Within-neighbourhood respondent agreement on survey-rater reliabilities and convergent validity testing using Poisson and linear regression.

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=562) 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) (β −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 0.68. 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 (β −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 (β −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.
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

**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 consider variations 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%). Costs 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 first pregnancies only. At base-case costs, screening appeared to be 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%.

**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 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%.

**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.

**COST-EFFECTIVENESS OF SCREENING FOR CHLAMYDIA TRACHOMATIS IN DUTCH PREGNANT WOMEN**

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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%.

**Conclusion**  Screening for C trachomatis in pregnant women could avoid congenital C trachomatis infections, and prevent considerable health care costs and productivity losses. Cost-effectiveness was increased when using different test costs for RSTs rather than RPR, the number of women reached by screening services was 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.