

6 months ($\kappa=0.57-0.59$). We observed some reactivity, or a difference in reported behaviour associated with diary completion. For example, participants assigned no diary reported an average increase of 5.2 more unprotected anal sex acts over consecutive 3-month periods than those assigned an active diary schedule ($p<0.01$).

Conclusions This study suggests that sexual behaviour and substance use data collected from young MSM during 3-month retrospective surveys—an interval commonly used in sexual behaviour research—are largely adequate. Web-based diaries can be used for up to 6 months to gather detailed behavioural data, and may be more appropriate than retrospective surveys for counts of anal sex acts. Furthermore, our finding that diaries may be associated with lower levels of reported sexual behaviour suggests that web-based diaries may be useful as a behavioural intervention to prevent HIV/STI among young MSM.

O2-S3.05 STIS AND NEIGHBOURHOOD DRUG MARKETS: FIRST A FORAY INTO MEASUREMENT

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Background Neighbourhoods with drug markets (as compared to those without) may be more likely to have a greater concentration of STI infected sex partners. The objectives of this study were to assess the reliability and validity of three measures of neighbourhood drug markets.

Methods Data were collected from a cross-sectional household study of English-speaking, sexually-active persons, 15–24 years of age ($n=568$) residing in selected neighbourhoods ($n=63$). Participants responded via ACASI to “In your neighbourhood, are there any places like a street corner, block, house, club, bar, or other place where drug activity, like people selling or buying drugs, happens?” Survey reports were aggregated to the neighbourhood level and coded to $>$ (vs $<$) 50% of residents reporting yes. To supplement this measure, information was obtained from systematic social observations (SSOs) using a multi-item assessment tool. Multiple rater information on a block was aggregated to the greater value to generate one value for a block unit. Ratings were summed to create one continuous measure at the neighbourhood level. Additionally drug arrest data on drug manufacturing, distribution, or intent to distribute was measured as a count per neighbourhood. We conducted reliability analyses using intraclass correlations and inter rater reliabilities and convergent validity testing using Poisson and linear regression.

Results Within-neighbourhood respondent agreement on survey-reports of neighbourhood drug markets had a reliability 0.50 and an intra class correlation of 0.10 ($p<0.001$). Neighbourhood survey-reports were significantly associated with gonorrhoea counts (IRR) 3.05, 95 CI% 2.07 to 4.51, $p<0.001$) and socioeconomic status (SES) ($\beta -1.74$, 95 CI% -2.54 to -0.93 , $p<0.001$). The SSO drug market inter rater reliability was significant and moderate at the block level (0.57, $p<0.05$) with a reliability of 0.88. The SSO measure was not associated with gonorrhoea counts (IRR 1.18, 95 CI % 0.94 to 1.49, $p=0.15$) and was significantly associated with SES ($\beta -0.65$, 95 CI% -0.99 to -0.31 , $p<0.000$). Drug arrest counts were significantly associated with gonorrhoea counts (IRR 1.01, 95 CI% 1.00 to 1.01, $p=0.002$) and SES ($\beta -0.01$, 95 CI% -0.02 to -0.01 , $p<0.001$).

Conclusions The results suggest that neighbourhood drug markets can be measured through the use of household survey-reports and drug arrest data; the use of SSOs was less clear. The mismatch of the drug market measures may have been due to differences between the measures in sensitivity and specificity.

O2-S3.06 AREA-BASED SOCIOECONOMIC MEASURES ASSOCIATED WITH FEMALE CHLAMYDIA AND GONORRHOEA, SAN FRANCISCO, 2009

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Background STD risk is influenced by individual-, network-, and community-level factors. Most research on STD risk has focused on individual-level factors, while limited data are available on community-level influences. In an ecologic analysis, we examined census tract-level factors associated with rates of female chlamydia (CT) and gonorrhoea (GC) in San Francisco in 2009.

Methods All female CT and GC morbidity reported in 2009 to the San Francisco Department of Public Health was geocoded to census tract. Tract-specific disease rates per 100 000 females were calculated using 2009 population estimates. We used US Census data to examine area-based socioeconomic measures (ABSMs), calculated as the proportions of each census tract that were: lead by a female head of household, vacant homes, owner-occupied homes, living in the same residence for ≥ 5 years, persons living below poverty, households with $\geq 30\%$ of income spent on rent, less than high school (HS) education, and receiving food stamps. We also examined the number of people per room in the residence and graffiti complaints per square mile. Poisson regression models were created to explore the relationship between ABSMs and tract-level CT and GC rates. ABSMs were categorised into quintiles, and RR were estimated that corresponded to the increase in CT or GC rate associated with a 1-quintile change in the ABSM.

