DoxyPEP and non-gonococcal urethritis in King County, WA: The demise of chlamydial NGU?

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BACKGROUND

- DoxyPEP is highly effective in preventing chlamydial infections, most of which are asymptomatic, among men who have sex with men (MSM). However, its effect on symptomatic non-gonococcal urethritis (NGU) is not well-defined.
- We evaluated trends in the etiology of NGU among MSM and men who have sex with women (MSW).
- We assessed the impact of doxyPEP use on NGU caused by *Chlamydia trachomatis* (CT NGU), *Mycoplasma genitalium* (MG NGU), and idiopathic NGU (e.g., NGU with negative nucleic acid amplification testing [NAAT] for CT, MG AND excluding NGU caused by trichomonas vaginalis, HSV-1/2, and adenovirus) among MSM.

METHODS

- We used Public Health – Seattle & King County Sexual Health Clinic EMR and computer-assisted self-interview to conduct retrospective cohort study with two analyses.
- DoxyPEP implementation began 4/1/2023.

Clinic-level analysis

- We calculated the annual number and proportion of CT NGU, MG NGU, and idiopathic NGU cases among MSM and MSW from 1/1/2019 through 12/31/2025.

Patient/visit-level analysis

- We assessed the impact of self-reported doxyPEP use on the incidence of NGU by etiology among MSM with >30 days of follow-up after doxyPEP implementation from 4/1/2023 through 8/31/2025.
- We fit a Cox model modified for recurrent events and flexible hazards to calculate hazard ratios and 95% confidence intervals comparing the risk of NGU between visits in which MSM reported taking v. not taking doxy PEP in the prior 30 days.

Definition of NGU

Symptoms of urethritis, absence of gonococcal infection on microscopy or NAAT plus either:

- Gram stain of urethral secretions with ≥5 PMNs/oil immersion field in ≥3 areas of maximal cellular concentration, OR
- Positive leukocyte esterase (1+ or greater) on urinalysis

DoxyPEP has dramatically reduced the proportion of NGU caused by *Chlamydia trachomatis* among MSM. Most cases of NGU are idiopathic.

RESULTS

Figure 1. Cases of NGU by etiology and percentage of NGU caused by *Chlamydia trachomatis* among **(a)** MSM and **(b)** MSW, Public Health – Seattle & King County Sexual Health Clinic, 2019-2025.

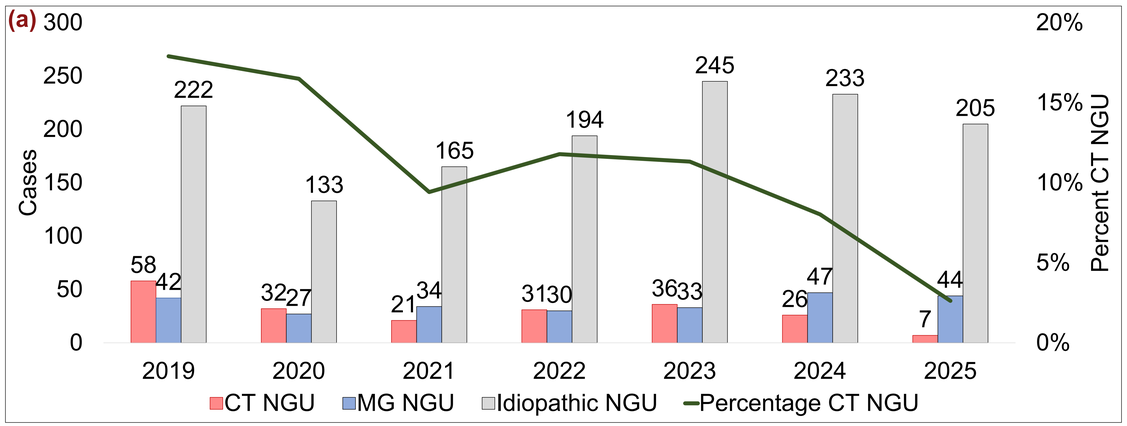


Figure 2. Incidence of NGU by etiology and doxyPEP use in the prior 30 days among MSM, Public Health – Seattle & King County Sexual Health Clinic, 2023-2025.

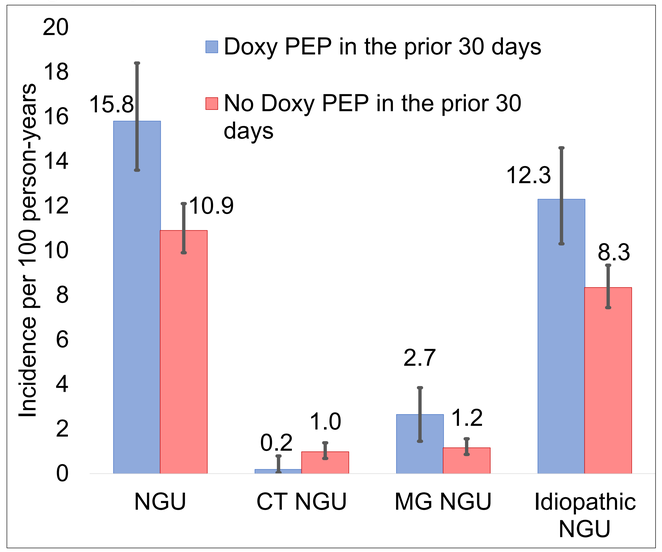


Table. Hazard ratios comparing risk of NGU between visits at which MSM report taking v. not taking doxyPEP in the prior 30 days, Public Health – Seattle & King County Sexual Health Clinic, 2023-2025.

	Hazard ratio [doxyPEP] (95%CI)
NGU	0.97 (0.81, 1.15)
CT NGU	**0.20 (0.05, 0.84)**
MG NGU	1.09 (0.71, 1.66)
Idiopathic NGU	1.03 (0.84, 1.25)

CONCLUSIONS

- Among MSM, the proportion of NGU caused Chlamydia trachomatis decreased from 18% to 3% during the implementation of doxyPEP.
- Most NGU in both MSM (77%) and MSW (70%), including 78% of MSM taking doxyPEP, is idiopathic.
- Whether people with idiopathic NGU benefit from antibiotic therapy is uncertain.

PLAIN LANGUAGE SUMMARY

Cases of urethritis caused by Chlamydia dramatically decreased due to the use of doxycycline to prevent sexually transmitted infections among gay, bisexual, and other men who have sex with men.