Background While syphilis transmission is increasing, precisely how Treponema pallidum is transmitted sexually is unclear. This study of MSM with early syphilis determined the frequency of Treponema pallidum shedding from potentially asymptomatic sites and the stage with the most frequent shedding.

Methods MSM were recruited between 2015 and 2019, at Melbourne Sexual Health Centre, Australia. Men were eligible if they reported sex with men during the previous year, were aged ≥18 years and had laboratory-confirmed primary, secondary, or early latent syphilis. All syphilis lesions were swabbed. Non-lesion samples collected were oral rinse, oral cavity swab, anal canal swab, urine, and semen. Specimens were tested for T. pallidum using two PCR assays.

Results 200 men with serologically-confirmed early syphilis were included: 54 (27%) primary, 93 (46.5%) secondary and 53 (26.5%) early latent cases. T. pallidum DNA was detected orally in 48 (24%); 95% CI: 18.3–30.5%) men by oral rinse and/or oral lesion swab, 24 with no oral lesion. Oral T. pallidum detection was most frequent during secondary syphilis compared to other stages, (44%(41/93) versus 7% (7/107), p <0.0001); and in men with RPR titres ≥1:64 (32% (37/117) versus 13% (11/83), p = 0.0026). T. pallidum was detected by anal canal swab and/or anal lesion swab in 45/196 (23%); 95%CI: (17.3–29.5%) men, 10 with no anal lesion. 74% (69/93) of men with secondary syphilis had T. pallidum detected at any site: 26% (24/93) had detection at ≥2 separate sites. T. pallidum was detected in 6% (12/198) of urine and 12% (29.5%) men by oral rinse

Conclusion Unrecognised oral and anal shedding of T. pallidum may be a factor in sustaining syphilis transmission. Secondary syphilis may be the most infectious stage, with oral transmission possibly being important. Earlier detection and treatment for syphilis to prevent progression to the secondary stage may improve syphilis control.

DEVELOPING A SYMPTOM-BASED RISK SCORE FOR INFECTIOUS SYPHILIS AMONG MEN WHO HAVE SEX WITH MEN

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Background Syphilis incidence is rising among men who have sex with men (MSM). An online tool based on a risk score identifying men with higher likelihood of infectious syphilis could motivate MSM to seek help. We aimed to develop a symptoms-based risk score for infectious syphilis.

Methods We included data from all consultations by MSM attending the Amsterdam STI clinic, in 2018–2019. Infectious syphilis (i.e. primary, secondary or early latent syphilis) was diagnosed according to the clinic’s routine protocol. The associations between symptoms and infectious syphilis were expressed as odds ratios (OR), with 95% confidence intervals (CI). Based on multivariable logistic regression models we created several risk scores. We assessed the area under the curve (AUC) and cutoff based on the Youden index. We estimated which percentage of men should be tested based on a positive risk score and which percentage of infectious syphilis cases would then be missed.

Results Of 1434 participants, 76.4% were male at birth and 50.6% were white. At the time of the most recent MOS-HIV, median age was 47 (IQR: 37.54); median CD4 count was 517.5 (IQR: 360,678) cells/mm3 and 80.2% had HIV viral load <50 copies/mL. 228 had prior syphilis, of which 7.5% had neurosyphilis. There was no significant difference in median MOS-HIV (85 vs 80,p=0.58), ATS (45.8 vs 45.8, p=0.52) or the proportion with neurocognitive impairment (53.1% vs 51.9%,p=0.87) between syphilis and non-syphilis groups. Multivariable models found no statistically significant relationship between syphilis and the primary outcomes MOS-HIV (β=−0.18; 95%CI=−3.1,2.7,p=0.90), ATS (β=−0.30; 95% CI=−1.1,1.7,p=0.69), or GDS (aOR=1.23; 95%CI=0.81,1.88, p=0.33).

Conclusion Among PLWH in care in Ontario, prior syphilis was not associated with worse neurocognitive outcomes according to self-reported scales or formal neuropsychological testing. Continued study into the etiology of neurocognitive impairments in PLWH is required.

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Conclusion Symptom-based risk-scores for infectious syphilis perform poorly and cannot be recommended to select MSM for syphilis screening. All MSM with relevant sexual exposure should be regularly tested for syphilis.

