other STIs. Presently more than 18 000 inmates have been surveyed for HIV, HBV HVC and syphilis using the automated immunoquimioluminiscence analysis system Abbott Architect i2000. The accuracy of Abbott Architect Syphilis TP (ASTP) for detecting treated and untreated syphilis was reported before thus our study focused in validate ASTP as compared with an accepted treponemic test.

Methods For evaluatig the sensitivity and specificity of ASTP in the context of our HIV clinic we compared ASTP with a test extensively used for syphilis confirmation, Treponema pallidum haemagglutination assay (TPHA). Samples were assayed with ASTP in pools of four sera and each positive pool developed and re-assayed with ASTP to find one or more individual positive samples which were further assayed with tittered VDRL. ASTP− pools were not re-assayed and individual samples were scored as negative for syphilis. We selected 218 ASTP+ and 1920 ASTP− individual consecutive samples to be tested with BioRad Syphilis TPHA.

Results From 218 ASTP+ samples 212 were TPHA+ and all 1920 ASTP− were also TPHA−. ASTP and TPHA detected all 77 VDRL+ samples thus considered diagnostic of latent or active syphilis. Six ASTP+/TPHA− samples and 135 ASTP−/TPHA− were also VDRL− and considered as evidence of treated/cured syphilis. Using TPHA as gold standard ASTP Sensitivity was 100% and Specificity was 99.7%. In two ASTP- pools that showed more than 0.6 but <1 S/CO reading, a sample weakly positive by ASTP and TPHA but VDRL− was found when assayed individually.

Conclusions Reverting the traditional algorithm of syphilis diagnosis by first determining TP specific antibodies with ASTP followed by tittered VDRL of positive samples is highly accurate even if done in pools of four sera. This approach allows also the identification of epidemiologically valuable data of cured syphilis.

P3-S6.02 IS FOURFOLD DROP OF THE NONTREPONEMAL ANTIBODY TITRESTITRES AT THREE OR 6 MONTHS AFTER EARLY SYPHILIS TREATMENT AN EFFECTIVENESS "CRITERION?"

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Background At present the criteria for treatment effective in early syphilis is the disappearance of clinical symptoms and signs and four-fold decrease of nontreponemal antibody titres within 3 to 6 months after therapy. However, how to evaluate if syphilis is cured after treatment remains difficult and controversial.

Methods Secondary syphilis patients whose rapid plasma reagin (RPR) titres did not turn negative at least 24 months after treatment were enrolled in this study and their CSF were evaluated. The criteria for enrolment were: (1) RPR titres declined fourfold within 3 months after therapy for secondary syphilis; (2) patients denied high risk sexual behaviour following syphilis treatment; (3) RPR titre did not turn negative at least 24 months after treatment; and (4) HIV negative. The criteria for neurosyphilis were: (1) CSF leukocyte count was elevated, and/or (2) proteins were abnormal, and (3) a reactive VDRL-CSF test in the absence of substantial contamination of CSF with blood, and (4) a reactive TPPA-CSF test, and (5) a negative HIV test, and (6) with or without neurological manifestations, and (7) excluding other possible CNS infections.

Results There were 14 male and three female patients who met the criteria for neurosyphilis. The CSF leukocyte count was elevated in 10 patients among which nine also had CSF proteins elevated. The other three patients had CSF proteins elevated only. CSF-VDRL and CSF-TPPA were reactive in all 17 patients. There were four cases presenting notable neurological and psychiatric manifestations, and other 13 had no signs and symptoms of CNS when they entered the study. The clinical symptoms and signs disappeared or improved in four patients, and CSF-WBC in those nine patients turned to normal after treatment. CSF-protein declined accordingly but did not turn to normal in four cases see Abstract P3-S6.02 table 1.

