in 2009, accounting for a sevenfold increase since 1999. Accurate treponemal and non-treponemal serological testing are critical to providing a correct diagnosis, but there are substantial variations in the quality of serological diagnostic tests and testing across different parts of China. Since 2003, the Guangdong Provincial STI Control Center in collaboration with the Bureau of Public Health has developed a program on STIs laboratory construction and quality assurance system. We report the proficiency of serological test of syphilis among the STIs laboratories in Guangdong Province in 2004–2009.

Methods Proficiency panels consisting of five samples with syphilis positive and negative sera were prepared in the provincial laboratory and sent to STIs laboratories for non-treponemal and treponemal testing once a year. Participating laboratories were asked to report the type of test used and quantitative and qualitative results for each serum. Each quantitative result was compared to the geometric mean of all participants' results, and was considered correct if it was less than fourfold difference from the mean titre.

Results The numbers of STIs laboratories in Guangdong which participated in the survey increased from 19 to 225 and a total of 13 203 sera were tested from 2004 to 2009. 98% laboratories used the "toluidine red unheated serum" (TRUST) as their non-treponemal test and all laboratories used the "*Treponema pallidum* particle agglutination assay" (TPPA) as their treponemal test. The mean accuracies of non-treponemal tests among the laboratories evaluated increased significantly from 78.9% in 2004 to 97.7% in 2009 (χ^2=17.11, p<0.01) for qualitative test results, and from 75.8% in 2004 to 90.8% in 2009 (χ^2=8.09, p<0.01) for quantitative test results. Higher accuracies were observed with TPPA ranging from 93.5 to 100% (χ^2=2.85, p>0.05) for qualitative test results and improved from 73.7% to 86.5% (χ^2=4.7, p<0.05) for quantitative test results during this period. For non-treponemal testing, 4.1% (113/2754) of the results were found to be false negative and 2.3% (34/1456) were found to be false positive. For qualitative treponemal results, 6.5% (96/1470) and 1.9% (17/889) of treponemal results were found to be false-negative and false-positive respectively. For quantitative results, it was worth noting that in some cases, four to seven-titre deviations were observed for the same sera.

Conclusion This province-wide STIs laboratory construction and quality assurance system has helped to improve the accuracies of serological syphilis testing over time. But there is still room for improvement to facilitate improved control of syphilis in China.

P1-S4.28 SURVEY OF METHODOLOGY USED FOR THE IDENTIFICATION AND ANTIMICROBIAL SUSCEPTIBILITY TESTING OF *NEISSERIA GONORRHOEAE* IN LATIN AMERICA AND THE CARIBBEAN

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S Starnino, M Liao, M Ruben, A Storey, J A R Dillon, GASP-LAC Network*. *Vaccine and Infectious Disease Organization, University of Saskatchewan, Saskatoon, Canada*

Background The Gonococcal Antimicrobial Susceptibility Surveillance Program in Latin America and the Caribbean (GASP-LAC) in the 1990s had significant impact in identifying trends in antimicrobial susceptibility in the region. To revitalise the GASP-LAC, a survey was undertaken to determine the level of surveillance activity and the methods used for the identification and antimicrobial susceptibility testing (AST) of *Neisseria gonorrhoeae* (Ng) isolates.

Methods A structured questionnaire was distributed to potential participants to collect information regarding surveillance activities and methods used for identification and AST of Ng in LAC countries. Information was also obtained from presentations at the Workshop of the GASP-LAC in November 2010 in Buenos Aires, Argentina.

Results 7 countries completed the questionnaire and four provided unstructured answers regarding the methodologies. All 11 countries were interested in continuing to participate in the GASP-LAC. Of nine countries reporting, seven had an on-going country-wide network for gonococcal AST and two countries collected isolates locally, the number of isolates tested each year varied (25–400). Thayer Martin medium was used for Ng primary culture by all countries answering this question (n=8); among them, four countries used biochemical tests alone, or coupled with Gram stain (n=3) and one country, in addition to the two methods, used antigen detection and the nucleic acid amplification method. Chromogenic cephalosporin was used by all respondents (n=9) for detecting ß-lactamase production. Methods used for AST included agar dilution in 6 of 9 reporting countries, coupled with disc diffusion (n=4) and Etest (n=2); the remaining used disc diffusion alone (n=1) or coupled with Etest (n=2). CLSI interpretation criteria were used in all responding participants (n=9). Ng reference strains included ATCC49226 (n=6), coupled with WHO III, V, VII (n=2) or WHO A-E (n=1).

