COUNTY-LEVEL SOCIODEMOGRAPHIC FACTORS ASSOCIATED WITH REPORTED CONGENITAL SYPHILIS IN UNITED STATES 2012–2015

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Introduction Pregnant women - In the US, Congenital Syphilis (CS) rates have increased 48% between 2012 and 2015. We explored county level sociodemographic factors associated with having reported at least one CS case during 2012 and 2015 among all US counties.

Methods The 321 (10.2%) US counties that reported at least 1 CS case during 2012–2015 were compared to the remaining 2829 (89.8%) US counties with no reported CS. Multivariable logistic regression models were constructed to assess factors independently associated with counties reporting CS using adjusted Odds Ratios (aOR). County level factors examined included:% population black [above or below the national median],% Hispanic population [above or below the national median], Medicaid expansion state, violent crime rate per 100,000, and the% change in adult male and female syphilis cases between during 2012 and 2015. Final models were determined by comparing likelihood ratio statistics.

Results Independent county level factors associated with reporting at least one CS case during 2012–2015 were: Medicaid expansion state [aOR=2.24, 95% CI 1.51–3.34],% black population [aOR=2.86,95% CI 1.79–4.57],% Hispanic [aOR=2.13, 95% CI 1.41–3.24], 10 unit change in violent crime rate [aOR=1.04, 95% CI 1.02–1.05], and 10 unit change in% change in female syphilis [aOR=1.02, 95% CI 1.00–1.03].

Conclusion CS in the US is highly geographically focused with only 10.2% of counties reporting any cases in the past 4 years. Socioeconomic and demographic factors working at the community level are associated with increased odds of having reported a case of CS. Interventions to prevent CS in the US should focus at community, as well as individual level.
DEVELOPMENT OF A RISK CALCULATOR FOR THE 3-MONTH PREDICTION OF INCIDENT SYPHILIS INFECTION AMONG HIGH-RISK MEN WHO HAVE SEX WITH MEN AND TRANSGENDER WOMEN PRESENTING TO A STD CLINIC IN LIMA, PERU

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Abstract

Introduction Syphilis incidence worldwide has rebounded since 2000, especially among men who have sex with men (MSM). A predictive model for risk of incident syphilis infection may inform prevention counselling and use of chemoprophylaxis.

Methods We analysed data from a longitudinal study of a STD clinic-based cohort of MSM and transgender women reporting a history of HIV or syphilis infection and/or high-risk sexual behaviour, followed quarterly for two years. Incident infection was defined as a four-fold increase in RPR titers or new RPR reactivity if two prior titers were non-reactive. We used generalised estimating equations with a Poisson regression to develop a predictive model of syphilis incidence in one-half of the data set, and verified the model in the second half, calculating an area under the curve (AUC), summarising specificity and sensitivity. We then applied the final model to the full baseline dataset. Finally we developed an online risk calculator from our model.

Results Among 401 participants enrolled, 22% were transgender women and 31% were HIV-infected at baseline. Syphilis incidence was 19.9 cases per 100-person years (95% CI 16.3–24.3). Predictors of syphilis incidence were HIV infection, high number of male sex partners (categorised as: 0, 1, 2–3, 4–9, >10), history of syphilis infection, receptive and versatile anal sex role and condomless receptive anal sex. The AUC was 71% (95% CI 64%–78%) in the validation dataset for incident syphilis infection in the next 3 months. Those at highest risk had a 1-in-7 likelihood of syphilis infection in the next 3 months. When applied to the baseline dataset the AUC was 71% (95% CI 65%–77%) for predicting recent syphilis infection. The online syphilis risk calculator is available at: www.syphrisk.net (English), www.sifriesgo.net (Spanish).

Conclusion Our results show that the likelihood of syphilis infection among a high-risk STD clinic-based cohort can be estimated accurately. Our calculator may guide STD clinical management by directing risk behaviour counselling and potential use of doxycycline chemoprophylaxis.

P3.130 POTENTIAL IMPACT OF TESTING FOR MYCOPLASMA GENITALIUM INFECTION AND MACROLIDE RESISTANCE: A MATHEMATICAL MODELLING ANALYSIS

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Abstract

Introduction Patients with genitourinary symptoms are generally treated syndromically with azithromycin, which can induce macrolide resistance in Mycoplasma genitalium (MG). Directing treatment based on aetiology and known macrolide susceptibility may prevent emergence of resistance. We constructed a mathematical model to evaluate the potential impact of simultaneous detection of MG and resistance markers on the percent of MG infections that are macrolide-susceptible.

Methods We developed a gender- and risk-stratified, compartmental model of MG transmission within a heterosexual population. We assumed clearance of untreated infections in 30 days; development of symptoms in 2.4% of infected men and 5.1% of infected women; initial treatment of symptomatic men and women with azithromycin; treatment of men with persistent/recurrent symptoms with moxifloxacin; 50% of infections macrolide-susceptible at baseline; de-novo macrolide resistance in 18% of susceptible bacteria after azithromycin therapy; and 100% efficacy of moxifloxacin. The model was