HIV Testing and Positivity Among STI-Tested Patients in Two Urban Emergency Departments

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Background

Emergency departments (EDs) are critical venues for HIV detection, particularly among patients evaluated for sexually transmitted infections (STIs). Although STI testing is frequently performed in EDs, HIV testing in this same high-yield population remains inconsistent, creating missed opportunities for diagnosis, linkage to care, and prevention services. We conducted this analysis to quantify testing gaps and missed infections across two EDs in our health system and to directly inform implementation of a standardized, universal ED-based HIV screening program.

Goal: To evaluate HIV testing rates, HIV positivity, and the estimated number of missed HIV infections among ED patients undergoing STI testing at two hospitals within a single health system.

Methods

Design: Retrospective cohort
Population: ED patients with chlamydia, gonorrhea, or trichomonas PCR testing
Period: September 2024–August 2025
Sites: Two hospitals in one health system:
- Academic tertiary hospital (~10% self-pay)
- Community hospital (~16% self-pay)

Key note: HIV and STI testing were not always performed in the same encounter; HIV testing could occur anytime during the study period

Outcomes:
- STI positivity
- HIV testing during study period
- HIV positivity among those tested
- Estimated missed HIV infections: applied site-specific HIV positivity rates to untested STI-positive patients

Analysis: Chi-square tests comparing outcomes by site

Key Findings

- STI positivity higher at community vs academic ED (23.6% vs 14.3%, $p<0.0001$).
- HIV testing lower at community despite higher STI positivity (18.3% vs 30.7%, $p<0.0001$).
- HIV positivity among STI+ tested: 12.2% (academic) vs 7.1% (community).
- ***Estimated missed infections among untested STI-positive patients: ~10 (academic) and ~40 (community), many likely new.***

Results

Figure 1. STI Positivity and HIV Testing Rates Among ED Patients Undergoing STI PCR Testing, by Site

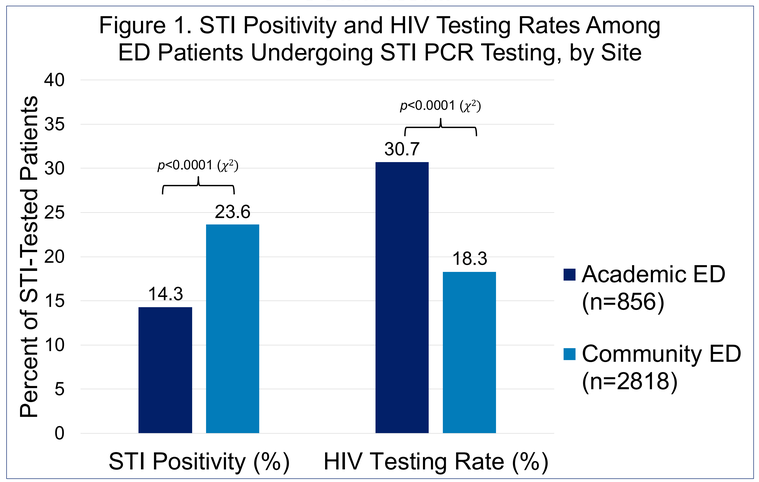
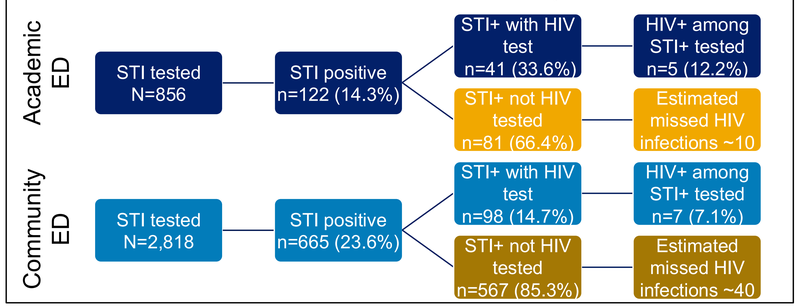


Figure 2. HIV Testing Gaps and Estimated Missed Infections Among ED Patients With Positive STI PCR, by Site



Conclusions

- Among ED patients undergoing STI PCR testing, HIV testing was inconsistent across sites, with lower testing at the community ED despite higher STI positivity.
- HIV positivity among those tested—especially among STI-positive patients—was markedly elevated, implying substantial under-detection of HIV in this high-yield ED subgroup.
- Extrapolation suggests meaningful numbers of potentially missed infections, particularly at the community site, many likely new diagnoses.
- These findings highlight practice inequities and support universal, routine ED-based HIV screening to reduce missed diagnoses, mitigate provider-driven variability, and improve timely linkage to HIV care.

Impact: Findings are informing our system's rollout of universal ED-based routine HIV screening (academic ED first, then community ED), with standardized EMR workflows plus expanded linkage-to-care pathways for HIV treatment and prevention services, including rapid linkage and PrEP navigation for patients testing HIV-negative but at ongoing risk.

Gilead Sciences Award: FOCUS funding is limited to HIV/HCV screening and linkage to the first appointment. FOCUS partners do not use FOCUS awards for activities beyond linkage to a first appointment.

Plain Language Summary

ED patients being tested for STIs had high rates of HIV when they were tested, but many never received an HIV test—especially at the community hospital—meaning infections were likely missed. These results are driving our rollout of routine, universal HIV screening in the ED to ensure timely diagnosis, linkage to treatment, and PrEP access for patients at risk.