The Actual Need for DoxyPEP Might Not Be as Large as Expected

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BACKGROUND

- DoxyPEP proved to be highly effective in preventing bacterial sexually transmitted infections (STIs) and the Centers for Diseases Control and Prevention (CDC) recommended to counsel about and offer this strategy to gay, bisexual and other men who have sex with men (GBMSM) and transgender women (TGW) who had at least one infection in the previous 12 months.
- However, data about the risk of antibiotic overuse and the potential spread of antimicrobial resistance are still scarce. Thus, this recommendation appear too wide for the proper selection of eligible individuals and many international Scientific Societies issued more cautious and restrictive position statements.

AIMS OF THE STUDY

- Evaluate the annual incidence of bacterial STIs in a cohort of PrEP users who would be eligible according to the CDC recommendation.
- Evaluate: (i) the number of bacterial STIs that would have been averted if doxyPEP had been available in Italy and (ii) the number of PrEP users who would have taken uselessly the antibiotic because they did not acquire any infection in the follow up period (i.e., **overprescription**).
- Assess additional clinical and behavioral factors that would better describe who would benefit the most from doxyPEP.

METHODS

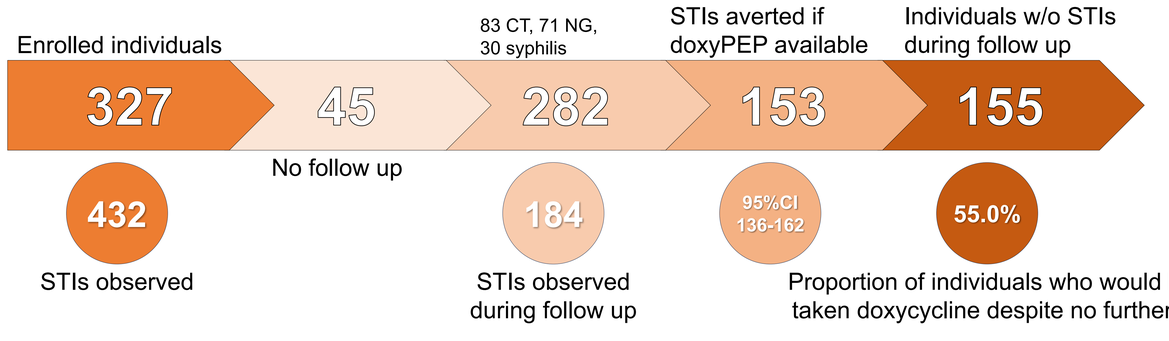
- Retrospective analysis of PrEP users attending Milano Checkpoint, a community-based service for sexual health.
- Study population: GBMSM and TGW who had at least one bacterial STI from June 2022 to May 2023.
- Primary outcome: assess the number of bacterial STIs registered from June 2023 to May 2024.
  - **Note: in Italy, doxyPEP is <u>not</u> recommended and <u>not</u> reimbursed, previous research showed that its "under the counter" use has been limited up to summer 2024.**
- Statistical methods: descriptive and nonparametric statistics; incidence rate (IR) per 100 patients-year of follow up (PYFU) with 95% confidence intervals (95%CI) was calculated. Incidence rate ratios (IRRs) was used to estimate change in STI incidence and was calculated using Poisson regression model (crude and adjusted for number of sexual intercourses). Bivariate logistic regression analysis was employed to evaluated factors associated with adequate doxyPEP prescription.

CDC eligibility criteria for doxyPEP selected individuals that in 55% of cases had no further STIs. Having at least 5 sexual contacts per week might increase the adequacy of candidates selection.

RESULTS (1)

- The study enrolled 327 individuals considered eligible according to the CDC recommendation with a cumulative number of 432 STIs in the previous year (205 Chlamydia [CT], 160 gonorrhea [NG], 67 syphilis); 91 subjects (27.8%) had more than one infection.
- Study population is composed manly by GBMSM (321, 98.2%), born in Italy (266, 81.4%), with white ethnicity (284, 86.9%), and with a median age of 37 (IQR 31-43) years. They reported a median number of 51(IQR 27-96) overall sexual contacts during the year, while condomless intercourses were 30 (IQR 11-65). Approximately one third (95, 29.15) used recreational drugs in the previous 3 months, and only 18 (5.5%) referred chemsex practices.

Figure 1. STIs observed during follow up, number of infection potentially averted with doxyPEP (according to efficacy described in Europe), and proportion of antibiotic overprescription.



RESULTS (2)

- STI IR in the previous year was 179 x100PYFU (95%CI 162-196), and it dropped to 80 x100PYFU (95%CI 69-92) in the following year. This decrease was statistically significant: adjusted IRR 0.33 (95%CI 0.29-0.38), p<0.001. If doxyPEP had been available, IR would have been 20 x100PYFU (95%CI 22-35). The availability of doxyPEP would have reduced IR by 47% (95%CI 36-66) in the follow up year.
- Having had one STI in the previous year showed an odds ratio (OR) for adequate doxyPEP prescription of 1.24 (95%CI 0.81-1.88). The adjusted bivariate regression analysis found that having at least 5 partner per week had an OR of 2.83 (95%CI 1.44-5.58) for adequate prescription, while having had more than 2 STIs in the previous year was associated at the limit of significance (OR 4.82, 95%CI 0.96-23.88, p=0.054).

CONCLUSIONS

- Our data confirm the potential benefit of doxyPEP with a theoretical decrease of 47% in bacterial STI incidence.
- Having at least one infection in the previous 12 months might be a good eligibility condition, our data suggest that could lead to relevant antibiotic overprescription.
- Considering additional clinical and behavioral factors such as having at least 5 sexual contacts per week (and potentially more than 2 STIs in the previous year) might improve patient selection with a better targeted approach.
- Real world evidences have already showed that selecting individuals with at least 5 sexual contacts in a short time frame might be highly effective in reducing STIs incidence.
- The increasing demand for STIs prevention should be balanced with antibiotic overprescription avoidance to contrast antibiotic resistance development.

ADDITIONAL KEY INFORMATION

References: Bachmann LH, MMWR Recomm Rep 2024; Werner RN, J Dtsch Dermatol Ges 2024; Cornelisse VJ, Med J Aust 2024; Rossotti R, Sex Transm Dis, in press; Molina JM, Lancet Infect Dis 2024; Raccagni AR, Lancet Infect Dis 2025.

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