Symposium 1: Measurement of sensitive behaviour

S1.1 IMPROVING THE VALIDITY OF SEXUAL BEHAVIOUR MEASUREMENT: USING COMPUTER-ASSISTED METHODS

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Reporting of sexual behaviour is subject to bias, perhaps most importantly social desirability bias. This is a particular problem in communities where discussion of sex is considered taboo and when disclosure of sexual activity can have serious consequences for the individuals concerned (eg, for young people or those in same-sex relationships). Mis/under-reporting of sexual behaviours can result in the design of interventions being poorly informed as well as in intervention effectiveness being unreliably measured. There is increasing evidence to suggest that questionnaire delivery method (in addition to a host of other factors) can impact the validity of reported data and that validity can be improved by careful consideration of questionnaire delivery mode. Computer-assisted questionnaire delivery has been shown to increase reporting of socially sanctioned behaviours in many settings and even in rural, resource poor settings, where people traditionally have limited experience of using computers, have been shown to be highly acceptable and feasible to research participants.

S1.2 APPLYING SEMEN BIOMARKERS TO HIV/STI RESEARCH

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Research on the prevention of HIV/STIs generally has relied on self reports of sexual activity, which are vulnerable to bias. Self-reported data on sexual behaviours could have poor validity for several reasons, namely social desirability bias, recall bias, lack of awareness of exposure (eg, undetected condom breakage), and poor comprehension or misinterpretations of the survey questions. This presentation will briefly describe biomarkers of semen exposure, in particular, prostate-specific antigen detected in vaginal fluid, and will give examples of the ways in which biomarkers could be used to strengthen research on (1) effectiveness of barrier methods against HIV/STIs; (2) effectiveness of behavioural interventions to prevent HIV/STIs; (3) condom "migration" from HIV/STI interventions; (4) the validity of self-reported data; and (5) methods to improve the validity of self-reported data. Limitations of biomarkers include their narrow scope, cost, relatively quick clearance, and unknown biological significance of biomarker levels in relation to risk of HIV/STIs. Finally, examples of future areas of research will be provided.

S1.3 MEASUREMENT OF ADHERENCE: WHERE ARE WE?

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There is presently no validated objective method available to measure participants' sexual behaviour or adherence to study product use in HIV prevention trials. Because of this challenge there has been an indeterminate amount of product non-adherence that has precluded the accurate measurement of the safety and efficacy of novel biomedical interventions. Measurement has historically relied on self-report, which suffers from several biases, including recall and social desirability. To address these, researchers have use alternative interview modes (ACASI) and technologies (cell phones/SMS) with varying success. Pros and cons of other innovative approaches to measure adherence will be discussed, including use of indirect objective measures of adherence (eg, events monitoring systems, mucin tests of gel applicators), real time electronic measures, biomarkers and Directly Monitored Adherence Methods. Each of these approaches has strengths and limitations, thereby precluding any of them from serving as a universal "gold standard". Discussion will include what can and should be measured "objectively" as well as lessons learnt for future biomedical prevention trials.

S1.4 PHARMACOLOGICAL ASSESSMENT OF MEDICATION ADHERENCE—ORAL PREP AND MICROBICIDES

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HIV chemoprevention trials (oral PrEP and topical microbicides) will benefit greatly from an accurate assessment of medication adherence during the trial to assist in the interpretation of prevention success or failure in the trial. HIV infection during the trial may be a result of failure to achieve preventive drug concentrations, which itself may result from either (1) a prescribed regimen, to which the subject fully adhered, that is still insufficient to prevent infection or (2) a result of poor adherence to the prescribed regimen also resulting in insufficient drug concentrations. In addition, an accurate adherence assessment in the midst of a trial could trigger adherence interventions. Objective evidence of adherence in several HIV chemoprevention trials suggests that subjective measures greatly overestimate adherence. Drug concentration has been proposed as a more objective adherence measure. Blood, hair, or other samples are sampled at specified times and the resultant "observed" drug concentration is compared to the "expected" drug concentration. The proportional difference between the expected and observed drug concentrations may be used as an estimate of the proportion of doses for which the subject was adherent to the prescribed regimen. This method attempts to provide more accurate and quantitative measures than those currently employed, but obstacles to their application and feasibility in estimating adherence remain to be demonstrated. Problems of white-coat effect, inter- and intra-individual variability, dose-proportionality, and backward looking temporal frame of reference all need to be addressed as part of the validation and interpretation of drug concentration as an adherence measure.

Symposium 2: Rapid tests as tools to transform policy, strengthen health systems and save lives (sponsored by WHO/TDR and the London school of hygiene and tropical medicine)

S2.1 INTRODUCTION OF RAPID SYPHILIS TESTS IN ANTENATAL CARE SERVICES IN TANZANIA: CLIENTS' AND SERVICE PROVIDERS' ACCEPTABILITY AND UPTAKE OF TESTING

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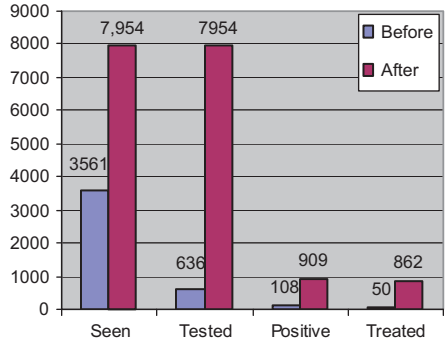
Background Syphilis is still a major cause of morbidity and mortality in women and children. In Tanzania syphilis was shown to cause adverse pregnancy outcomes in 49% and stillbirth in 25% of

pregnant women with high titre syphilis. Although syphilis screening and treatment is a national policy and is one of the most cost effective interventions, its implementation on a large scale is limited. Lack of a simple and rapid point of care diagnostic test for syphilis has been suggested as one of the major reasons for this limitation. We implemented a demonstration project in Geita district, Tanzania to assess the feasibility of introducing a rapid diagnostic test in antenatal care services. The objectives of the project were to determine (1) the feasibility of increasing access to antenatal syphilis screening using same day testing and treatment strategy, and (2) the acceptability of introducing rapid syphilis testing to service providers and clients.

