



AN ECONOMIC ANALYSIS OF FACTORS ASSOCIATED WITH PREP USE FOR HIV PREVENTION IN WOMEN

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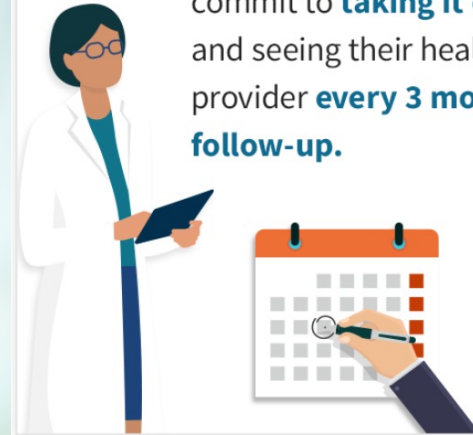


Background

- Ending the HIV Epidemic - 90% reduction in new HIV infections by 2030 (Fauci, et al., 2019)
- Along with behavioral strategies, preexposure prophylaxis (PrEP) for HIV prevention is a major biomedical tool (Zorrilla, Rabionet, Mosquera, & Ramirez de Arellano, 2012)

TAKING PrEP TO PREVENT HIV

People who use PrEP must commit to **taking it every day** and seeing their health care provider **every 3 months for follow-up.**





Background

Since its approval in 2012, PrEP uptake has been slow (U.S. Department of Health and Human Services, 2021)

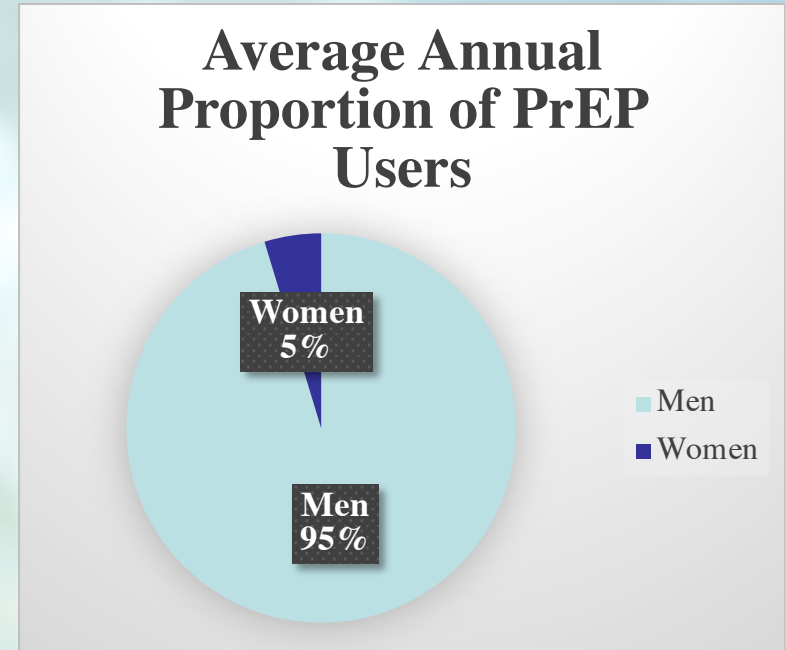
- An estimated 1.2 million are at high risk of becoming HIV infected
- Only about 18% are on PrEP
- 4 in 5 who could benefit are not on PrEP



Background

1.2 million with indications for PrEP

- 492,000 - MSM
- 115,000 - IV drug users
- 624,000 - Heterosexually active adults
 - 157,000 - Men
 - **468,000 - Women**





Background

Between 2015 and 2019 (Allen et al., HIV.gov, 2021)

- 9% reduction in HIV infections for men while women remained stable
- 7% increase in new infections among women who inject drugs, while men remained stable



Literature

PrEP uptake is higher in states that expanded Medicaid under the ACA

- Insured are four times more likely to access PrEP (Patel et al., 2017)
- Medicaid removes cost barrier (Karletsos & Stoecker, 2021)
- Medicaid expansion associated with 25% higher PrEP prevalence (Siegler et al., 2020)



