# *Randomized Trial Leveraging Electronic Health Record Data To Increase HIV PrEP Uptake*

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## BACKGROUND

We previously developed and validated a prediction model that used 44 electronic health record (EHR) data elements to identify patients who are at increased risk of HIV diagnosis and not using preexposure prophylaxis (PrEP).[1] Implementing this EHR-based model in primary care has potential to increase linkage to PrEP care among patients likely to benefit from PrEP.

[1]Marcus et al. *Lancet HIV* 2019 Oct;6(10):e688-e695

**Study question**: ***Can a low-intensity clinical decision support intervention increase HIV PrEP linkage in a primary care-based setting?***

## METHODS

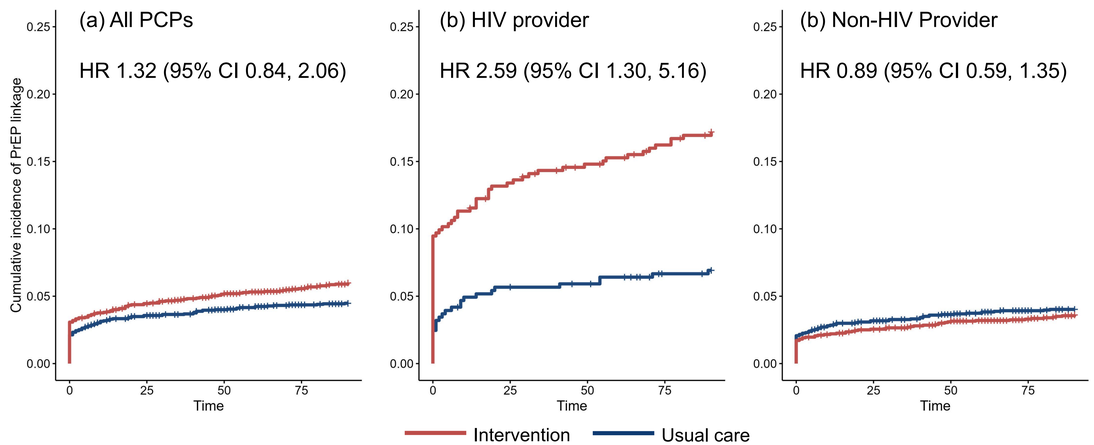
- Design: Cluster randomized controlled trial of a clinical decision support intervention for HIV PrEP at Kaiser Permanente San Francisco from June-November 2021. Adult primary care providers (PCPs) were randomized to usual care or intervention arms. PCPs who provide care to people with HIV (PWH) were balanced between arms.
- Intervention: PCPs in the intervention arm were notified prior to an upcoming in-person or virtual visit when the patient had an elevated risk prediction (3-year risk of HIV of ≥0.2%). Notification was via EHR secure email messages prompting discussion of HIV prevention and PrEP. Providers only received alerts for patients aged ≥18 years with no previously documented HIV diagnosis or PrEP prescription.
- Usual care: PCPs randomized to the usual care arm did not receive the clinical decision support intervention
- Primary outcome: 90-day cumulative incidence of linkage to PrEP care, defined as: (1) PrEP diagnosis code during a clinical encounter (reflecting a PrEP discussion); (2) PrEP referral; or (3) PrEP prescription fill.
- Statistical analysis: We report the intervention hazard ratio (HR) and 95% confidence interval (CI) from Cox regression models using robust standard errors to account for clustering by provider, with adjustment for and stratification by providers who care for PWH.

**Low-intensity EHR-based interventions have excellent potential to increase HIV PrEP linkage for primary care providers who also care for people with HIV**

## RESULTS

- Providers: 61 intervention providers (6 HIV providers); 60 usual care providers (6 HIV providers)
- Patients: 2,471 eligible intervention visits; 2,580 eligible usual care visits
  - *Age:* 50% ≥40 years of age (48% intervention; 51% usual care)
  - *Race/ethnicity*: 43% White, 19% Black, 15% Hispanic, 15% Asian (no difference by study arm)
  - *Gender*: 95% males (no difference by study arm)
- PrEP linkages: n=147 (6% 90-day risk) in intervention and n=115 (4.5% 90-day risk) in usual care

**Figure. 90-day cumulative risk of PrEP linkage among all PCPs and by HIV provider status**




## SUMMARY

- The low-intensity intervention was feasible in a large integrated healthcare setting
  - Automation of HIV risk prediction score within EHR
  - Virtual visit option enabled implementation during COVID-19 pandemic
  - Easily folded into routine clinical care and workflows
- Low-intensity intervention did not increase PrEP linkages among all PCPs, but was exceptionally effective for PCPs who also cared for PWH in their panels

## STRENGTHS AND LIMITATIONS

- Strengths include the randomized design, large sample size, and low-impact intervention that was readily folded into routine workflows
- The main limitation was the delivery of the intervention during a COVID-19 pandemic surge with many competing demands in primary care. The HIV risk prediction model also had reduced ability to discriminate HIV risk among women. There may also have been some misclassification of gender in the EHR.

## CONCLUSIONS

- A low-intensity intervention that leveraged an EHR-based HIV risk prediction model substantially increased linkage to PrEP care after in-person and video visits among PCPs who also care for PWH.
- More intensive interventions may be needed for PCPs less familiar with PrEP and HIV care.

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