making timely screening imperative for infection control. While enough evidence exists on diagnostic accuracy measures for point-of-care tests (POCTs), the quality of evidence on measures beyond accuracy is poor. We reviewed evidence on these implementation research outcomes (IROs) and summarised their quality.

**Method** Two reviewers systematically searched 10+ electronic databases for the period: January 1980-September 2012, independently abstracted data and synthesised outcomes narratively. Over 10,000 citations were screened and a final set of 191 studies identified for inclusion.

**Results** Of 191 studies, almost half 46%(n = 127) in HIV and 41% (n = 64) in syphilis, reported IROs. IROs included acceptability, preference, feasibility and impact. Across 16 studies, acceptability measure was reported as proportions, rates, without confidence intervals often without clear definitions. Across 9 studies, preference was reported as proportion, without definitions or comparators. Feasibility metric across 7 studies, was ill-defined and heterogeneously reported as either completion of strategy, or test procedure, often as a statistic without confidence intervals or a definition or a quantifiable metric. Impact measure (n = 13) was best quantified in clinical trials-reported as either time to treatment initiation, or time to receiving a test result, or change in numbers newly infected or screened with a POCT strategy. Unclear definitions of other IROs, lax measurement resulted in deficient documentation and weak quality ratings on STROBE and CONSORT checklists, raising concerns about the quality of the evidence presented.

**Conclusion** Poor reporting of IROs (i.e, feasibility, acceptability, preference) in POCT diagnostics masked evidence and pointed to the need for standardised definitions, quantification and reporting for them. A framework for documenting metrics beyond accuracy and impact is urgently needed to improve evaluation of true benefits of POCT diagnostics in implementation research.

## P3.323 PREVALENCE OF *CHLAMYDIA TRACHOMATIS* IN THE UNITED STATES AFTER ADJUSTING FOR SENSITIVITY AND SPECIFICITY OF THE SCREENING TEST

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According to the Centers for Disease Control and Prevention (CDC), *Chlamydia trachomatis* infection is among the most prevalent of all sexually transmitted diseases (STDs), and since 1994, has comprised the largest proportion of all STDs reported to CDC. In the past, researchers have used nationally representative surveys, such as, the National Health and Nutrition Examination Survey to estimate chlamydia prevalence and trend under the assumption that the test used to screen for chlamydia has perfect sensitivity and specificity. Under such assumption, the prevalence of chlamydial infection in the U.S. is 2.2% (CI, 1.8% to 2.8%). However, chlamydia screening tests are not perfect tests and thus prevalence estimates must account and adjust for these imperfections. Statisticians have shown that estimates of disease prevalence based on the assumption that screening tests have perfect sensitivity and specificity can be severely biassed. In this work, we use Bayesian methods to provide sensitivity and specificity adjusted estimates of chlamydia prevalence. Based on this method, the adjusted prevalence estimate of chlamydia in the U.S. is 1.1% (CI, 0.002% to 2.02%).

## P3.324 A POPULATION-BASED ASSESSMENT OF RACIAL/ETHNIC DISPARITIES IN GONORRHOEA RATES

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**Background** Measured incidence rates of Sexually Transmitted Infections (STIs) are substantially higher among blacks compared to whites in the US. However, population-based data sources, such as routine STI surveillance systems, often lack information on race/ethnicity for the majority of cases. We compared black-white differences in gonorrhoea rates using both individual and neighbourhood-level measures of race/ethnicity.

**Methods** Publicly-available aggregate data on the number of New York City(NYC) adult gonorrhoea cases in 2009 by race/ethnicity and sex were obtained from the NYC Department of Health and Mental Hygiene's online system for NYC's 42 neighbourhoods. The proportion of black residents for each neighbourhood was obtained from census data.

