Effectiveness of Clinical Decision Support in Improving HIV Screening in Pediatric Primary Care

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BACKGROUND

- **Clinical decision support (CDS)** systems are a promising strategy to improve HIV screening in pediatric settings.
- We assessed effectiveness of a CDS system to improve HIV screening at well-adolescent visits.

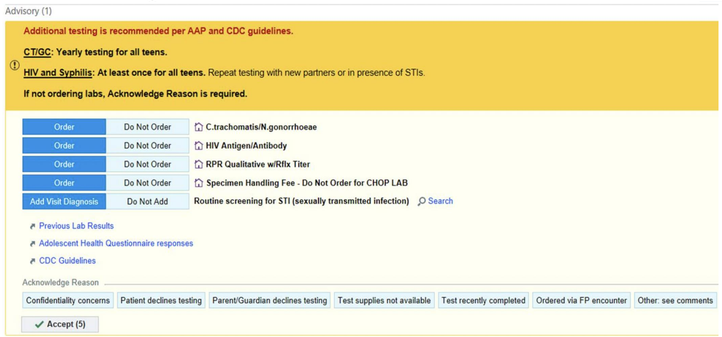
METHODS

Design: Quasi-experimental pragmatic study- developed and launched an electronic health record (EHR)-based CDS system.

Setting: 31-clinic, northeast U.S, pediatric primary care network.

Intervention: The CDS system contained 3 components at annual adolescent well visits:

1. **EHR order sets** with non-defaulted HIV test orders & universal HIV screening recommendations for patients 13+ years.
2. **Adolescent Health Questionnaire (AHQ)**, an electronic screener assessing sexual activity and other health domains completed by adolescents on visit arrival.
3. **EHR best practice alert** in visit note of sexually active youth reminding clinicians to screen for HIV.



Analysis: Interrupted time series (ITS) assessed well visit HIV screening rate differences pre- (12/2022-6/2023) vs post-CDS (6/2023-12/2023)

Logistic regression included:

1. Binary indicator of HIV test completion.
2. Fixed effect for clinics.
3. Time in months.
4. Binary indicator for intervention period.
5. A time x intervention period interaction term.

To *a priori* explore subgroup differences, separate ITS models also included interaction terms **(exposure x intervention period)** for patient race, ethnicity, sex assigned at birth, gender identity, sexual orientation, and insurance.

A multi-component electronic health record-based clinical decision support system was not associated with improvements in HIV screening in a large pediatric primary care network.

RESULTS

Table 1: Characteristics of Adolescent Well Visits (n=60,592)

Pre-CDS	26,267 (43%)
Post-CDS	34,325 (57%)
Median Age (interquartile range)	15 (IQR 14, 17)
Black	14,966 (24.7%)
Latine	5,272 (8.7%)
Female Sex	29,993 (49.5%)
Identified as LGBTQ	5,453 (9%)
HIV Screened at Well Visit	1,333 (2.2%)
Reported Sexual Activity	9,149 (15.1%)
Reported Sexual Activity and HIV-Tested	6,725 (11.1%)

- We found no differences in HIV screening rates for sexually active youth (OR 1.11, 95% CI: 0.79, 1.03; Figure 1).
- Similarly, we found no differences in HIV test completion rates between the pre- and post-CDS periods for all adolescents (OR 1.03, 95% CI: 0.87, 1.09; Figure 2).
- No significant differences in HIV test completion within any patient subgroups.

Figure 1: Interrupted time series displaying HIV testing completion rates pre and post CDS implementation among sexually active youth

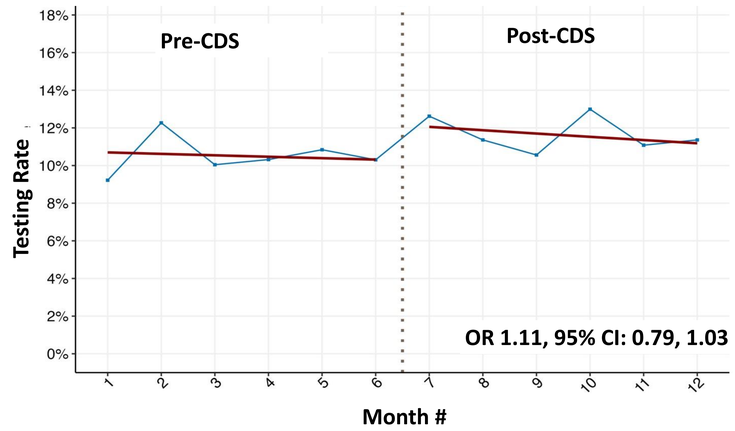
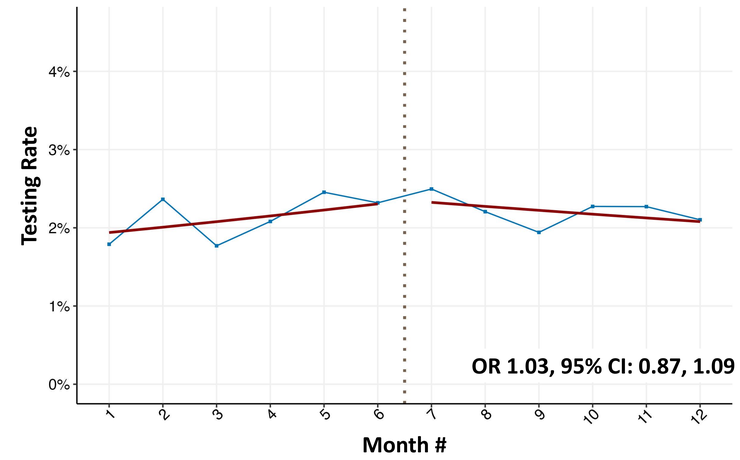


Figure 1: Interrupted time series displaying HIV testing completion rates pre and post CDS implementation among all youth



CONCLUSIONS

- In this pragmatic study of a large regional pediatric healthcare system, we found no significant effect of a CDS system on HIV screening.
- Findings suggest that CDS primarily targeting HIV screening knowledge and situational awareness may not be sufficient to improve HIV testing.
- To have appreciable impact, CDS interventions may need to be paired with educational interventions, leader endorsements, or financial incentives.
- Future CDS interventions should target additional systemic barriers to testing including confidentiality.

ADDITIONAL KEY INFORMATION

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