# *Incidence of Chlamydia, Gonorrhea, and Trichomoniasis Among Young Women Accessing PrEP at Pharmacies*

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## BACKGROUND

Adolescent girls and young women (AGYW) in East Africa experience a high burden of HIV and other sexually transmitted infections (STIs). Pharmacy-based delivery of HIV pre-exposure prophylaxis (PrEP) has expanded access to HIV prevention for AGYW who may not routinely attend health facilities. However, little is known about the incidence of non-HIV STIs among AGYW accessing PrEP in pharmacy settings.



**Figure 1: Map of Kenya: Kisumu County (Green)**

This study was conducted to determine the incidence of *Chlamydia trachomatis* (CT), *Neisseria gonorrhoeae* (NG), and *Trichomonas vaginalis* (TV) among AGYW receiving PrEP at retail pharmacies in Kisumu, Kenya, and to identify demographic, behavioral, and clinical factors associated with incident infection.

## METHODS

### Study Design & Population

- Nested cohort analysis in a cluster RCT (NCT05467306)
- HIV-negative, aged 15-24 years, and purchasing contraception at one of the 10 STI testing pharmacies in the cluster RCT

### Data Collection

- CT, NG, and TV tested via Xpert® NAAT at enrollment and 10-month follow-up
- Structured questionnaires collecting demographic characteristics, sexual behaviors, relationship factors, and STI symptoms

### Outcome Definition (Reported per 100 person-years)

- Incident CT: CT+ at the 10-month visit among CT- at enrollment
- Incident NG: NG+ at the 10-month visit among NG- at enrollment
- Incident TV: TV+ at the 10-month visit among TV- at enrollment
- Incident STI: Any STI+ at the 10-month visit among STI- at enrollment

### Statistical Analysis

- Poisson regression with pharmacy-level clustering to estimate incident rate ratios (IRRs) and 95% Confidence Intervals (CI)
- Potential correlates: Age, education level, relationship status, condom use
- Models were adjusted for age and area of residence




**Figure 2: Enrollment and CT/NG/TV Testing Cascade**

**High incidence of sexually transmitted infections, particularly chlamydia, was observed among adolescent girls and young women accessing PrEP at pharmacies in Kisumu, Kenya, with genital symptoms and relationship factors strongly predicting new infections, highlighting the need for integrated STI screening and counseling within pharmacy-based HIV prevention programs.**

## RESULTS

### PrEP Uptake

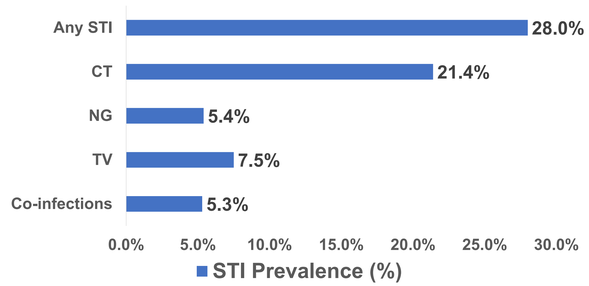
- **Accepted PrEP:** 80%
- **Oral PrEP:** 82%, **Dapivirine Vaginal Ring:** 18%
- **Initiated PrEP:** 81%

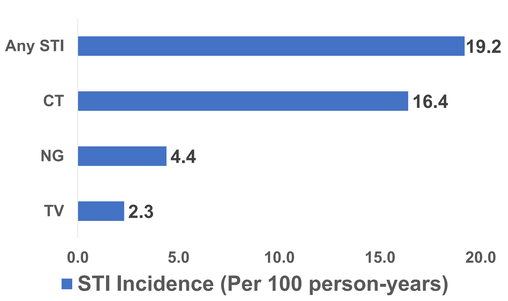
### Participants tested (CT/NG: n = 682, TV: n = 640)

- **Median age:** 20 (IQR 18–22)
- **Most purchased method:** Emergency contraception (44%)
- **≥1 prior pregnancy:** 44%
- **Currently in school:** 38%

### STI Testing

- **Was offered:** n = 701
- **Accepted:** 98%
- **Asymptomatic:** 81%




## SIGNIFICANT ASSOCIATIONS

| Correlate | Incidence (per 100 PY) | aIRR (95% CI) | p-value |
|---|---|---|---|
| **CT** | | | |
| No STI symptoms | 13 | Ref. | - |
| Any STI symptoms | 31 | 2.65 (1.06-6.61) | 0.037 |
| No vulvar burning/itching | 14 | Ref. | - |
| Vulvar burning/itching | 34 | 2.55 (1.38-4.71) | 0.003 |
| No genital sores | 14 | Ref. | - |
| Genital sores | 63 | 4.58 (2.22-9.43) | <0.001 |
| **NG** | | | |
| Partner provides financial support | 2 | Ref. | - |
| Partner does not provide financial support | 15 | 6.88 (1.18-40.20) | 0.032 |
| **Any STI** | | | |
| No STI symptoms | 16 | Ref. | - |
| Any STI symptoms | 36 | 2.33 (1.11-4.90) | 0.025 |
| No vulvar burning/itching | 17 | Ref. | - |
| Vulvar burning/itching | 40 | 2.45 (1.55-3.88) | <0.001 |
| No genital sores | 18 | Ref. | - |
| Genital sores | 63 | 3.49 (1.83-6.67) | <0.001 |

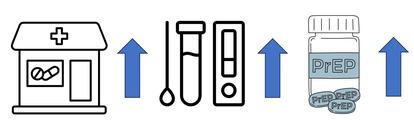
PY=Person-Years; aIRR=Adjusted Incidence Rate Ratio; CI=Confidence Interval

## CONCLUSIONS

- STI incidence among AGYW accessing PrEP through pharmacies was high, particularly for CT.
- Genital symptoms and self-reported STI symptoms were strong predictors of incident infection, highlighting missed opportunities for early diagnosis and treatment.
- Relationship dynamics, including lack of partner financial support, were also associated with increased risk of NG.

## IMPLICATIONS

- Pharmacy-based PrEP models reach AGYW at substantial risk for STIs and represent an important platform for integrated sexual health services.
- Incorporating routine STI screening, symptom assessment, partner services, and counseling into pharmacy-based PrEP delivery could substantially improve reproductive and sexual health outcomes for AGYW in high-burden settings.




## ACKNOWLEDGEMENTS

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## PLAIN LANGUAGE SUMMARY

In western Kenya, many young women who got HIV prevention medicine at local pharmacies were also silently carrying other sexually transmitted infections, especially chlamydia. Our study shows that adding simple STI testing and counseling at pharmacies could help catch infections early and protect young women's long-term health.