

Megan J. Heise, PhD¹, David Glidden, PhD², Li Tao, PhD³, Alice Hsiao, PharmD³, Mary J. Christoph, PhD, MPH³, Kevin Sassaman, MPH¹, Shivani Mahuvakar¹, Woodie Zachry, PhD³, Monica Gandhi, MD, MPH¹, Matthew A Spinelli, MA, MAS¹
¹University of California, San Francisco, Division of HIV, Infectious Diseases, and Global Medicine, San Francisco, CA, U.S., ²University of California, San Francisco, Department of Epidemiology & Biostatistics, San Francisco, CA, U.S. ³Gilead Sciences, Inc., Foster City, CA, U.S.

BACKGROUND

- California (CA) State Bill 159 (SB159), enacted in October 2019, aimed to expand PrEP access by broadening authority for pharmacists to prescribe PrEP without physician approval.
- This study examined SB159's impact on pharmacist PrEP prescribing, changes in the number of PrEP prescriptions filled, and the relation between PrEP use and new HIV diagnoses across counties in California.

METHODS

- Data were obtained from the claims-based IQVIA Longitudinal Access and Adjudication Dataset (2015–2024) and HIV incidence data from the CA Office of AIDS (2018–2022) at the state and county-level.
- Interrupted time series assessed changes in both mean levels and slopes before and after implementation of SB159 for
 - 1) frequency of pharmacists prescribing PrEP post-SB159
 - 2) the number of PrEP prescriptions
 - 3) the association between overall PrEP use and HIV incidence 12 months later