Abstract P3-S6.02 Table 1 RPR and CSF before anti-neurosyphilis treatment

No.	Initial RPR	RPR (3 months after treatment*)	RPR (24 months after treatment*)	CSF/WB (0−8)×10^6/l	CSF/protein (150−450) mg/l	CSF/ VDRL
1	1:64	1:8	1:16	8.1↑	860↑	1:4
2	1:16	1:4	1:4	3	441	1:1
3	1:32	1:8	1:8	1.1	890↑	1:2
4	1:64	1:6	1:32	300↑	1860↑	1:8
5	1:32	1:4	1:8	3.8	1050↑	1:4
6	1:128	1:32	1:64	8.2↑	650↑	1:16
7	1:64	1:16	1:16	9.8↑	460↑	1:4
8	1:256	1:32	1:32	5.8	580↑	1:8
9	1:64	1:8	1:8	26↑	460↑	1:4
10	1:128	1:32	1:32	8.8↑	280	1:8
11	1:16	1:4	1:8	9↑	540↑	1:8
12	1:128	1:16	1:16	17↑	570↑	1:4
13	1:256	1:64	1:64	38↑	590↑	1:16
14	1:128	1:32	1:8	2.2	430	1:2
15	1:256	1:32	1:16	18.8↑	800↑	1:4
16	1:64	1:16	1:8	3.3	430	1:1
17	1:16	1:4	1:4	3	280	1:1

*Anti-secondary syphilis treatment.

Conclusions A four-fold decrease in serological titres and resolution of lesions of early syphilis may not predict success. The occurrence of failure after standard therapies suggests that the current criteria for "treatment effective" are questionable. There is a need of continuing to evaluate early syphilis patients who meet the criteria for "treatment effective" and whose nontreponemal antibody titres fail to turn negative afterwards.

P3-S6.03 SEROREVERSION OF TREPONEMAL TESTS IN CASES MEETING CANADIAN SURVEILLANCE CRITERIA FOR CONFIRMED CONGENITAL SYPHILIS

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Background Serologic tests for syphilis remain the mainstay of diagnosis. However, diagnosis of congenital syphilis is complicated by the passive transfer of maternal antibodies to the infant. Non treponemal test (NTT) titres should decline by age 3 months and should be non reactive by age 6 months if the infant was not infected or was infected but adequately treated. Limited data exist on the serologic outcome of treponemal tests (TT) in cases with clinical or laboratory evidence of congenital syphilis at birth.

Methods Cases meeting Canadian surveillance criteria for confirmed early congenital syphilis [within 2 years of birth] (http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/09vol35/35s2/Syphilis-eng.php) were reviewed from the Alberta Health Services Edmonton zone from 2005 to 2010. Under Alberta's Public Health Act, maternal stage, treatment information and serologic follow-up and infant clinical, laboratory and treatment information are obtained and stored in a provincial STI database.

Results 22 cases met surveillance criteria for confirmed congenital syphilis: six were either stillborn/deceased at birth, three are still

Abstract P3-S6.03 Table 1 Seroreversion TT Congenital Syphillis

Case*	Maternal stage/GA at treatment	Neonatal/infant diagnostic features	Infant age at treatment (GA at birth)	Infant age /final serologic results
1	Primary/postpartum	Abnormal CSF (4)	Birth (34 weeks)	7 months/RPR NR, TPPA NR, FTA-ABS NR
2	Primary/postpartum	Abnormal CSF (3) Abnormal long bone radiographs Intraventricular haemorrhage Fetal hydrops	Birth (unknown)	14 months/RPR NR, TPPA NR
3	Primary/postpartum	Abnormal CSF (3)	Birth (38 weeks)	10 months/syphilis EIA negative
4	Early latent/postpartum	Abnormal CSF (3)	Birth (30 weeks)	5 months/syphilis EIA negative
5	Early latent/34 weeks GA	Abnormal CSF (3) Abnormal long bone radiographs	Birth (37 weeks)	12 mos/syphilis EIA negative
6	Primary/postpartum	Abnormal CSF (3)	Birth (38 weeks)	18 months/syphilis EIA negative
7	Early latent/postpartum	Abnormal CSF (4)	Birth (36 weeks)	19 months/syphilis EIA negative
8	Secondary/28 weeks GA	Abnormal CSF (4) Intrauterine anaemia, hydrops, cardiomegaly, ascites. Positive syphilis PCR from intrauterine fetal blood	Birth (36 weeks)	13 months/syphilis EIA negative

CSF, cerebrospinal fluid; GA, gestational age; NR, non reactive; R, reactive; EIA, enzyme immunoassay; RPR, rapid plasma reagin; TPPA,*Treponema pallidum* particle agglutination; FTA-ABS, fluorescent treponemal antibody absorbed; PCR, polymerase chain reaction.
*Number of CSF abnormalities (elevated WBC, RBC or protein, low glucose, reactive VDRL).

