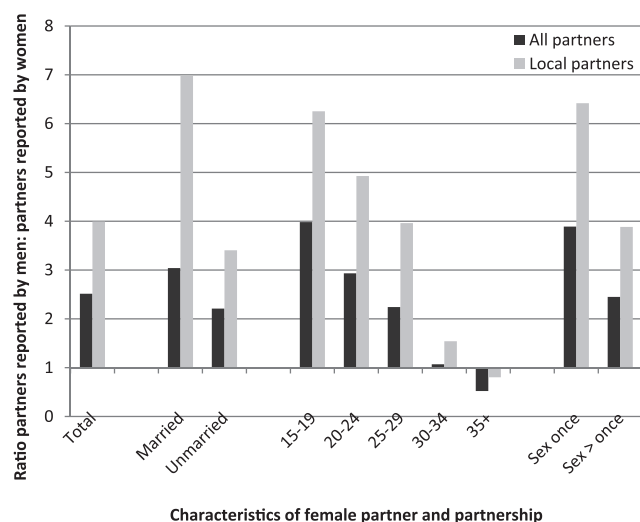


women. Surveys in whole populations provide an unusual opportunity to understand the extent and nature of such under-reporting.

Methods All consenting individuals aged between 15 and 59 within a demographic surveillance site in northern Malawi were interviewed about their sexual behaviour. Validity of responses was assessed by analysis of probing questions; by comparison of results with in-depth interviews and with Herpes simplex type-2 (HSV-2) seropositivity; by comparing reports to same sex and opposite sex interviewers; and by quantifying the partnerships within the local community reported by men and by women, adjusted for response rates.

Results 6796 women and 5253 men (83% and 72% of those eligible) consented and took part in sexual behaviour interviews. Probing questions and HSV-2 antibody tests in those who denied sexual activity identified under-reporting for both men and women. Reports varied little by sex or age of the interviewer. The number of marital partnerships reported was comparable for men and women, but men reported about four times as many non-marital partnerships. The discrepancy in reporting of non-marital partnerships was most marked for married women (men reported about seven times as many non-marital partnerships with married women, as were reported by married women themselves), but was only apparent in younger married women see Abstract O2-S3.02 figure 1.

Conclusions We have shown that the under-reporting of non-marital partnerships by women was strongly age-dependent. The extent of under-reporting of sexual activity by young men was surprisingly high. The results emphasise the importance of triangulation, including biomarkers, and the advantages of considering a whole population.



Abstract O2-S3.02 Figure 1 Ratio of non-marital partners reported by men compared to women, by characteristics of the women and partnership

O2-S3.03 DURATION OF RECENT SEXUAL PARTNERSHIPS IN SEXUALLY ACTIVE MEN AND WOMEN

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Jami Leichter, Sevgi Aral. *Centers for Disease Control & Prevention, Atlanta, USA*

Background The duration of partnerships and partner change rates contribute to STI transmission. Additionally, concurrent partnerships and short gaps between partnerships may be associated with STI spread. Few studies have examined the duration of sexual partnerships at the national level. We examined the duration of recent sexual partnerships reported by sexually active men and women in the US.

Methods Data were from a national survey of reproductive age men and women in the US 7470 men and women reported having an opposite-sex partner in the past year and reported on their recent sex partners (up to three). Duration of partnerships was measured in months; partnerships where respondents reported only having sex once were coded as 1-month in duration. Respondents indicated whether or not the partner was a current sex partner. Bivariate analyses examined duration of partnerships (mean) by demographics. Data were analysed separately for men and women. A subset of unmarried respondents was also examined.

Results Findings were similar for the entire sample and for those who were unmarried. Duration of most recent partnership was longer for women as compared to men, but men reported longer 2nd and 3rd most recent partnerships than women. Adolescents had the shortest duration for all three partnerships and were least likely to report that the partner was a current sex partner. There was no difference in duration of partnerships by race with the exception of black men having a shorter duration most recent partnership than other men. More black men but fewer black women reported that their most recent partner was a current partner as compared to other groups. However, black and Hispanic men were more likely to indicate that their second recent partnership was also current. For most recent and 2nd recent partnerships, married men and women reported the longest duration. For most recent partnership, unmarried men and all women with less than a high school education had a longer duration than their counterparts. There were no differences in whether the partner was current by education.

Conclusions Adolescents and black men had the shortest partnerships. Black women did not differ from white or Hispanic women in the duration of their partnerships. Men and women with short partnerships, overlapping and non-overlapping, may play a key role in the transmission of STIs.

O2-S3.04 WEB-BASED SEX DIARIES AND YOUNG MEN WHO HAVE SEX WITH MEN: ASSESSING FEASIBILITY, REACTIVITY, AND DATA AGREEMENT

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S Glick, R Winer, M Golden. *University of Washington, Seattle, USA*

Background Web-based diaries are a promising means for collecting detailed sexual behaviour and substance use data. Few studies have evaluated the feasibility and reliability of collecting these data among men who have sex with men (MSM). We compared quantitative diary data with retrospective survey data collected over 1-year in a cohort of young MSM in Seattle, WA.

Methods Ninety-five MSM, age 16–30, completed web-based surveys every 3 months and were randomised to 1 of 4 diary submission schedules: every 2 weeks, once a week, twice a week, or never. The diaries asked questions about daily sexual behaviour and substance use. We assessed the agreement between diary and survey data using κ statistics for dichotomous variables and concordance correlation coefficients (CCC) for continuous variables. We used generalised estimating equations to assess for differences in survey data over time between those assigned an active diary schedule to those assigned no diary.

Results During the first 6 months, 78% of participants assigned to an active diary schedule completed at least 80% of their diary days, and the 2-week schedule had the highest and most consistent completion rate. Completion rates dropped to <60% during the second 6 months. Among participants with active diary schedules, most measures had strong agreement between the diary and survey data (ie, κ or CCC ≥ 0.8). The exceptions to this were numbers of overall and unprotected anal sex acts during the first 3 months (CCC=0.53 and 0.57, respectively) and alcohol use during the first

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.

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

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¹J Jennings, ²R Taylor, ¹D Furr-Holden, ¹J Ellen. ¹Johns Hopkins University, Baltimore, USA; ²Temple University, USA

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.

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

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¹K Bernstein, ²S Goldring, ¹J Marcus, ¹S Philip. ¹San Francisco Department of Public Health, San Francisco, USA; ²University of Pittsburgh, San Francisco, USA

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 02-S3.06 table 1.

Abstract 02-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.