Methods A health facility based baseline survey was carried out using a structured questionnaire to determine syphilis uptake before rapid test introduction. A team of four district trainers and supervisors were trained on how to perform the test, on quality assurance and stock management. Health workers were also trained on how to perform the test, quality assurance and stock management. Then rapid tests were introduced in all health facilities and qualitative data were collected to assess acceptability of the test. The uptake of syphilis testing and treatment among pregnant women in 3 months before and after rapid test introduction were compared using χ^2 test.

Results Numbers of pregnant women tested in the 3 months after rapid test introduction were significantly higher than those tested before its introduction in the same period ($p<0.01$). Similarly a significantly higher number of syphilis positive women were treated compared to those treated before test introduction ($p<0.01$) see Abstract S2.1 figure 1. The same day testing and treatment strategy enabled 95% of women testing positive to be treated at their first visit. The rapid test was acceptable to both service providers and clients.

Conclusions Introduction of rapid syphilis tests has made it possible to implement national policy for screening pregnant women in Tanzania. Increasing access to screening and treatment will prevent many perinatal deaths.



Abstract S2.1 Figure 1 Number of pregnant women tested and treated at clinics before and after Rapid Test introduction in 3 months.

S2.2 INCREASING ACCESS TO HIV AND SYPHILIS SCREENING IN REMOTE AREAS USING RAPID TESTS

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Background Syphilis continues to be a public health problem in Brazil, particularly among populations with limited access to health services. Indigenous populations, who live in remote locations in the interior of the Amazon forest, are of even greater concern. Traditional laboratory tests for the diagnosis of syphilis are scarce in these regions. The objective of this presentation is to describe the implementation of rapid tests (RT) in the Amazon region.

Methods We trained health professionals of 9 Special Indigenous Health Districts (DSEI) to screen the sexually active population (over 10 years of age) for syphilis and HIV using RT with Quality Assurance (QA).

Results In total, 509 health professionals were trained and 160 units participated in the screening efforts. From a sexually active population of 83 311 indigenous people 38 799 (47%) were tested, of whom 594 (1.5%) tested positive for syphilis. 44/3650 pregnant women (1.3%) tested positive for syphilis, and 3 for HIV (0.1%). There is extensive variation between the rate of syphilis and HIV positivity between DSEIs (Abstract S2.2 table 1). The external QA performance was important in assuring correct results as initial scores were 77.1% for the HIV test and 61.5% for the syphilis test.

Conclusions This project has demonstrated to policy makers in Brazil the existence of syphilis and HIV among indigenous people and the feasibility of addressing it. As a result of this work, it is now government policy to use RT to screen for HIV and syphilis with QA in remote regions of Brazil. This project provided a model for the introduction of point of care tests supported by a QA programme in remote regions.

S2.3 SCREENING HIGH-RISK POPULATIONS USING RAPID SYPHILIS TESTS: THE IMPORTANCE OF SOCIAL AND CULTURAL CONTEXTS

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Background Syphilis has made a dramatic resurgence in China during the past 2 decades with an increasing prevalence in high-risk groups. Screening of syphilis in the populations is critical for control of the disease.

Abstract S2.2 Table 1 Syphilis and HIV screening progress

DSEI	# Screened / sexually active population (%)	Syphilis prevalence in sexually active population	HIV prevalence in sexually active population	Syphilis prevalence in pregnant women	HIV prevalence in pregnant women
Manaus	5.957/10.980 (54.2%)	1.51%	0.08%	3/327 (0.93%)	0/323 (0.0%)
Yanomani	1.757/4.317 (40.7%)	0.06%	0.17%	1/284 (0.35%)	2/284 (0.70%)
Leste roraima	2.666/4.038 (66.0%)	0.41%	0.08%	2/567 (0.40%)	0/472 (0.0%)
Alto solimões	19.147/25.322 (75.6%)	1.90%	0.13%	30/1.412 (2.27%)	0/1.272 (0.0%)
Parintins	2.324/4.904 (47.4%)	0.34%	0.04%	1/254 (0.39%)	0/253 (0.0%)
Alto rio Negro	4.892/19.872 (24.6%)	0.72%	0.08%	4/639 (0.72%)	0/561 (0.0%)
Médio solimões	580/9.092 (6.4%)	2.59%	0.0%	0/77 (0.0%)	0/76 (0.0%)
Médio purus	330/2.950 (11.2%)	0%	0.0%	0/20 (0.0%)	0/20 (0.0%)
Vale do javari	1.147/2.563 (44.7%)	6.10%	0.17%	3/70 (4.29%)	1/70 (1.43%)
Total	38.799/83.311 (46.6%)	594/38.799 (1.53%)	41/38.799 (0.11%)	44/3.650 (1.29%)	3/3.650 (0.09%)