Literature

- **Disparities in PrEP use among Medicaid enrollees** (Harawa, Tan & Leibowitz, 2022)
- **Addressing PrEP uptake beyond the cost barrier** (Chan, Seiler, & Chu, 2020; Laufer, O'Connell, Feldman, Mps, & Zucker, 2015)



Study Aims

Determine the effect of ACA Medicaid expansions and access to healthcare services on PrEP use

Hypothesis

Women at risk for HIV who are living in states that expanded Medicaid programs and with greater access to healthcare services are more likely to use PrEP



Methods – Variables and Data

Outcome Variable: PrEP-to-Need ratio (PNR) - (AIDSVu database)

- $PNR = \frac{\text{\# of persons prescribed PrEP}}{\text{\# of new HIV diagnoses}}$
- Gives the level of PrEP use relative to the need
- Higher PNR indicates greater PrEP coverage
- Available from 2012 - 2021



Methods – Variables and Data

Key Independent Variables - (Kaiser Family Foundation, and County Business Patterns (CENSUS))

- ACA Medicaid expansions
- Family Planning Clinics per 100,000 population
- Mental Health and SUD Treatment Centers per 1000 HIV infections

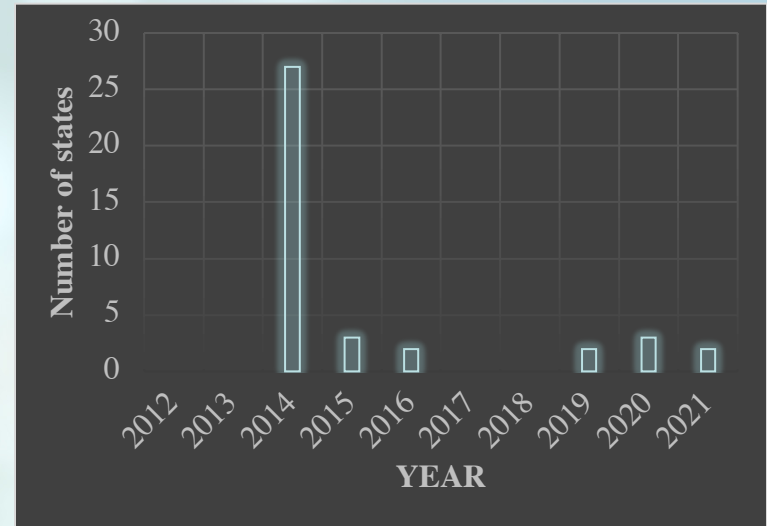


Figure 2 Number of states that expanded Medicaid programs, 2012-2021



Method – Empirical Model

- Estimate the effects of changes in **Medicaid eligibility, the availability of family planning clinics and mental health and substance use disorder treatment centers** on state-level PrEP-to-Need ratios



Method – Empirical Model

We model these relationships using a TWFE regression:

$$PNR_{st} = \alpha_0 + Expand_{st}\alpha_1 + FPclinic_{st} + MHSUD_{st} + X_{st}\alpha_2 + A_s\alpha_3 + T_t\alpha_4 + \varepsilon_{st}$$

PNR_{st} - PrEP-to-Need ratio in state s in year t

$Expand_{st}$ - state s expanded Medicaid in year t

$FPclinic_{st}$ - rate of family planning clinics in state s in year t

$MHSUD_{st}$ - rate of mental health and SUD treatment centers in state s in year t

