

## Public Health Abstract- AAD STI Expert Resource Group

### Disparities in Socioeconomic and Psychosocial Outcomes Among Syphilis Patients: A TriNetX Analysis

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**Background:** Social determinants of health play a critical role in disease outcomes. This study examines disparities in socioeconomic and psychosocial factors between African American and White patients diagnosed with syphilis using a large-scale electronic health record (EHR) database.

**Methods:** A retrospective cohort study was conducted using TriNetX, a global federated health research network. Two cohorts were identified: African American patients with syphilis ( $n = 34,070$ ) and White patients with syphilis ( $n = 28,206$ ). Propensity score matching (PSM) was performed to balance demographic characteristics, resulting in 27,574 patients per group. Outcomes included ICD-10 codes for housing instability, psychosocial stressors, social support, education, upbringing, and employment status. Risk analysis and Kaplan-Meier survival analysis were conducted.

**Results:** Of the patient cohort, African American patients were significantly more likely to experience housing instability compared to White patients (7.7% vs. 5.5%, RR 1.41,  $p < 0.001$ ). Survival analysis further showed that African American patients had an increased probability of experiencing housing instability over time (66.51% vs. 80.71%, HR 1.33). Prevalence of psychosocial stressors was significantly higher among African American patients compared to White patients (2.5% vs. 1.8%, RR 1.35,  $p < 0.001$ ), and survival analysis showed that African American patients have a slightly lower probability of avoiding these stressors over time (90.23% vs. 93.23%). Social environment issues were slightly more common among African American patients (1.7% vs. 1.5%, RR 1.17,  $p = 0.019$ ). Education and literacy challenges were also marginally higher in African American patients (0.6% vs. 0.5%, RR 1.26,  $p = 0.051$ ). In contrast, issues related to upbringing were more common in White patients (0.6% vs. 0.4%, RR 0.80,  $p = 0.018$ ). There was no significant difference in employment problems (1.4% vs. 1.3%,  $p = 0.252$ ).

**Conclusions:** This data reveals significant racial disparities in housing stability, psychosocial stressors, and social environment among patients with syphilis, with African American patients being disproportionately affected. Based on current research, these sociodemographic factors are associated with an increased risk of acquiring syphilis. In addition to increased risk of infection, these factors introduce many barriers such as limited access to care, distrust in the healthcare system, and job-related constraints that may prevent adequate treatment and allow syphilis to advance to more severe stages. Based on the results of this analysis, it is possible that African American patients are at increased risk for poor syphilis outcomes. Future research could explore and quantify the relationship between these factors and diagnosis, treatment, and outcomes of syphilis. Regardless, providers should understand these disparities and screen for housing and psychosocial stability to create individualized, sustainable treatment plans for each patient.

**Keywords:** Syphilis, Social Determinants of Health, Health Disparities, Housing Instability, Psychosocial Factors, TriNetX, Electronic Health Records