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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<sup>3</sup> ( $p = 0.013$ ) 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 counseling 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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**Background** Innovative interventions to prevent persistently high rates of STIs and pregnancy among Latino youth in the U.S. are needed. We developed *Yo Puedo* ("I can"), a sexual health intervention that combines conditional cash transfers (CCTs) and life skills, for youth in a high-risk, urban neighbourhood.

**Methods** *Yo Puedo* targeted small social networks of youth aged 16 to 21 (both in-school and out-of-school). CCTs were tied to completion of educational goals and use of reproductive health clinical services. We conducted feasibility research through randomization of networks to *Yo Puedo* or an observational control arm.

**Results** 72 social networks comprised of 162 youth enrolled in *Yo Puedo*, with 92% follow-up over six months. At baseline, participants had a mean age of 17 years and one-third were foreign-born. 80% of males and 65% of females had ever had sex ( $p = 0.06$ ), with males reporting a higher mean lifetime number of partners (5.8 vs. 3.1,  $p < 0.01$ ). Half (58.2%) of participants had gang-affiliated close friends. Nearly all (94%) participants reported not wanting to become pregnant or get someone pregnant, yet one-third of sexually active youth reported unprotected sex in the past six months. Social networks clustered significantly (intraclass correlations ranged from 0.31–0.92) across sociodemographic and risk profile characteristics; analyses were adjusted for network clustering. 72% of youth randomized to the intervention participated: 53% received at least one CCT payment; 66% came to at least one life skills group. The median amount earned was \$30 (range \$0–\$200). There was little evidence that cash payments financed illicit or high-risk behaviour. A higher proportion of youth who participated, compared to those who did not, had been to a reproductive health clinic at follow-up ( $p < 0.01$ ).

**Conclusions** *Yo Puedo* showed promise as a sexual health intervention for high-risk, urban youth. Targeting youth's social networks may yield sustained effects over time.

#### 012.5 TRADITIONAL EXPLANATORY MODELS OF DISEASE AND MESSAGING AROUND HIV AND STI RISK AND PREVENTION: FINDINGS FROM AN EXPLORATORY STUDY WITH TRADITIONAL HEALTH PRACTITIONERS IN SOUTH AFRICA

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**Background** Research has shown that traditional medicine and Traditional Health Practitioners (THPs) represent the first line of healthcare for the majority in sub-Saharan Africa (SSA). In this context, understanding traditional beliefs is critical, if we are to design effective health messages and improve health outcomes. The aim of this study was to identify and understand how traditional knowledge and beliefs influence explanatory models of disease and patient actions to avoid risk of HIV and STI infection.

**Methods** An exploratory qualitative study involving THPs and their patients was conducted in 2011 at five sites in provinces Gauteng and KwaZulu-Natal. THPs ( $n = 54$ ) were recruited through local forums and patients ( $n = 48$ ) recruited by their THP. Diviners, herbalists, traditional birth attendants and traditional surgeons were all represented. Data were analysed using NVivo 9.

**Results** THPs provide a holistic 'catch all' service that would involve multiple providers within the allopathic sector. Whilst participants acknowledged allopathic risk factors and modes of transmission, beliefs around aetiology were generally located in the spiritual dimension with infection often blamed on lack of respect for/non-adherence to traditional practises resulting in 'pollution' and 'dirt in the blood'. THPs demonstrated a willingness to refer patients to clinics for diagnosis and treatment, recognised benefits

of circumcision, and encouraged patients on ARVs to continue treatment. However, protective and preventive properties of traditional medicines were frequently highlighted.

**Conclusion** It was clear from this study that for many in South Africa traditional beliefs are often held alongside an acknowledgement of some aspects of germ theory. Given the pervasive traditional belief-based explanatory model of disease, health messaging and interactions that do not acknowledge this are likely to fail. It is critical that the allopathic/western system understands these core beliefs of patients accessing their services so as to optimise health messages, treatments, behaviours and clinical outcomes in SSA.

#### 012.6 UNDERSTANDING EXPERIENCES AND IMPACT OF DOMESTIC VIOLENCE AND ABUSE IN GAY AND BISEXUAL MEN ATTENDING A SEXUAL HEALTH SERVICE IN THE UK

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**Background** Domestic violence in men who have sex with men (MSM) is common and associated with adverse health consequences. This study aims to (i) explore the nature and impact of domestic abuse in gay and bisexual men attending a UK sexual health clinic and (ii) explore men's views on routine enquiry for domestic abuse by health practitioners.

**Methods** A self-completion survey was implemented in the waiting rooms of sexual health clinics at a UK hospital. Men aged 18 and over, attending alone, who could read and write English were invited to participate in a male patient survey on relationships and health. The 2-part survey examined potentially abusive behaviours and health outcome including: anxiety and depression; alcohol and drug abuse; use of services; and views on routine enquiry within a health context.

**Results** 1,135 men completed a survey, of which 523 (46.0%) identified themselves as either gay or bisexual, 501 (95.8%) answered all questions relating to domestic violence in Part 1 of the survey. 145 (28.9%) men reported experiencing at least one abusive behaviour from a current or former partner; 81 (16.2%) men reported carrying out at least one abusive behaviour towards a current or former partner; 55 (11.0%) men reported both experiencing and perpetrating at least one abusive behaviour towards a partner. The majority of men supported the idea of health practitioners asking about domestic abuse during consultations.

**Conclusion** This study provides a greater understanding of domestic abuse in gay and bisexual men by including questions on impact as well as severity. The survey also examines the impact of these behaviours on men's health and the role of sexual health practitioners in responding to gay and bisexual men affected by domestic abuse.

### 0.13 - Epidemic appraisal and strategic planning

#### 013.1 THE USE OF RAPID EPIDEMIC APPRAISALS FOR PLANNING AND SCALING UP FOCUSED HIV PREVENTION PROGRAMMES FOR FEMALE SEX WORKERS IN NIGERIA

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**Background** The HIV epidemic in Nigeria is complex with substantial heterogeneity in its distribution across different regions and