Removing Insurance Barriers to Oral PrEP Reduces HIV Cases and Costs in Underserved US Populations

Poster 1090

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Conclusions

- Removing insurance barriers to oral pre-exposure prophylaxis (PrEP) was estimated to increase PrEP access, leading to the prevention of new HIV cases among underserved populations
- We estimated that averting new HIV cases in high-incidence populations yielded net economic savings, as avoided lifetime HIV treatment costs exceed the additional investment in oral PrEP
- These findings highlight the importance of adherence to US Preventive Services Task Force (USPSTF) guidelines to reduce insurance barriers and ensure equitable access to oral PrEP
- Conversely, failure to follow these recommendations may undermine progress toward Ending the HIV Epidemic goals and increase the economic burden on payers, healthcare ecosystem, and society

Plain Language Summary

Removing insurance barriers to oral PrEP prescriptions is estimated to increase access to oral PrEP and decrease new HIV-1 cases in high-incidence populations. The resulting decrease in HIV-1 cases generates net economic savings by avoiding long-term treatment costs, despite higher spending on oral PrEP.

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Acknowledgments: Editing and production assistance were provided by Ashfield MedComms (Macclesfield, UK), an Inizio company, and was funded by Gilead Sciences, Inc.

COIs: **Emir Gursel** and **Mert Edali** are employees of Value Analytics Labs, who conducted the analysis funded by Gilead Sciences, Inc. **Turgay Ayer** is a shareholder of Value Analytics Labs. **Patrick S. Sullivan** has received research grants and speaker fees from Gilead Sciences Inc. He has also received research grants from Merck and ViiV Healthcare. **JeanPierre Coaquira Castro**, **Alice Hsiao**, and **Woodie Zachry** are employees and shareholders of Gilead Sciences, Inc.

Funding statements: This study was funded by Gilead Sciences, Inc.

Background

- HIV-1 incidence in the US remains disproportionately high among Black and Hispanic men who have sex with men (MSM), transgender women (TGW), and cisgender women (CGW) with PrEP indications, contributing to persistent health inequities
- PrEP is recommended as a Grade A preventive service by the USPSTF and is designated as a covered preventive service under the Affordable Care Act (ACA)[1,2]
- Despite this policy framework, insurance utilization management barriers – including prior authorization and coverage restrictions – can result in PrEP abandonment, which, in turn, increases the risk of HIV-1 acquisition in high-incidence populations[3]

Objective

- We assessed the projected clinical outcomes and economic returns of removing insurance barriers (e.g., prior authorization, coverage restrictions, etc.) to oral PrEP access among high-incidence US populations

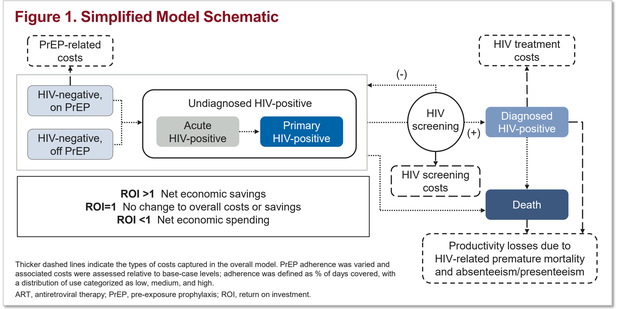
Methods

- An individual-level state-transition (microsimulation) HIV model was developed to estimate the clinical outcomes and net economic impact of increased oral PrEP utilization in the US among high-incidence population groups (**Figure 1**)
- The model compared the status quo, reflecting current oral PrEP uptake under existing insurance barriers, with an intervention scenario in which the insurance barriers were removed, resulting in lower PrEP abandonment and higher uptake compared with the status quo
- Model inputs included HIV-1 incidence and progression, HIV-1 treatment costs (i.e., pharmacy including antiretroviral therapy, inpatient and outpatient) oral PrEP use behavior (e.g., adherence and persistence), and PrEP costs. They were estimated based on real-world data and published sources
- Return on investment (ROI) was defined as the US Dollar (USD) value of downstream HIV-related costs averted per additional USD spent on oral PrEP, calculated as averted treatment costs divided by additional PrEP investment:

$$ROI = \frac{HIV\ Treatment\ Cost_{comparator} - HIV\ Treatment\ Cost_{intervention}}{Cost\ of\ PrEP_{intervention} - Cost\ of\ PrEP_{comparator}}$$