Results A total of 3267 CT and 1466 GC cases were geocoded to one of the 176 census tracts in San Francisco. The proportions of tracts with vacant units (RR=1.11, $p<0.0001$), with less than HS education (RR=0.91, $p=0.0017$), with female head of household (RR=1.40, $p<0.0001$), living below poverty (RR=1.14, $p<0.0001$), living in the same residence for ≥ 5 years (RR=0.92, $p=0.0017$), and receiving food stamps (RR=1.25, $p<0.0001$) were independently associated with female CT rates. In the analysis of female GC rates, the proportions of tracts with female head of household (RR=1.25, $p=0.0026$), living below poverty (RR=1.36, $p=0.002$), people residing per room (RR=0.84, $p=0.023$), and receiving food stamps (RR=1.77, $p<0.0001$) were associated with disease rates see Abstract O2-S3.06 table 1.

Abstract O2-S3.06 Table 1 Area-based socioeconomic measures and poisson regression models

	Chlamydia rates, females RR (95% CI)	Gonorrhoea rates, females RR (95% CI)
Economic deprivation		
% Below poverty line	1.14 (1.08 to 1.21)	1.36 (1.16 to 1.60)
% Households with $\geq 30\%$ of income spent on rent	—	—
Concentrated disadvantage		
% Population 25+ with <12 years of education	0.91 (0.85 to 0.96)	—
% Homes with >1 person per room	—	0.84 (0.72 to 0.98)
% Receiving any food stamp benefits	1.25 (1.16 to 1.35)	1.77 (1.41 to 2.22)
Neighbourhood stability and social cohesion		
% Homes occupied by owner	—	—
% Vacant homes	1.11 (1.06 to 1.16)	—
% Female-headed households	1.40 (1.31 to 1.49)	1.25 (1.08 to 1.45)
% Same residence for ≥ 5 years	0.92 (0.87 to 0.97)	—

—Removed from model ($p>0.05$).

Note: Each Poisson regression model had the following dependent variable: 1) Chlamydia rates in females, 2) Gonorrhoea rates in females. Rate ratios (RR) represent the change in the STI rate associated with a quintile change in the predictor variable.

Conclusions Socioeconomic factors were associated with female CT and GC rates at the census tract level in San Francisco. Further exploration as to the potential etiologic role of community-level factors, as well as innovative means to modify the environment to improve sexual health, are warranted.

Social and behavioural aspects of prevention oral session 4 - STI and HIV Risk Reduction Strategies: Considerations of cost, cost-effectiveness and potential impact

02-S4.01 EFFICIENCY VS EQUITY IN SCREENING: CONSIDERATIONS IN THE SCALE-UP OF RAPID SYPHILIS TESTING IN RURAL TANZANIA

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Background The burden of congenital syphilis remains high in many low-income countries, despite the availability of preventive therapy. Rapid syphilis tests (RSTs) could improve access to and cost-effectiveness of syphilis screening programs in low resource settings. The objective of this study was to inform programs how best to use RSTs based on relative efficiency, cost-effectiveness and access considerations.

Methods Incremental costs for RST screening in existing antenatal care settings in Tanzania were collected from nine health facilities varying in size, remoteness, and scope of services provided. The number of DALYs averted was modelled from project outputs. Economic costs per: woman tested, treated, and DALY were calculated for each facility. A sensitivity analysis was constructed to determine the impact of parameter and model uncertainty.

Results In surveyed facilities a total 6362 women were tested with RSTs over a costing period of 9 months, as compared with just 224 tested with RPR over a similar time period the previous year. Total economic costs for RST screening ranged from \$1758 to \$6375. Unit costs ranged from \$1.90 to \$6.06 per woman screened, \$17.76–\$63.19 per woman treated, and \$1.20–\$4.26 per DALY. Larger facilities had lower unit costs, suggesting that economies of scale exist in screening services. Results were sensitive to assumptions regarding supply wastage, frequency of supervision, and program duration.

