THE IMPACT OF SYRINGE SERVICES PROGRAM CLOSURE ON THE RISK OF REBOUND HIV OUTBREAKS AMONG PEOPLE WHO INJECT DRUGS: A MODELING STUDY

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Background:
People who inject drugs (PWID) are at elevated risk for HIV infection; however, syringe services programs (SSPs) are effective in curtailing HIV transmission. Despite their effectiveness, SSPs in many settings are hampered by social and political opposition. We aimed to estimate the impact of closure and temporary interruption of SSP service provision on the HIV epidemic among PWID in a rural US setting.

Methods:
Using an agent-based model calibrated to observed surveillance data, we simulated HIV risk behaviors and transmission in adult populations who inject and do not inject drugs in Scott County, Indiana, a rural American setting that experienced a devastating HIV outbreak in 2015. We projected HIV incidence and prevalence between 2020 and 2025 for scenarios with permanent closure, delayed closure (one additional renewal for 24 months before closure), and temporary closure (representing the impact of the COVID-19 pandemic) of an SSP in comparison to SSP maintenance.

Results:
With sustained SSP operation, we projected an incidence rate of 0.16 per 100 person-years among the overall population (95% simulation interval: 0.08-0.29). Permanently closing the SSP would cause an average of 62 more HIV infections and a 52.0% increase in the incidence rate during 2021 to 2025, resulting in a higher prevalence of 59.0% [48.3%-68.4%] (22.0% increase) among PWID by 2025. A delayed closure (from 2023 to 2025) would increase the five-year incidence rate by 33.2%. A temporary closure (lasting 12 months) would cause 12 (32.8%) more infections during 2020 to 2021.

Conclusion:
Our analysis suggests that temporary interruption and permanent closure of existing SSPs operating in rural US settings may lead to “rebound” HIV outbreaks among PWID. To maintain control of the HIV epidemic, it will be necessary to sustain existing or implement new SSPs in combination with other prevention interventions.

Disclosure of Interest Statement*:*
All authors declare no competing interests.

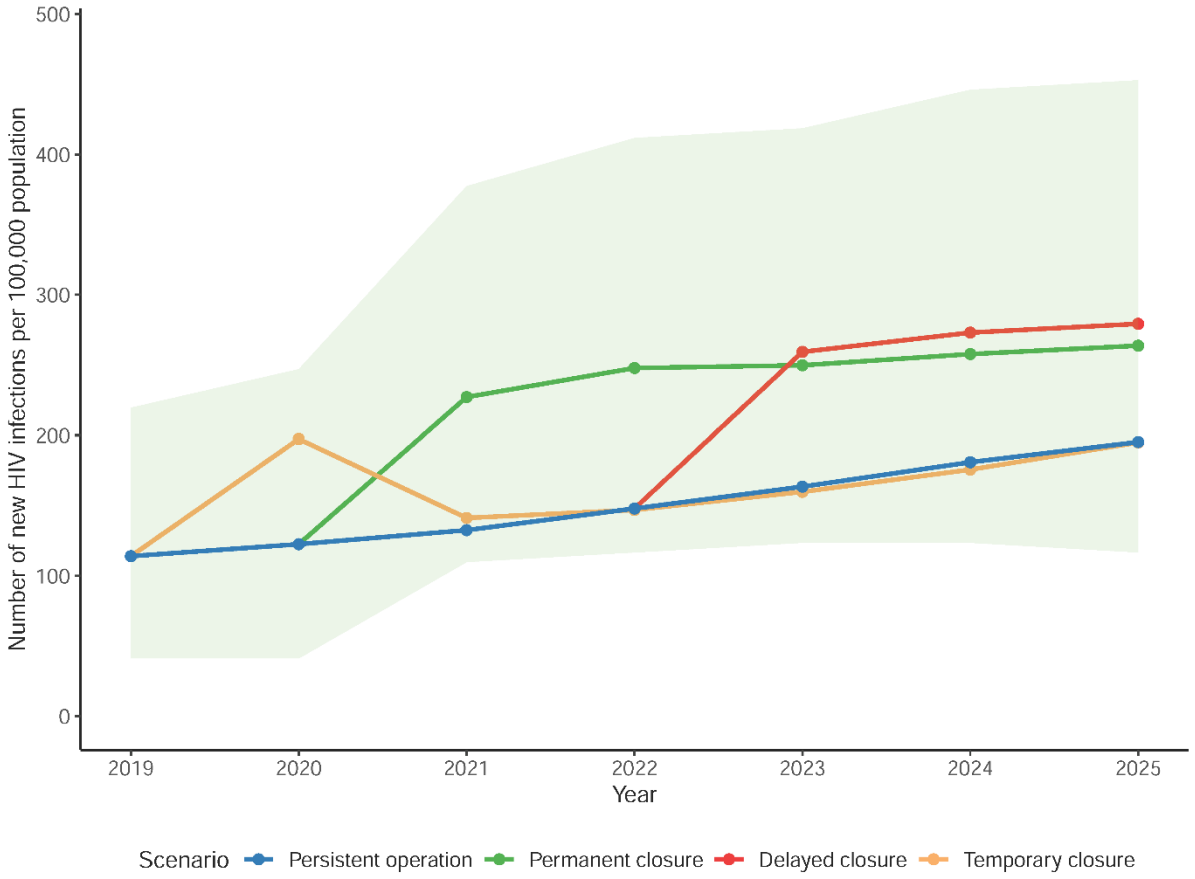

Figure. Number of new HIV infections per 100,000 population under different modeling scenarios representing syringe service program (SSP) closure in a rural US county

Legend: Solid lines represent the mean of estimated number of new HIV infections per 100,000 population. Green shade represents 95% simulation interval of estimated incidence under SSP permanent closure scenario. Other simulations intervals are not shown but were of similar magnitude.