

Background:

Syphilis transmission has increased markedly over the past two decades in Europe, concentrated in men who have sex with men. We test alternative potential social and behavioral individual- and population-level determinants of this resurgence.

Methods:

Two rounds of the cross-sectional European Men who have sex with men Internet Survey (EMIS 2010 and 2017, $n = 272,902$) were used to fit multi-level linear probability models to evaluate determinants of the incidence of self-reported syphilis, capturing risky sexual behaviours and pre-exposure prophylaxis use, among others, adjusting for potential sociodemographic confounders.

Results:

Self-reported syphilis incidence rates rose by about 1.8 percentage points (within the last 12 months) and 3.9 (within the last 5 years) between the 2010 and 2017 waves, after adjusting for sociodemographic factors. HIV status was a major risk factor for syphilis infection (27.6 ppt higher incident rate, 95%CI: 24.7 to 30.5). A dose-response relationship was observed between greater numbers of condomless non-steady partners and syphilis infection, with more than 10 partners estimating increases in the probability of diagnosis of over 25 ppt (11-20 partners vs none: 24.5 ppt, 95%CI: 20.5 to 28.5); further, we observed evidence of mediation for number of condomless non-steady partners, which attenuated the estimated rise in 2017 vs 2010 by about 35%. STI testing uptake also accounted for a substantial increase in syphilis incidence signaling higher detection rates over time. While country-level PrEP use was linked to greater number of condomless partners, there was no substantial impact of population-wide factors, including GDP and PrEP use, on overall syphilis trends.

Conclusions:

Risky sexual behavior changes, particularly condomless sex with non-steady partners, appears to be a major contributing factor to rising syphilis incidence. Further research is needed to understand what accounts for this substantial behavior change.

Key messages:

- Increased number of condomless non-steady partners accounts for a substantial rise in syphilis trends.
- Population-level PrEP use was linked to increasing numbers of condomless non-steady partners but had no substantial impact on overall syphilis trends.

Why is syphilis rising in Europe? Multi-level modelling of alternative hypotheses in 31 countries

Ana Mendez-Lopez

A Mendez-Lopez¹, D Stuckler², T Noori³, JC Semenza³

¹School of Medicine, Autonomous University of Madrid, Madrid, Spain

²Department of Social and Political Sciences, Bocconi University, Milan, Italy

³Health Determinants Programme, European Centre for Disease Prevention and Control, Stockholm, Sweden

Contact: ana.mdzlopez@gmail.com