Conclusion RST screening costs fall well below the WHO threshold for ‘highly attractive’ cost-effectiveness. Although RST costs are slightly higher than those for RPR, the number of women reached by screening services was increased under RSTs. Results suggest that RSTs can overcome critical barriers to antenatal syphilis testing and treatment. Through removal of supply chain barriers, RSTs enable the realisation of economies of scale in screening services. This suggests that larger facilities will benefit from implementation of RSTs. RSTs further allow for screening where a lack of infrastructure prevents consistent RPR testing. Therefore, in the effort to increase equity in access to screening, roll-out is also recommended in facilities not able to provide RPR screening. RSTs are currently being expanded throughout the country in the effort to increase access to syphilis screening in antenatal care. This could facilitate control of congenital syphilis and prevent countless unnecessary fetal and infant deaths.

02-S4.02 COST-EFFECTIVENESS OF SCREENING FOR CHLAMYDIA TRACHOMATIS IN DUTCH PREGNANT WOMEN

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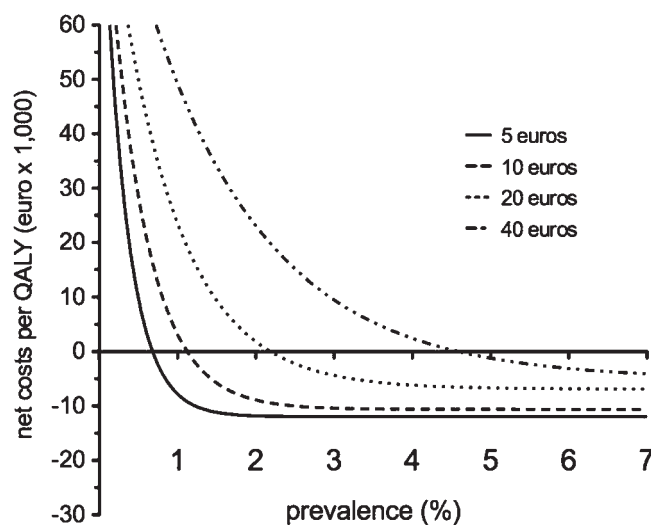
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Background *Chlamydia trachomatis* infections may have serious consequences for women, their offspring and pregnancy outcomes, but are largely asymptomatic. Prevention is therefore based on screening. Screening for Chlamydial infections during pregnancy is not part of routine antenatal care in many countries, as in the Netherlands.

Objective Cost-effectiveness analysis of *C trachomatis* screening during pregnancy.

Methods A health-economic decision analysis model was designed, which included not only potential health outcomes of *C trachomatis* infection for women, partners and infants, but included also premature delivery. The cost-effectiveness was estimated from a societal perspective using recent prevalence data from a population-based prospective cohort study among pregnant women in the Netherlands. The prevented costs were calculated by linking health outcomes with health care costs and productivity losses. Cost-effectiveness was expressed as net costs per major outcome prevented and was estimated in a base-case analysis as well as a sensitivity- and scenario analysis.

Results In the base-case analysis (current base-case test cost €12), the costs to detect 1000 pregnant women with *C trachomatis* were estimated at €378 300. Cost savings on complications were estimated at €924 600 resulting in net cost savings. Sensitivity analysis showed that net cost savings remained for a broad range of variation in underlying assumptions such as test costs (up to €32), proportion of complications that can be averted (between 25% and 75%), risk for PID (0.4% to 40%), and any other parameter within plausible ranges (between + to –25%). Cost savings were most sensitive to preterm delivery, but remained when preterm delivery was excluded (making the model comparable to other cost-effectiveness analyses). Scenario analysis showed even more cost savings with targeted screening for women’s age (≥20 years, 26–30 years, and <30 years) or pregnancy rate (first pregnancies only). At base-case costs, screening appeared cost-saving in populations with a chlamydial prevalence beyond 1.7%. At the extremes, with test costs as low as €5 cost savings would already occur beyond a prevalence of 0.6% and with test costs as high as €40 cost savings would occur beyond a prevalence of 4.7% see Abstract O2-S4.02 figure 1.



Abstract O2-S4.02 Figure 1 Costs per QALY gained by prevalence when using different test costs for *Chlamydia trachomatis* screening in pregnant women.