Conclusions Different levels of surveillance were noted between countries probably due to various resource availabilities. On the basis of these responses the GASP-LAC Co-ordinating Centre will re-establish and consolidate the GASP-LAC.

*Authors contributed equally and are listed in an alphabetical order of country names. P Galarza, I Pagano, M E Trigoso, A Schwartz Benzaken, V M Pinto, A Maldonado Ballesteros, O M. Sanabria Cruz, A Llop, E Aguilar Jarrin, N Aguayo, J L Portilla Carbajal, G Borthagaray, A Acevedo, D Payares

P1-S4.29 SYNTHESIS OF EVIDENCE ON IMPLEMENTATION RESEARCH ON POINT-OF-CARE SYPHILIS TESTS: A SYSTEMATIC REVIEW

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[1]Y Jafari, [2]M Johri, [3]D Ako-Arrey, [1]S Shivkumar, [4]G Lambert, [5]C Claessens, [1]M Klein, [6]J Cajas, [7]R Peeling, [1]N Pai. *[1]McGill University, Montreal, Canada; [2]Université de Montreal, Canada; [3]University of Saskatchewan, Canada; [4]Institut national de santé publique du Québec, Canada; [5]Laboratoire de santé publique du Québec, INSPQ, Canada; [6]Queen's University, Canada; [7]London School of Hygiene & Tropical Medicine, UK*

Background With the increase in global prevalence of syphilis, synthesis of evidence of point-of-care (POC) assays is warranted. While a clear methodology exists to meta-analyse diagnostic performance, a clear rubric that incorporates implementation research outcomes (IRO) relevant for policy making is lacking. Recently, Grading of Recommendations Assessment, Development and Evaluation (GRADE) working group called for a shift to emphasis on patient-centred outcomes for making policy recommendations. However, a lack of clarity in defining, elucidating, and reporting of these outcomes prevents their utilisation in practice. Within this context, we reviewed global evidence on IROs for syphilis POC tests.

Method We systematically searched nine electronic databases for the period of January 1980 to September 2010. Articles that addressed IRO regarding POC syphilis tests were reviewed and data extracted. A second reviewer independently reviewed a subset of the articles. Outcomes were synthesised into a narrative review.

Results 31 (48%) from 64 full text articles assessed were included in the narrative review. Twenty-four studies were cross-sectional, six were case-control, while one was a clustered randomised control trial (RCT). IROs were categorised into: Acceptability, Preference, Feasibility, Prevalence, Barriers and Challenges, and Economic Evaluations of POC tests. Three papers reported outcomes on acceptability, four on preference, ten on feasibility, seven on impact, six on prevalence, seven on barriers and challenges, and seven on economic

evaluations. Overall, studies were concordant on findings of high acceptability and feasibility of POC tests as well as the testing strategy used. Preference was not well demonstrated in studies. Impact was particularly well demonstrated in antenatal clinic attendees by a clustered RCT. Barriers and challenges ranged from biotechnological limitations of the tests to lack of political will. Heterogeneous methodologies employed across studies to conduct economic evaluations made it difficult to draw conclusive statements.

Conclusions Results were generally in agreement across studies, yet unsystematic methods of collecting and recording outcomes made it difficult to statistically combine outcomes. Weaknesses in the reporting of IROs limit our ability to form comprehensive context-specific policies. Further efforts in establishing a framework for conducting implementation research is required.

P1-S4.30 POINT-OF-CARE HIV TESTING WITH ORAQUICK ADVANCE HIV-1/2 ANTIBODY ASSAY: A SYSTEMATIC REVIEW OF COST OUTCOMES

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[1]B Balram, [2]M Johri, [2]D Ako-Arrey, [3]G Lambert, [3]C Claessens, [1]M Klein, [4]J M Cajas, [5]R Peeling, [1]N Pant Pai. *[1]McGill University, Montreal, Canada; [2]Université de Montréal, Canada; [3]Institut national de santé publique du Québec, Canada; [4]Queen's University, Canada; [5]London School of Hygiene & Tropical Medicine, UK*

Background Recently Grading of Recommendations Assessment, Development and Evaluation (GRADE) working group called for a shift from diagnostic accuracy to emphasis on patient-centred outcomes for making policy recommendations. While meta-analyses have evaluated diagnostic accuracy of POC HIV tests, a systematic appraisal of other implementation research outcomes, such as cost, is lacking. Within this context, we reviewed global evidence on cost outcomes of OraQuick Advance HIV—1/2 Antibody Test.

Method We systematically searched six electronic databases for the period of January 1999 to January 2011. Cost outcomes with OraQuick tests were reviewed and data extracted. For economic evaluation we accepted both partial and full study designs. Outcomes were synthesised into a narrative review.

