PrEP

013.1 GINI COEFFICIENTS TO QUANTIFY HETEROGENEITY IN SEXUAL BEHAVIOR AND STI DISTRIBUTION BEFORE AND AFTER PREP AMONG MSM IN THE NETHERLANDS

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Pre-exposure prophylaxis (PrEP) use may influence sexual behavior, and sexually transmitted infections (STI) incidence among men who have sex with men (MSM). Here, we aimed to quantify how STI diagnoses are distributed among MSM in the Netherlands based on their sexual behavior using Gini coefficients, and examined possible changes in these coefficients over time under the influence of PrEP. HIV-negative MSM participating in a prospective cohort study (Amsterdam Cohort Studies) completed questionnaires about sexual behavior and were tested for STI/HIV during biannual visits (2009–2019). A sexual behavior risk score predictive of STI diagnosis was developed, which was used to calculate Gini coefficients for incident gonorrhea, chlamydia, and syphilis diagnoses at ≥ 1 anatomical locations in the period before PrEP (2009–mid 2015) and after PrEP (mid 2015–2019). Gini coefficients close to zero indicate homogeneous distribution of STI over the entire population, and close to one that STI are concentrated in individuals with a higher risk score. The sexual behavior risk score ($n=630$, n visits=10,677) ranged between 0.00 (low risk) to 3.61 (high risk), and the mean risk score increased from 0.70 ($SD=0.66$) before to 0.93 ($SD=0.80$) after PrEP. Positivity rates for chlamydia (4%) and syphilis (1%) remained relatively stable, but the positivity rate for gonorrhea increased from 4% before to 6% after PrEP. Gini coefficients increased from 0.37 (95% CI 0.30–0.43) to 0.43 (95% CI 0.36–0.49) for chlamydia, and from 0.37 (95% CI 0.19–0.52) to 0.50 (95% CI 0.32–0.66) for syphilis comparing before to after PrEP. The Gini coefficient for gonorrhea remained stable at 0.46 (95% CI 0.40–0.52) before and after PrEP. PrEP use may have led to more high-risk behavior, more gonorrhea transmission, and the distribution of chlamydia and syphilis diagnoses has become more concentrated in a high-risk subgroup. Improved STI prevention is needed, especially in high-risk MSM.

013.2 PREDICTORS OF PREP ADHERENCE AMONG MEN WHO HAVE SEX WITH MEN IN AMSTERDAM, THE NETHERLANDS

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Background Adherence is key to the effectiveness of pre-exposure prophylaxis (PrEP) for prevention of HIV. Knowing what factors are associated with adherence could help clinicians focus counselling efforts on individuals less likely to adhere.

Methods Men who have sex with men (MSM) using daily PrEP within the Amsterdam PrEP demonstration Project (AMPrEP) at the Public Health Service of Amsterdam, provided dried blood spots (DBS) 12 and 24 months after PrEP initiation. From these DBS, we determined intracellular tenofovir diphosphate concentrations [TFV-DP] to measure adherence; [TFV-DP]>700 fmol/punch is considered sufficient. We assessed associations between [TFV-DP] and sociodemographic and behavioural characteristics among MSM using daily PrEP using multivariable linear regression.

Results Of 263 participants who attended their 12- or 24-month study visit whilst using daily PrEP, 257 (97.7%) provided DBS at one or both visits (492 DBS in total). Median [TFV-DP] was 1299 (IQR 1021–1627) fmol/punch (12 months: 1332 [1087–1687]; 24 months: 1248 [929–1590]). Higher [TFV-DP] were associated with: older age (+95 fmol/punch/10 years; $p=0.0012$), not identifying as exclusively homosexual (+142 fmol/punch; $p=0.042$), condomless anal sex with a casual partner 6 months prior to PrEP initiation (+159 fmol/punch; $p=0.0089$), and using an extended mobile application (vs. standard mobile application; +143 fmol/punch; $p=0.020$). Lower [TFV-DP] were associated with longer duration of PrEP use (24 vs. 12 months; -100 fmol/punch; $p=0.0019$). Number of sex partners, diagnosed sexually transmitted infections (STI), and chemsex were not associated with [TFV-DP].

Conclusion Overall [TFV-DP] were high among MSM, indicating good adherence, especially among participants who are older, not identifying as exclusively homosexual, and those who reported condomless anal sex with a casual partner 6 months prior to PrEP initiation. We recommend to pay extra attention to adherence when counselling younger PrEP users and those who have been using PrEP for a longer period.