**Results** The citywide gonorrhoea rate in 2009 was 81 per 100,000 (median for 42 neighbourhoods [median]: 29; intraquartile range across 42 neighbourhoods [IQR]: 2–105); 116 per 100,000 for males (median:44; IQR: 11–177); and 47 per 100,000 for females (median: 10; IQR: 0–67). Race/ethnicity data were missing for 49% of cases (median: 48%; IQR: 36%–61%). Using data on cases with complete information on race/ethnicity, gonorrhoea rates were 225 per 100,000 (median: 204; IQR: 108–321) among non-Hispanic blacks, compared with 33 per 100,000 (median: 6; IQR: 1–37) among non-Hispanic whites. The median black-white difference in gonorrhoea diagnosis rates was 104 per 100,000, and varied substantially across neighbourhoods (IQR: 23–223). Neighborhoods in the lowest quartile of the proportion of black residents (where 0.1%–0.4% of neighbourhood residents were black) had the lowest mean gonorrhoea rate 33 per 100,000, compared to 81, 162, and 224 in the 2nd, 3rd and 4th quartiles (where 35%–76% of neighbourhood residents were black), respectively ($p < 0.001$).

**Conclusions** Analyses using individual-level and neighbourhood-level race/ethnicity measures both suggest substantial black-white differences within and across NYC neighbourhoods. More complete race/ethnicity information among persons diagnosed with gonorrhoea is critical to elucidate possible structural/neighbourhood determinants of black-white differences.

## P3.325 EVALUATING CONSISTENCY IN REPEAT SURVEYS OF MEN WHO HAVE SEX WITH MEN (MSM) USING RESPONDENT-DRIVEN SAMPLING IN ZANZIBAR ISLAND, ZANZIBAR - TANZANIA

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**Background** This study assessed the comparability of respondent-driven sampling (RDS) as a sampling and recruitment method by comparing two cross-sectional surveys conducted among MSM in Zanzibar using RDS in 2007 and 2011.

**Methods** We conducted community-based behavioural surveillance studies in Zanzibar using respondent-driven sampling (RDS) to recruit 509 MSM in 2007 and 344 in 2011. We used crude and RDSAT-adjusted descriptive statistics to assess differences between the samples.

**Results** Compared to 2007, participants in 2011 were significantly younger (31.4% vs 9.9% were younger than 19, $p < 0.001$), more likely to have been tested for HIV in the last year (53.7% vs 10.6%, $p < 0.001$), ever tested (68.2% vs 18.8%, $p < 0.001$), and less likely to have injected drugs in the last 3 months (1.0% vs 23.2%, $p < 0.001$). In 2011, 12 (2.6%) tested positive for HIV; in 2007, 65 (12.3%) were positive ($p < 0.001$).

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We found a statistically significant lower HIV infection rate among participants aged 20–24 in 2011 compared to 2007 (5.0% vs 13.4%, p < 0.001) and among those who reported having ever tested for HIV (3.0% vs 10.5%, p = 0.02).

**Conclusion** The number and magnitude of differences in the characteristics of the two samples suggests that the two rounds of RDS likely sampled different subsets of the Zanzibar MSM population, limiting their comparability and ability to assess trends over time. Similar findings have been reported with repeated RDS surveys in other settings. Our results highlight the continuing challenge in obtaining representative data among key populations affected by HIV to make evidence-based policy and programme planning decisions. While repeated bio-behavioural cross-sectional surveys using the same methodology in the same population are the backbone of surveillance in key populations, we advocate caution in implementation and interpretation of repeated RDS surveys and that other sampling approaches (e.g., Time Location Sampling) be tested.

## P3.326 ESTIMATING THE SIZE OF THE FEMALE SEX WORKER POPULATION IN ASUNCION, PARAGUAY BY MAPPING AND MULTIPLIER ESTIMATES

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**Introduction** Population size estimates for most at risk populations are essential for modelling and projections of the HIV epidemic and planning and prioritising prevention interventions. WHO/UNAIDS recommends countries produce multiple estimates given the large variance and biases inherent in available methods.