Results We identified nine studies offering economic evaluations of oral and blood based OraQuick, of which six were full economic evaluations and remaining were partial evaluations. The full economic evaluations included five Cost Effectiveness Analysis (CEA) and one Cost Utility Analysis (CUA) design; one partial evaluation was a cost comparison study and two were cost analysis studies. All studies were in the USA except one, which was from Mexico. All studies performed sensitivity analyses to explore the impact of uncertainty in their model parameters and findings. Methodological approaches applied by the authors were not standardised and program cost varied by location, but overall there was uniformity in the study conclusions. The studies concluded that OraQuick was cost effective in low prevalence settings and resulted in low rates of false positives which have favourable economic implications. The tests were found to be cost saving to the medical system, and offer the advantage of convenience in administration when compared to current standards of care. Since it was recognised that pre- and post-test counselling cost and personnel costs accounted for most of the overall costs for these rapid tests, one approach that was proposed to reduce this cost was to limit the time spent on counselling or by using lower-paid personnel for counselling activities.

Conclusion The economic evaluation results presented here can guide program managers and health policy decision makers in the research for efficient HIV testing options, for the proper allocation of healthcare resources and for adoption of models of healthcare delivery that represent the best value for money.

Epidemiology poster session 4: Methodological aspects: RDS & recruitement

P1-S4.31 FAILURE OF RESPONDENT DRIVEN SAMPLING IN A TRANSGENDER POPULATION DUE TO INADEQUATE FORMATIVE WORK AND NON-NETWORK ASSOCIATED SELECTION CRITERIA

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J Risser, P Padgett, J Montealegre. *University of Texas, Houston, USA*

Background In 2009, the CDC funded the Transgender HIV Behavioural Surveillance pilot to assess the feasibility of using respondent driven sampling (RDS) to recruit ethnic minority male-to-female transgender (MTFTG) participants. RDS is a chain-referral strategy that restricts the number of people each participant can recruit and offers incentives for both participation and recruitment. With proper adjustment for sampling, data collected through RDS can be used to develop population prevalence estimates. RDS assumes that respondents know one another as members of the target population.

Methods Because of funding constraints, formative work and data collection lasted only 4 months. Our goal was to recruit 100 MTFTG participants, at least 15 years old, who were assigned male sex at birth and who currently identified or presented as female. We established a field office in the Houston Transgender Center and identified a charismatic MTFTG interviewer. Office hours were set for early afternoon; incentives were $20 for the interview and $10 for each recruit (up to $50). Recruiter instructions were to give the RDS coupon to known Latina or Black MTFTG.

Results Our University prohibited the hiring of our first-choice interviewer because she had a previous moral turpitude conviction. Recruitment was delayed until we hired another. We planted 11 seeds; 5 failed, 3 recruited 7 individuals in 2 waves; and 3 recruited 40 individuals with the longest chain consisting of 6 waves. We distributed 201 coupons and interviewed 48 eligible and consenting MTFTG.

Conclusions Formative work is essential to identify the size and features of the study population social networks, time and place for recruitment, and appropriate incentive. RDS requires respondents to be linked by the target attribute, in this case ethnic minority MTFTG. By restricting recruitment to transgender individuals of colour, we violated that assumption. Our sample networks were not structured around race/ethnicity; rather they were networked through work affiliations (sex worker, performer, unemployed). Recruitment also failed because the incentive was not enough to encourage performers and sex workers to participate in a health survey. Evening hours would have been better for our group's work schedules so they could participate on their way out for the evening. Our failure to get RDS initiated reinforces the importance of formative work to determine if RDS will succeed in your target population.

P1-S4.32 RECRUITING VIA SOCIAL NETWORKING SITES FOR SEXUAL HEALTH RESEARCH (ASSESSING CHLAMYDIA AND HPV KNOWLEDGE)

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[1,2,3]S M Garland, [2,4]J D Wark, [1,2,3]S N Tabrizi, [1]Y Jayasinghe, [1,3]E Moore, [1,3]A Fletcher, [1]B Gunasekaran, [1]N Ahmed, [1,2]Y Fenner. *[1]Department of Microbiology and Infectious Diseases, The Royal Women's Hospital, Melbourne, Australia; [2]University of Melbourne, Australia; [3]Murdoch Children's Research Institute, Australia; [4]Department of Medicine, Royal Melbourne Hospital, Melbourne, Australia*

Background Recruiting participants into population health studies has become increasingly challenging: traditional strategies have