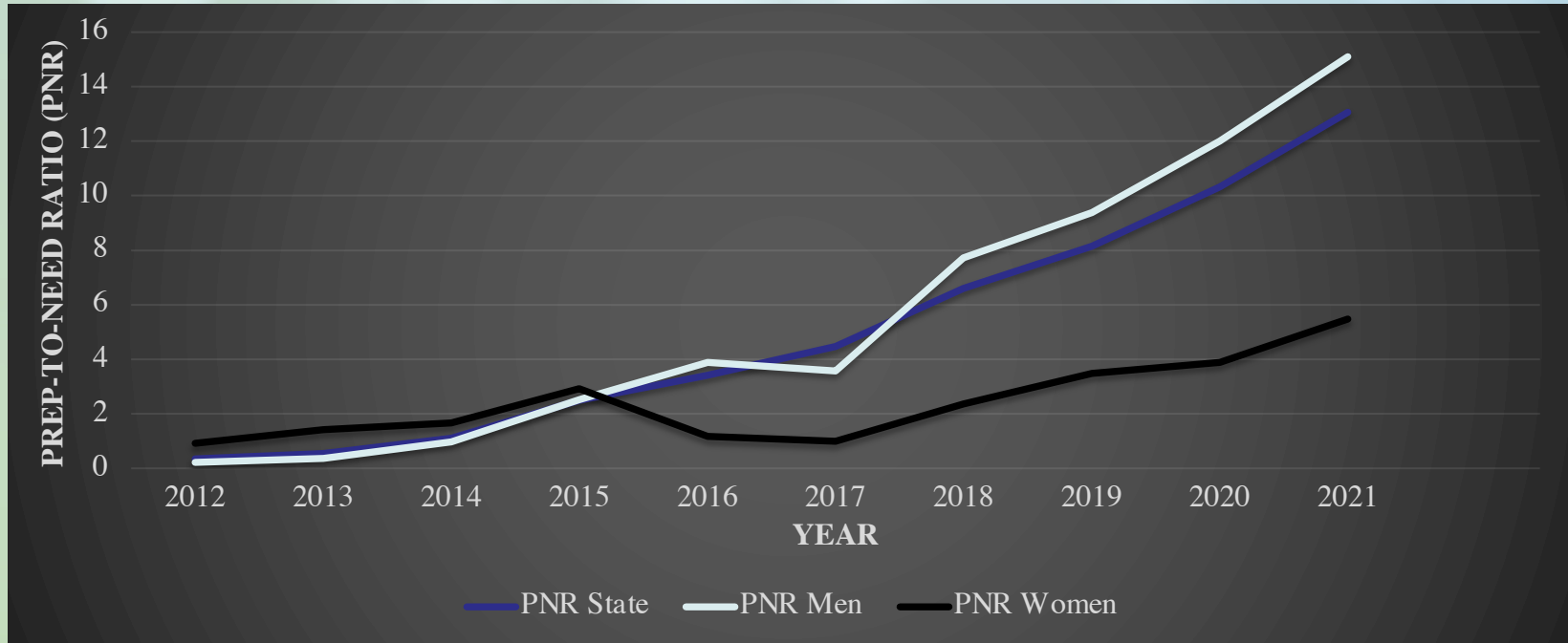


Results - Summary

	All States	Expansion	Nonexpansion
PNR - State	4.45	5.18	2.80
PNR - Men	4.89	5.70	3.05
PNR - Women	2.04	2.32	1.39
Medicaid Expansion	0.50	0.72	0
Family planning clinics	0.88	0.92	0.79
MHSUD treatment	17.3	20.1	11.1
Observations	510	390	120



Changes in PNR, 2012 - 2021





Results – Regression Analysis

	State PNR	Men PNR	Women PNR
Medicaid	1.800***	2.130***	0.359*
Expansion	[0.725,2.875]	[0.813,3.447]	[-0.016,0.735]
Family planning	-0.945	-0.731	-0.123
clinics	[-5.410,3.520]	[-3.504,2.042]	[-1.416,1.171]
MHSUD treatment	-0.118*	-0.103*	-0.004
centers	[-0.240,0.005]	[-0.226,0.019]	[-0.018,0.009]
N	459.000	459.000	457.000



Results - Summary

Medicaid associated with:

- 40% increase in PNR overall
- 43.5% increase for men
- 17.5% increase for women



Discussion and Conclusions

- Further support to the importance of Medicaid expansion on health outcomes
- Medicaid expansion twice as beneficial for men (43.5%) than women (17.5%) in PrEP use
- Women at risk of HIV are still vulnerable due to the gender disparity



Discussion and Conclusions

- Targeted interventions are needed to work along with large-scale interventions, like Medicaid
- Further studies needed to explore PrEP services being offered at more granular levels

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Thank You!



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