

P727 COUNTY-LEVEL FACTORS ASSOCIATED WITH REPORTED CONGENITAL SYPHILIS—UNITED STATES, 2012–2015

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Background Although preventable through timely screening and treatment, congenital syphilis (CS) cases are rising in the United States. Individual CS risk factors are well-described, but county factors are not. We developed a predictive model that could identify county risk factors and use these to predict counties at highest risk for future CS.

Methods We included all 3,142 US counties. To identify county risk factors, we defined the outcome as a county having ≥ 1 CS case during 2012–2015. Case counts were taken from the National Notifiable Disease Surveillance system; county data were from a 2015 county health rankings analytic file. We used a stepwise logistic regression model to identify adjusted associations between CS and county factors. Retained predictor variables were each assigned a score based on the strength of their association with the outcome. Risk scores were calculated by summing predictor scores for each county. Counties with risk scores ≥ 24 were defined as high-risk for having ≥ 1 CS case. We cross validated the model using coefficients from the final 2012–2015 model to predict high-risk counties for 2016–2017 and compared predicted and actual counties by calculating the area-under-the-curve (AUC) value.

Results Our model identified 721 counties as high-risk for CS (sensitivity: 80.1%; specificity: 83.7%). County predictors included: 2015 Medicaid expansion status, presence of a metropolitan area, population size, income inequality, syphilis among women and men who have sex with men, violent crime rate, and the population proportions that were black, Hispanic, and uninsured. The final model based on 2012–2015 CS data was predictive of 2016–2017 CS counties (AUC: 88.1%).

Conclusion Given the damaging yet preventable nature of CS, enhancing prevention is a priority. The ability to predict counties at highest risk for CS based on county factors may help target CS resources where they are needed most.

Disclosure No significant relationships.

P728 CORRELATES OF SYPHILIS IN WOMEN LIVING WITH AND WITHOUT HIV IN THE US WOMEN'S INTERAGENCY HIV STUDY (WIHS)

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Background Population-based estimates of syphilis seroprevalence and risk factors for US women are lacking. The objective of this study was to examine the prevalence of syphilis and associated characteristics among women living with and without HIV in the Women's Interagency HIV Study (WIHS).

Methods Women enrolled in the multisite US WIHS Cohort Study between 1995 and 2016 were screened for syphilis at baseline using rapid plasma reagin (RPR) and confirmatory treponemal antibody testing. Prevalent syphilis was defined by a positive RPR and positive confirmatory test. Baseline characteristics among seropositive participants were compared with and without stratification by HIV status. Chi-square testing was used for comparisons for categorical variables while ANOVA or the Kruskal-Wallis test was used to test continuous variables. Multivariable logistic regression modeling with Firth's bias correction for prediction of syphilis seroprevalence was performed using baseline covariates from the non-stratified characteristics that were statistically significant at $p < 0.05$.

Results Nearly 5,000 women ($n=4,906$) age 16–57 were included in the analysis: 3,622 women with HIV and 1,284 women without HIV. The prevalence of syphilis in women with HIV (7.6%) was higher compared to women without HIV (4.6%), $p < 0.001$. Characteristics associated with syphilis infection at the baseline cohort visit ($p < 0.05$) included positive HIV status [adjusted odds ratios and 95% confidence intervals, OR, (95%CI)], [1.49 (1.09–2.04)], black race compared to white, [3.32 (2.06–5.36)], $< 12^{\text{th}}$ grade education [1.72 (1.24–2.38)], income $< \$12,000$ [1.46 (1.08–1.97)], and history of transactional sex [2.61 (1.98–3.43)].

Conclusion In the midst of a resurgence of syphilis infections in the US, factors associated with syphilis in women can help guide screening practice in clinic. This data from the WIHS cohort highlights the need for providers to consider HIV status, race, transactional sex and socioeconomic status in order to identify women in need of routine syphilis screening.

Disclosure No significant relationships.