  Where comparator refers to the status quo with the current insurance barriers and the intervention to the removal of the insurance barriers
- A ROI of 1 reflects a break-even scenario in which additional oral PrEP investment equals averted costs; a ROI greater than 1 indicates net economic savings (e.g., a ROI of 1.5 implies that every additional $1 invested in PrEP yields $1.5 in lifetime cost savings per individual within a given population)
- Three ROI perspectives were evaluated:
  - Payer ROI: including aggregated costs covered by commercial insurance, Medicare, and Medicaid
  - Healthcare ecosystem ROI: including costs covered by payers and patients
  - Societal ROI: including payer costs, patient costs and productivity gains from averted HIV-related mortality and absenteeism/presenteeism
- Modeled cohorts included individuals aged 16–64 years in the following populations: Black MSM, Black TGW, Hispanic MSM, Hispanic TGW, and CGW with PrEP indications

Figure 1. Simplified Model Schematic

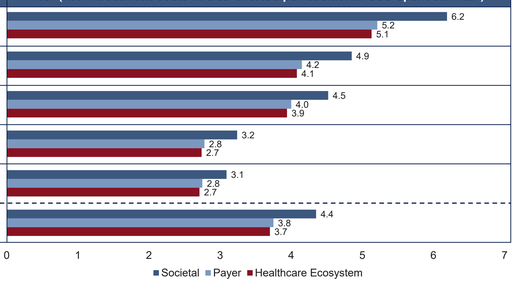


Thicker dashed lines indicate the types of costs captured in the overall model. PrEP adherence was varied and associated costs were assessed relative to base-case levels; adherence was defined as % of days covered, with a distribution of use categorized as low, medium, and high.
ART, antiretroviral therapy; PrEP, pre-exposure prophylaxis; ROI, return on investment.

Results

Figure 2. Clinical and ROI Outcomes in High-incidence US Populations, by Population Group

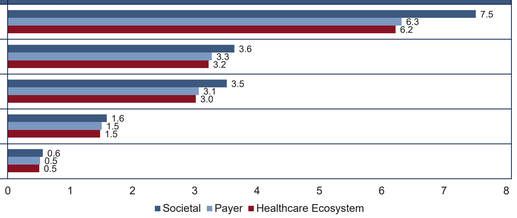
Population group	Averted HIV-1 cases in 5 years per 10,000 population	ROI (HIV-1 treatment costs in USD averted per additional USD spent on PrEP)
CGW with PrEP indications	25.8	6.2 / 5.2 / 5.1
Black MSM	26.5	4.9 / 4.2 / 4.1
Black TGW	21.4	4.5 / 4.0 / 3.9
Hispanic TGW	11.8	3.2 / 2.8 / 2.7
Hispanic MSM	14.3	3.1 / 2.8 / 2.7
Weighted aggregate of all populations	20.2	4.4 / 3.8 / 3.7



CGW, cisgender women; MSM, men who have sex with men; PrEP, pre-exposure prophylaxis; ROI, return on investment; TGW, transgender women; USD, United States dollar.

Figure 3. Clinical and ROI Outcomes in High-incidence US Populations (Weighted Aggregate), by Age Category

Age category (years)	Averted HIV-1 cases in 5 years per 10,000 population	ROI (HIV-1 treatment costs in USD averted per additional USD spent on PrEP)
25–34	30.5	7.5 / 6.3 / 6.2
35–44	17.8	3.6 / 3.3 / 3.2
16–24	15.0	3.5 / 3.1 / 3.0
45–54	9.1	1.6 / 1.5 / 1.5
55–64	5.2	0.6 / 0.5 / 0.5



PrEP, pre-exposure prophylaxis; ROI, return on investment; USD, United States dollar.

- Removing insurance barriers to oral PrEP was estimated to result in a substantial number of averted new HIV cases across the populations evaluated, leading to net economic savings. Overall, eliminating insurance barriers averted an estimated 20.2 new HIV cases per 10,000 people over 5 years across the combined populations
- Net economic savings were projected (i.e., ROI exceeding 1) across all population groups evaluated (Black MSM, Hispanic MSM, Black TGW, Hispanic TGW, and CGW with PrEP indications). When population-specific results were combined according to estimated population sizes, ROI was 3.8 for payers, 3.7 for the healthcare ecosystem, and 4.4 for society
- Populations with a higher number of cases averted generated higher ROI; CGW with PrEP indications had the highest ROI: 5.2 for payers, 5.1 for healthcare ecosystem, and 6.2 for society (**Figure 2**). Differences in remaining life expectancy across populations also impacted ROI, as longer life expectancy increased lifetime treatment costs averted per HIV case
- Among individuals aged 25–34 years, the age group with the highest estimated number of averted HIV cases, ROI was 6.3 from the payer perspective, 6.2 from the healthcare ecosystem perspective, and 7.5 from the societal perspective (**Figure 3**)