Background Syphilis is highly infectious, but it is unknown whether other anatomical sites than the primary infection site contribute to onward transmission. We aimed to evaluate the presence of Treponema pallidum spp pallidum (TP) at various body locations of MSM with primary or secondary syphilis cases.

Methods This study was performed at the Sexually transmitted infections (STI) clinic of the Public Health Services in Amsterdam. Eligible men who had sex with men (MSM), 18 years or older with clinical signs or symptoms suggestive of syphilis stage I or stage II, and asymptomatic men with a positive syphilis serology. Besides routine diagnostics, ano-rectal and oropharyngeal swabs, urine samples, and venous blood samples were tested using an in-house polymerase chain reaction targeting the poA gene of Treponema pallidum (Tp-PCR).

Results From 2018 to 2019 we included 293 MSM. Seventy patients had primary syphilis, 71 secondary syphilis, 86 early latent syphilis, 14 late latent syphilis, 23 treated syphilis and 27 had no syphilis. Outside of the primary ulcer, TP-DNA was detected in 35/70 among the primary syphilis patients in at least one site (2/70 blood, 7/70 oro-pharynx, 13/70 ano-rectum and 24/70 urine); in 62/73 secondary syphilis patients in at least one site (15/73 blood, 47/73 oro-pharynx, 37/73 ano-rectum and 26/73 urine); and 29/86 early latent syphilis patients in at least one site (5/86 blood, 21/86 oro-pharynx, 11/86 ano-rectum and 6/86 urine). No TP-DNA was detected among the late latent syphilis, treated syphilis or in the no syphilis group.

Conclusion DNA of T.pallidum was frequently detected in various body locations of MSM with primary or secondary syphilis. This is in agreement with the high transmissibility of syphilis.

Background We evaluated the effectiveness and costs of providing syphilis self-testing on increasing syphilis testing uptake among MSM in China.

Methods An open label three-arm randomized controlled trial was conducted between 7 January 2020 and 17 July 2020. Men who were at least 18 years of age, had condomless anal sex with men in the past year, reported not testing for syphilis in the last six months, and had a stable residence with mailing addresses were recruited from 124 cities in Chinese 26 provinces. Enrolled participants were randomly assigned (1:1:1) into three arms using block randomization with a block size of 12: standard of care arm; standard syphilis self-testing arm; and lottery incentivized syphilis self-testing arm (1 in 10 chance to win $15 if they tested for syphilis). The primary outcome was the proportion of participants who tested for syphilis.

Results A total of 451 men were enrolled. 136 (90.7%) in the standard of care arm, 142 (94.0%) in the standard of SST arm, 137 (91.3%) in the lottery incentivized SST arm were included in final analysis. The proportion of men who had at least one syphilis test during the trial period was 63.4% (95% CI: 54.9–71.3) in the standard SST arm, 65.7% (95% CI: 57.1–73.6) in the lottery-incentivized SST arm, and 14.7% (95% CI: 9.2–21.8) in the standard of care arm. The estimated difference in the proportion between the standard SST and standard of care arm was 48.7% (95% CI: 38.8–58.6, P<0.05). The cost per person tested was $66.19 for the standard SST arm, $26.55 for standard SST and $28.09 for the lottery incentivized SST arm.

Conclusion Compared to standard of care, providing syphilis self-testing significantly increased the proportion of MSM testing for syphilis in China– particularly among men who had never tested for syphilis, and was cheaper (per person tested).

Background A provincial syphilis control strategy for British Columbia was developed in 2016 in response to a syphilis epidemic, predominantly among gay, bisexual and other men who have sex with men (gbMSM). Current data shows significant increases among women of childbearing age and congenital syphilis has recurred. Given these epidemiologic changes, a stakeholder engagement process aimed at understanding priorities and gaps was initiated to inform a refresh of the strategy.

Methods A provincial committee was developed to oversee the refresh and engage key stakeholder groups including public health, clinicians, laboratory leads, researchers, Indigenous communities, community organizations, and people affected by syphilis. The socio-ecological model was used to guide discussions about contributing factors and leverage points. Thematic analysis of responses was performed to develop a conceptual framework and identify priority areas for inclusion into a refreshed syphilis control strategy.