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Background Associations between social factors and health outcomes have been established for many diseases, including gonorrhoea. Inequalities in gonorrhoea are particularly pronounced; the incidence for non-Hispanic Blacks is 17 times the incidence for non-Hispanic Whites. A gap exists in the literature on how social determinants for this population can be used to target STD interventions.
Methods Health departments from 10 diverse states geocoded female gonorrhoea case reports from 2009–2011 to the census tract. We calculated three-year gonorrhoea incidence rates among females for 11,832 tracts in the study area. Tract-level social determinants were obtained from the American Community Survey. Female rates were used to preclude confounding by the unknown proportion of men-who-have-sex-with-men among male cases. Tracts were stratified as above or below the county-level mean proportion of non-Hispanic Black residents to minimise interactions between race and other factors, and subsequent analyses were limited to the stratum with a higher proportion of blacks (N = 4,345). Using hierarchical models and logistic regression, associations between female gonorrhoea incidence, household income, education and housing characteristics were examined. Factors found to be associated with gonorrhoea incidence were used to construct tract-level gonorrhoea risk indices.
Results The mean tract-level female incidence rate was 194/100,000 (range, 0–2,836) in this stratum. Gonorrhea incidence was correlated with: proportion of households with annual income below $20,000 ($\beta = 0.7089$, $P < 0.0001$), housing vacancy rate ($\beta = 0.5519$, $p < 0.0001$) and proportion of population with less than high school education ($\beta = 0.3206$, $p < 0.0001$). Risk indices based on these factors correctly predicted 77.3% of tracts with incidence in the highest quartile in this stratum while excluding 58.9% of tracts with lowest incidence.
Conclusions Area-based social factors provide more specific criteria than race alone and may be useful for better targeting disease prevention activities to areas at highest risk for gonorrhoea incidence, especially where street-level address information on reported cases is unavailable.

012.2 CHURCH ATTENDANCE IN MEN WHO HAVE SEX WITH MEN DIAGNOSED WITH HIV IS ASSOCIATED WITH LATER PRESENTATION

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Background Tensions between religion/religious beliefs and personal behaviours may impact HIV-related health seeking for persons at risk for HIV. We evaluated the relationship between self-reported church attendance and sexual partner characteristics on CD4+ T lymphocyte count (CD4 count) and history of HIV screening among persons presenting for the first time to establish HIV care.
Methods This was a secondary analysis of prospectively collected data at a University HIV Clinic in the U.S between April 2008 and June 2012. Socio-demographic and behavioural information, including church attendance, is collected and linked to laboratory data. Using logistic regression, we assessed for a 2-way interaction between church attendance and sexual behaviour on CD4 count at entry into care and on history of prior HIV testing in univariate and multivariable models.
Results Of 508 participants, current church attendance was reported by 56%. There was a significant interaction between church attendance and sexual behaviour ($p = 0.02$) with CD4 count at the time of entry into care. MSM who reported church attendance were significantly more likely to present with a CD4 count < 200 cells/mm^3 ($p = 0.013$) than MSM who did not. No difference in CD4 count was observed for MSW or WSM when evaluated by report of church attendance. There was a significant interaction between church attendance and sexual behaviour ($p = 0.012$) on history of previous HIV testing. WSM who attended church were more likely to report previous HIV testing ($p = 0.01$). MSM who attended church were less likely to report previous HIV testing (unadj $p = 0.041$) but this difference did not maintain significance in adjusted models.
Discussion These findings frame a potentially important interaction between church attendance and sexual behaviour on timing of HIV diagnosis and presentation into care with important implications for individual health outcomes and secondary HIV prevention.

012.3 EVALUATION OF A COMMUNITY-BASED HIV PREVENTIVE INTERVENTION FOR FEMALE SEX WORKERS IN RURAL AREAS OF KARNATAKA STATE, SOUTH INDIA

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Background To examine changes in behavioural outcomes among rural female sex workers (FSWs) involved in a community-based HIV preventive intervention in south India.
Methods 14,284 rural FSWs from 1,253 villages that were selected through a process of rapid rural mapping were reached by community workers (called link workers) and FSW peer educators over a period of three years between 2009 and 2012. A community-based model for delivering outreach, medical and referral services was developed and employed. Socio-demographic profiles of the FSWs and programme outputs were captured using an individualised computerised management information system (CMIS). Changes in behaviour were assessed in an anonymised fashion using two rounds of polling booth surveys (PBS) conducted in 2009 and 2012.
Results 91% of FSWs were above the age of 25, and 85% had been involved in sex work for two or more years. During the three-year period, 95% of the mapped FSWs were reached at least once, 80.3% received condoms as per need, and 71% received health services for sexually transmitted infections. In 2012, 45% reported having been tested for HIV infection, at least once in the previous six months. The two rounds of PBS showed significant differences in behavioural outcomes. Condom use increased from 60% to 72%, and condom breakage reduced from 30. 2% to 8.4%. Utilization of HIV counselling and testing services increased from 64% to 92.4%, and the proportion of FSWs testing HIV positive declined from 2.3% to 0.17%.
Conclusions This community-based model for delivering HIV prevention programmes and services among widely dispersed female sex workers in rural areas was effective. Community-based health workers provided the vital link between marginalised communities in need of services and the formal health system. This model for rural outreach and HIV care could also be applied to many other health problems.

012.4 DESIGN AND FEASIBILITY OF YO PUEDO, A COMBINED CONDITIONAL CASH TRANSFER AND LIFE SKILLS SEXUAL HEALTH INTERVENTION FOR ADOLESCENTS IN SAN FRANCISCO, CALIFORNIA: RESULTS OF A RANDOMISED STUDY

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