**Methods** Between January and May, 2012, 431 female sex workers (FSW) ages 18 and older recruited by time-location sampling participated in a HIV bio-behavioural surveillance survey (BSS) in the greater metropolitan area of Asuncion. Prior to recruitment, sex work venues and public places were mapped and FSW enumerated through key actor interviews. Makeup kits were then distributed to FSW present during site visits to a random sample of mapped venues. BSS question items assessed the percent of study participants that received the kit (the "unique object" method). Additional BSS question items assessed the percent of FSW that had accessed public HIV testing services from July to December, 2011 and services data were obtained on the number of FSW tested at the same sites in the same period (the services multiplier method). Estimated percentages from the BSS were weighted for differential probability of venue selection and incorporated Huber-White adjustments for clustering by venue.

**Results** Mapping identified 425 FSW at 72 sex work locations. Unique objects were distributed to 293 FSW. Of BSS participants, 22.7% (95% confidence interval [CI], 17.8%–28.4%) reported receiving the object, corresponding to a size estimate of 1292 (IC, 1031–1644) FSW. 53 FSW accessed HIV testing sites during the period and 6.0% (IC, 3.8%–9.4%) of BSS participants reported testing, for a size estimate of 880 (IC, 564–1392) FSW.

**Conclusion** Size estimates obtained by unique object and services multipliers were not significantly different, while mapping produced a significantly lower estimate, most likely reflecting changes in the population of FSW over time.

## P3.327 SURVEILLANCE AND CONTROL OF SEXUALLY TRANSMITTED INFECTIONS IN LITHUANIA

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**Background** The contemporary national epidemiological surveillance system of sexually transmitted infections in Lithuania was legalised in 2009. A national computerised reporting system has been introduced, aiming to standardise the data collection and analysis for all communicable diseases and their etiological agents through the country.

**Methods** Analysis of the national database available at www.ulac.lt

**Results** There are four reportable STIs in Lithuania, namely syphilis, *Chlamydia trachomatis, Neisseria gonorrhoeae* and HIV. Since 2010 both the physicians and the laboratories report identified STI cases. The physician reports individual new STI cases weekly, while the laboratory reports are provided monthly and only as aggregated data. During the period of 2009–2011, the incidences of bacterial STIs in Lithuania have been decreasing. The incidence (cases per 100,000 population) of syphilism decreased from 9.6 to 8.5 cases, of gonorrhoea from 11.5 to 7.9 cases, and of genital *C. trachomatis* infection from 11.9 to 10.6. In contrast, the incidence of HIV infection during the same time period increased from 0.49 to 5.15 cases! These changes in STI incidences were not due to the level of testing, which has been relatively stable from 2009 to 2011.

**Conclusion** The substantial increase in HIV incidence during recent years in Lithuania is of major concern. The difference in reporting methodologies, namely reporting of individual cases by the physicians and aggregated data from the laboratory reports does not allow comparison of them sufficiency of such reporting as well as evaluation of the true epidemiological situation.

## P3.328 AIDS IN KOSOVO, STIGMA AND KNOWLEDGE AMONG YOUTH

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**Background** The official HIV/AIDS data in Kosovo are based on HIV case reporting from health-care services, the blood transfusion system and Voluntary Counselling and Testing centres. Between 1986 and 2012, are reported 87 HIV and AIDS cases, of which 47 were AIDS, 40 HIV and 39 deaths. The majority (69%) of cases were men, age group 25 to 34 (37%) and route of transmission is: heterosexual (90%), MSM (7%), vertical transmission (2%) and IDU (1%). Based on existing data and the UNAIDS classification system, Kosovo is currently still categorised as having a low-level HIV epidemic. Even though with a low HIV prevalence, Kosovo faces a number of threatening factors, including increased number of drug users, a stigmatised and discriminated MSM community, high percentage of youth among general population (57% of the population under the age of 25), with changing social norms and especially the sexual ones.

**Methods** Data collection was done using self administered structured questionnaires amongst 249 high school students. Data were analysed using the Statistical Package for Social Sciences (SPSS).

**Results** The findings revealed that 68% of students know that HIV transmission can be reduced by having sex with only one uninfected partner who has no other partners, 94% know that the risk of getting HIV can be reduced by using a condom every time they have sex, 68% know that a person cannot get HIV from mosquito bites, 81% know that they cannot get HIV by sharing food with someone who is infected and 46% know that a healthy looking person can have HIV.



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