 1

Variable	Baseline	Variable	Baseline
Annual incidence of rectal CT/GC infection, HIV-uninfected	0.058	Annual probability of transition from higher-risk group to lowest-risk group	0.29
Annual incidence of rectal CT/GC infection, HIV-infected	0.078	Duration of rectal CT/GC infection in the absence of treatment	26 weeks
Annual HIV incidence, men with 1 rectal CT/GC infection	0.018	Cost of rectal CT/GC testing*	\$44.89
Annual HIV incidence, men with 2 rectal CT/GC infections	0.034	Cost of treatment*	\$37.14
Annual HIV incidence, men with $>2$ rectal CT/GC infections	0.15	Discounted lifetime cost of HIV infection*	\$379 668
Annual rectal CT/GC repeat infection rate	0.15		

\*Costs are in 2010 US dollars.

**P2-S6.12 SEXUAL DEBUT AND SEXUAL HEALTH: IS EARLY AGE OF FIRST ANAL INTERCOURSE ASSOCIATED WITH HEIGHTENED HIV VULNERABILITY AMONG GAY MEN?**

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**Background** To explore the long-term sexual health implications for gay men having first anal intercourse (FAI) at an early age.

**Methods** A nationwide online survey was conducted among 854 Australian gay men born between 1944 and 1993 (16–65 years).

**Results** Age at FAI dropped sharply from a median of 35 years among men born 1944–1953 to 18 years among men born 1984–1993. At their most recent sexual encounter, men who reported FAI at age 16 years or younger were more than twice as likely to have had receptive anal intercourse or reciprocal anal intercourse (both insertive and receptive in the same sexual encounter), and were almost twice as likely to report having more than 10 sexual partners in the past year. These men were also nearly twice as likely to have become HIV-positive since their sexual debut and were several times as likely to report having had a hepatitis A or C diagnosis. Additional features of the sexual health and behaviour of gay men who report early FAI will be presented that further demonstrate a need to pay close attention to age at FAI.