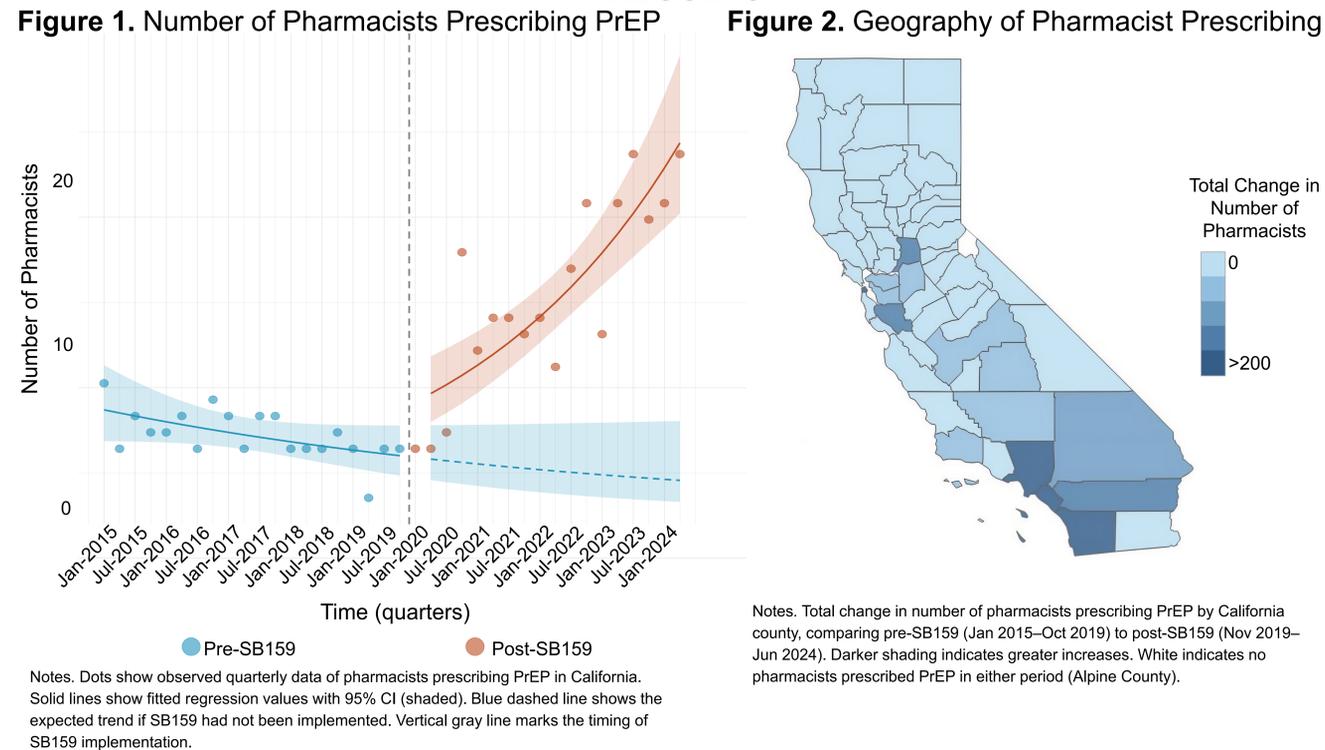
RESULTS

SB159 Increased Pharmacist PrEP Prescribing

- Pharmacist-prescribed PrEP increased significantly following SB159, from a median of 4.5 (IQR 4-6) to 12 (IQR 10.5-18.5) pharmacists per quarter (**Figure 1**).
- Urban ZIP codes (population density >1,000 people per square mile) had nearly twice as many pharmacists prescribing PrEP as rural ZIP codes (mean change: 2.67 vs 1.41 pharmacists; Wilcoxon rank-sum test, $p < .001$), with the largest absolute increases in Los Angeles, San Diego, San Francisco, Orange, and Riverside counties (**Figure 2**). After adjusting for ZIP code population, there was no significant difference between urban and rural areas.

California legislation increased pharmacist PrEP prescribing but had minimal impact on overall prescription volumes, which plateaued during COVID-19 while HIV incidence rose.

RESULTS



No Change in Overall Number of PrEP Prescriptions Following SB159

- Data consisted of 1,880,038 filled PrEP claims across 166,061 individuals (median age = 33 years [IQR 27-42], 91.1% male, 8.8% female).
- Overall, there was a decrease in the slope of PrEP prescriptions following SB159 (interaction RR = 0.93 per quarter, 95%CI 0.92-0.93, $p < .001$), with a steeper decrease among males (pre-SB159 RR = 1.07 per quarter, 95% CI 1.07-1.08, post-SB159 RR = 1.01, 95%CI 1.00-1.01, $p < .001$).

Healthcare Disruptions During COVID-19 Associated with New HIV Diagnosis Rebound

- SB159 coincided with COVID-19 healthcare interruptions and shelter-in-place orders in California.
- Within counties, each standard deviation increase in PrEP prescriptions predicted 7% fewer HIV diagnoses 12 months later.
- Shelter-in-place orders were associated with an initial 33% reduction in diagnoses (RR=0.67, 95%CI 0.58-0.77 $p < .001$), likely reflecting decreased testing, followed by a rebound with diagnoses increasing 1.3% per month (RR=1.01, 95%CI 1.01-1.02, $p < .001$), resulting in 13.2% more diagnoses than pre-pandemic projections by December 2021.

CONCLUSIONS

- SB159 successfully expanded pharmacist PrEP prescribing, with pharmacist prescribing increasing from a median of 4.5 to 12 pharmacists per quarter.
- However, PrEP prescriptions plateaued following SB159 implementation, with the growth rate declining from 7% to 1% per quarter among males. The impact of SB159 on pharmacy-delivered PrEP was likely limited due to inadequate implementation infrastructure, including insufficient pharmacist training completion, restrictions preventing prescription continuation, barriers to obtaining laboratory tests, and unclear reimbursement pathways. These challenges were further compounded by concurrent COVID-19 healthcare disruptions.
- The COVID-19 pandemic was associated with setbacks in HIV prevention efforts. New HIV diagnoses rebounded to 13% above pre-pandemic projections by late 2021. Findings highlight the need for both resilient healthcare delivery systems and outreach to re-engage populations in need of PrEP.
- Legislative efforts to strengthen PrEP access continue to evolve, with California Senate Bill 339 introduced in 2024 to address barriers identified in SB159. SB339 authorized follow-up prescribing for pharmacists and ensured insurer coverage of pharmacist-furnished PrEP.
- Future research should evaluate whether policy refinements can achieve increases in PrEP uptake and progress toward HIV elimination in California.

Corresponding author: MJ Heise, mj.heise@ucsf.edu

PLAIN LANGUAGE SUMMARY

In 2019, California allowed pharmacists to dispense an initial PrEP prescription without a doctor's approval. Although more pharmacists began prescribing PrEP, pharmacists made up less than 1% of PrEP prescribers, and the increase in prescribing did not impact overall number of PrEP prescriptions after the bill took effect.