under 18 month serologic follow-up, one had persistently reactive TT (21 months) and four had reactive TT at the end of their follow-up period (ages 11, 12, 13 and 15 months). 3/5 cases with persistently reactive TT were treated with 9–10 days of intravenous penicillin within 0–2 days of birth, 1 at 3 months of age and 1 at 8 months of age. In 4/5 of these cases, the RPR had reverted to non reactive at the end of the follow-up period while in the 5th case (treated at 8 months), the RPR declined from a titre of 1:4096 dilutions at birth to 1:64 dilutions at 11 months of age. The remaining eight cases had negative TTs, as summarised in the table. All were treated with 10 days of intravenous penicillin (except case #2 treated with 9 days) see Abstract P3-S6.03 table 1.

Conclusions As with early treatment of primary syphilis cases, seroreversion of TT can occur in cases meeting clinical and laboratory criteria for congenital syphilis. Seroreversion was observed with older TT such as TPPA and FTA-ABS as well as the newer syphilis EIA.

P3-S6.04 USE OF A POINT OF CARE TEST DEVICE TO DETECT SYPHILIS IN A STD CLINIC

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Background Diagnosis of syphilis is problematic and an accurate rapid point of care (POC) test could be useful in busy STD clinics. There are no FDA Cleared POC tests for Syphilis serology in the USA.

Objective To determine the performance of a new, rapid point of care (POC) test, Syph-Check, which is not yet FDA cleared, for the serological diagnosis of Treponema pallidum in female and male STD patients.

Methods Men and women >18 yr visiting the Baltimore City Health Department STD clinic were consented to enrol in a trial to determine the accuracy of a new, innovative POC test for syphilis (Veda, manufactured in France) that used a cassette format to test syphilis serology. The Syph-Check One-Step Syphilis test is a point of care, rapid immunoassay screening test for qualitative detection of IgG and IgM antibodies to *Treponema pallidum* in finger stick blood, plasma, and serum. This product can be used as an initial screening test or as a confirmatory diagnostic test, but is not FDA cleared for use in screening blood or plasma donors. The assay was performed in the STD clinic, required only 20 min to perform, and required no instrumentation. RPR and TPPA tests were performed to determine the sensitivity and specificity of the Syph-Check POC test.

Results 194 men and 205 women were enrolled. Of the 399 samples tested, 33 were positive and 366 were negative by the Syph-Check. There were 14 positives and 385 negatives by RPR confirmatory testing. Overall sensitivity compared to RPR testing was 85.7% (95% CI 60.3% to 97.5%) and specificity was 94.5% (95% CI 91.9% to 96.5%). There were 32 positives and 367 negatives by TPPA confirmatory testing. Overall sensitivity compared to TPPA was 43.8% (95% CI 27.5% to 61.1%) and specificity was 94.8% (95% CI 92.2% to 96.8%).

Conclusions The Syph-Check POC test was moderately accurate compared to the RPR test, but not as sensitive compared to TPPA. A more accurate POC test for syphilis could be useful for clinicians to test clinic patients and provide immediate screening results for syphilis to patients during an office or clinic visit.

P3-S6.05 COMPARING THE ANALYTICAL SENSITIVITIES OF SIX TREPONEMAL TESTS

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Background Traditional syphilis testing consists of screening with a non-treponemal test (RPR) and confirmation with a treponemal test (TP-PA, FTA-ABS, EIA, CIA, etc). Recently, that testing algorithm has been reversed due to efforts to reduce labour costs and the availability of automatable tests (EIA, CIA). Large numbers of discordant test results (treponemal +, non-treponemal–) can be obtained using the reverse algorithm and can be due to (1) treated cases of syphilis, (2) a false-positive treponemal test, or (3) a case of early primary syphilis that has yet to seroconvert. Those sera need to be confirmed with a second treponemal test to eliminate false positive specimens. The dilemma arises which treponemal test is best suited for confirmation, and secondly what are the relative analytical sensitivities of available treponemal tests used for both screening and confirmation.

Methods Two hundred randomised TP-PA positive, cleanascite treated samples (GADPH) were serially diluted with normal human sera to determine the analytical endpoint and sensitivity of six commonly used treponemal tests (TP-PA, FTA-ABS, TrepSure, TrepChek, TrepID, and LIAISON). All dilutions were treated as neat sera in each test, and the tests were performed according to the manufacturer's instructions.