HPV Genotypes and Risk Factors in MSM Without HIV: Informing Prevention Within PrEP Programs

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BACKGROUND

Men who have sex with men (MSM) using HIV-pre-exposure prophylaxis (PrEP) show increased vulnerability to human papillomavirus (HPV)-related cancers. Despite this, comprehensive clinical guidelines for this population remain absent. Identifying specific risk factors is essential for sexual health centers to optimize care among MSM using PrEP. This study aims to collect HPV-related data in MSM on PrEP and use it to inform prevention guidelines for HPV and HIV in Europe.

METHODS

This prospective cohort study includes participants from Germany and Austria. In the German cohort, there are 100 PrEP users and 100 PrEP-naive individuals, while in the Austrian cohort, there are 5 PrEP users and 5 PrEP-naive individuals. The total of 210 MSM were surveyed to compare sociodemographic factors, HPV vaccination status, and sexual histories. Participants underwent clinical examinations to detect HPV-associated pathologies and HPV genotyping by polymerase chain reaction (PCR) on anal, oral, and penile swabs.

The German PrEP-using cohort showed twofold numbers for high-risk anal HPV, highlighting the need for effective primary prevention in this group.

RESULTS

- High risk (HR) HPV prevalence in anal swabs was 68% in the German PrEP-using cohort compared to 34% in the PrEP-naïve cohort (Fig.1).
- The most common HR-subtypes in Germany from anal swabs included HPV-16 in 18% of PrEP-users compared to 10% of PrEP-naïve participants, and HPV-18 in 11% compared to 6% (Fig.2).
- HPV vaccination rates in Germany were 21.6% for PrEP-users and 15% for the PrEP-naïve cohort, in Austria the vaccination rate was 20% in both cohorts.
- Substance use, chemsex, number of sexual lifetime partners and condomless anal intercourse was higher for the PrEP-using MSM in Germany and Austria.
- The German PrEP-users self reported STI history was significantly higher for syphilis, gonorrhoea, chlamydia, mycoplasma and condyloma (Fig.3).
- In the German cohort, the median initiation year of PrEP use was 2021; with 78.3% daily use, 19.6% event-based, and 2.1% other regimens. In the Austrian cohort, the median initiation year of PrEP use was 2023; with 60% daily use and 40% event-based.
- Dermatopathologies, including condyloma, were low in number in both countries and cohorts.

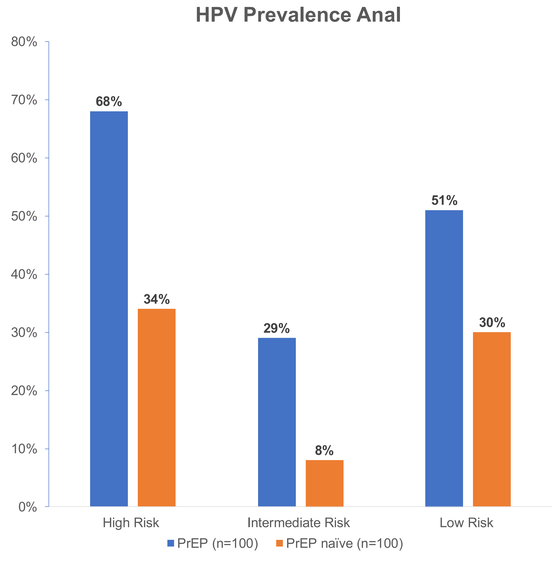


Figure 1: HPV prevalence anal results (%) in the German PrEP-using cohort (n=100) compared to the PrEP-naïve cohort (n=100) based on PCR swab results.

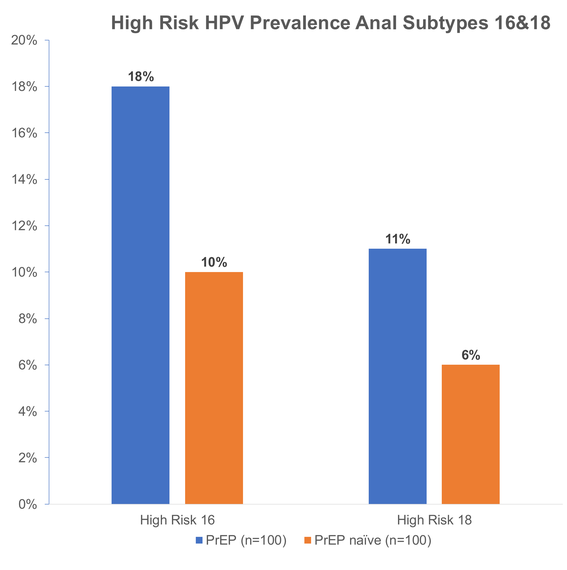


Figure 2: High risk HPV prevalence anal subtypes 16&18 results (%) in the German PrEP-using cohort (n=100) compared to the PrEP-naïve cohort (n=100) based on PCR swab results.

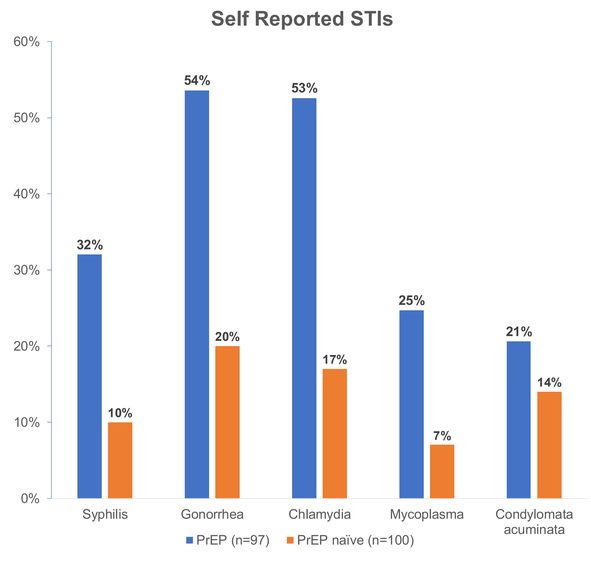


Figure 3: Self-reported STI history of PrEP-using (n=97) vs. PrEP-naïve (n=100) cohorts in Germany

CONCLUSIONS

HPV prevalence was consistently higher among PrEP using MSM, particularly for anal infections and high-risk oncogenic subtypes 16&18. Oral and penile HPV infections were uncommon in both cohorts and countries, indicating the anal site as the primary reservoir of infection. HPV vaccination coverage was low in both Germany and Austria, regardless of PrEP status, underscoring a substantial primary prevention gap. Behavioral factors such as multiple sexual partners, condomless anal intercourse, and substance use during sex likely contribute to the elevated HPV burden among PrEP-using MSM. These results support the need to integrate targeted HPV prevention strategies—including vaccination counseling, risk-adapted screening, and sexual health education—into PrEP programs and national care guidelines in Europe.

ADDITIONAL KEY INFORMATION

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PLAIN LANGUAGE SUMMARY

Men who have sex with men who use HIV pre-exposure prophylaxis were more likely to have high-risk human papilloma virus infections, especially in the anal area. Furthermore, the study shows that HPV vaccinations rates are low and highlights the need to include HPV vaccination, screening, and sexual health education as routine of HIV pre-exposure care in Europe.