Administration (FDA)-cleared syphilis diagnostic tests or new investigational assays in the United States (US). Described here is a repository of residual syphilis serum specimens (N=464) that were tested and submitted by US state and local public health laboratories (PHL), with further evaluation performed at the CDC.

Methods Specimen submission criteria include de-identification of patient information, collection date, volume, storage conditions, freeze-thaw cycles, prior serology results, reported clinically diagnosed syphilis stage, treatment status, and demographics as available. Upon CDC receipt and assessment, 283/464 sera met the minimum 2 ml volume requirement for assay evaluation. Sex and age information were provided for all specimens, with some clinical data provided for reported (n=152) and unknown (n=131) syphilis stage. Previous test results were blinded and sera were tested using five FDA-cleared syphilis serological tests; nontreponemal Rapid Plasma Reagin (RPR), treponemal *Treponema pallidum* Particle Agglutination (TP-PA), Trep-Sure Enzyme Immunoassay (EIA), LIA-SON treponema screen (Chemiluminescence Immunoassay, CIA), and Syphilis Health Check (SHC). The investigational INNO-LIA Syphilis Score (Line Immunoassay, LIA) was also tested.

Results Of the five treponemal tests evaluated, overall sensitivity ranged from 76.3–100%, with EIA and SHC showing the highest and lowest sensitivity, respectively. The nontreponemal RPR demonstrated overall sensitivity between 63.2–100%. Concordance was high (84.2%) among the standard laboratory assays, RPR, EIA, CIA, and TP-PA. There was negligible variation in sensitivity based on reported syphilis stage for this panel.

Conclusion Laboratory generated data and limited reported clinical information associated with tested residual specimen panels may be of value for research and development of syphilis diagnostic tests. Repository growth is ongoing with active serum submissions from PHL.

Disclosure No significant relationships.

018.4 EVALUATION OF ROUTINIZED SYPHILIS SCREENING WITH HIV VIRAL LOADS AMONG MEN LIVING WITH HIV

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Background Frequent syphilis screening allows for early detection and treatment and decreased transmission. We conducted a clinic-based intervention incorporating opt-out syphilis testing into routine HIV viral loads. The primary objective was to determine the degree to which the intervention increased the detection rate of early syphilis.

Methods The Enhanced Syphilis Screening in HIV-positive Men (ESSAHM) Trial was a stepped wedge cluster-randomized controlled trial in 4 urban HIV clinics in Ontario, Canada from 01/02/2015 to 31/07/2017 (ClinicalTrials.gov: NCT02019043). Population: adult males. Intervention (I):

standing orders for syphilis serological testing with HIV viral loads. Control (C): maintenance of current, provider-initiated syphilis testing practice. Outcome: new diagnoses of early infectious syphilis. We obtained syphilis serologies via linkage with the centralized provincial laboratory and defined early syphilis cases using a standardized clinical worksheet and medical chart review. The trial was powered ($\geq 80\%$) to detect a $\geq 75\%$ increase in case detection rate, assuming 3 tests per patient per year. We employed a generalized linear mixed-effect model to estimate time- and age-adjusted rate ratios (aRR) comparing intervention to control periods.

Results 3,893 men were followed over 7,468 person-years (PY), and had a mean of 2 viral load tests per year. The mean number of syphilis tests per person per year increased from 0.65 in control to 1.44 in intervention periods. There were 217 new diagnoses of syphilis in total (C: 81; I: 136), for which 147 were cases of early syphilis (C:61; I:86). The detection rate increased from 1.51 per 100PY in control to 2.50 per 100PY in intervention periods, with a corresponding aRR = 1.28 (95%CI 0.73, 2.24; p = 0.40).

Conclusion The implementation of standing orders for syphilis serological testing with HIV viral loads resulted in a modest but statistically non-significant increase in detection of new cases of early infectious syphilis.

Disclosure No significant relationships.

018.6 PRENATAL CARE ENTRY AMONG PREGNANT WOMEN WITH SYPHILIS WHO USE METHAMPHETAMINES: A KEY TO CONGENITAL SYPHILIS PREVENTION

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Background In California, congenital syphilis (CS) increased for the fifth consecutive year in 2017, and contributed one third of CS cases in the United States. In response, state and local STD programs implemented CS prevention strategies. A CS Prevention Cascade monitors impact, assesses prenatal care (PNC) gaps, and estimates CS cases averted.

Methods This analysis used 2017 California Project Area surveillance data for women diagnosed with syphilis during pregnancy or at delivery. Cases were assessed for the following, each met ≥ 30 days prior to delivery: documented PNC, syphilis screening, treatment initiation, and treatment adequacy by stage. Data for each cascade bar included women counted in the preceding bar(s). The final bar represented the CS Prevention Ratio (CSPR) – the proportion of pregnant syphilis cases who did not deliver a CS infant. This cascade was then stratified by MU, defined as having either self-reported use upon interview or positive urine toxicology in pregnancy or at delivery. Three groups were identified: Non-MU (NMU); Positive-MU (PMU); Not interviewed (NI). A post-hoc stratified cascade included only pregnant syphilis cases with documented PNC, to explore how MU might impact CS case aversion once PNC is initiated.

Results 616 women were included; 239/118/259 were NMU/PMU/NI respectively. Within these groups 95%/86%/71% met PNC criteria, 89%/81%/66% received syphilis screening, 84%/75%/63% initiated treatment, 82%/73%/61% met treatment adequacy, and CSPR were 79%/69%/59% (p<0.001).