CONFERENCE CAHR 2021

l'Actuel CENTRE DE SANTÉ SEXUELLE

McGill
Department of Epidemiology, Biostatistics and Occupational Health

Chemsex use and incidence of sexually transmitted infections in the l'Actuel pre-exposure prophylaxis (PrEP) cohort in Montréal (2013-2020)

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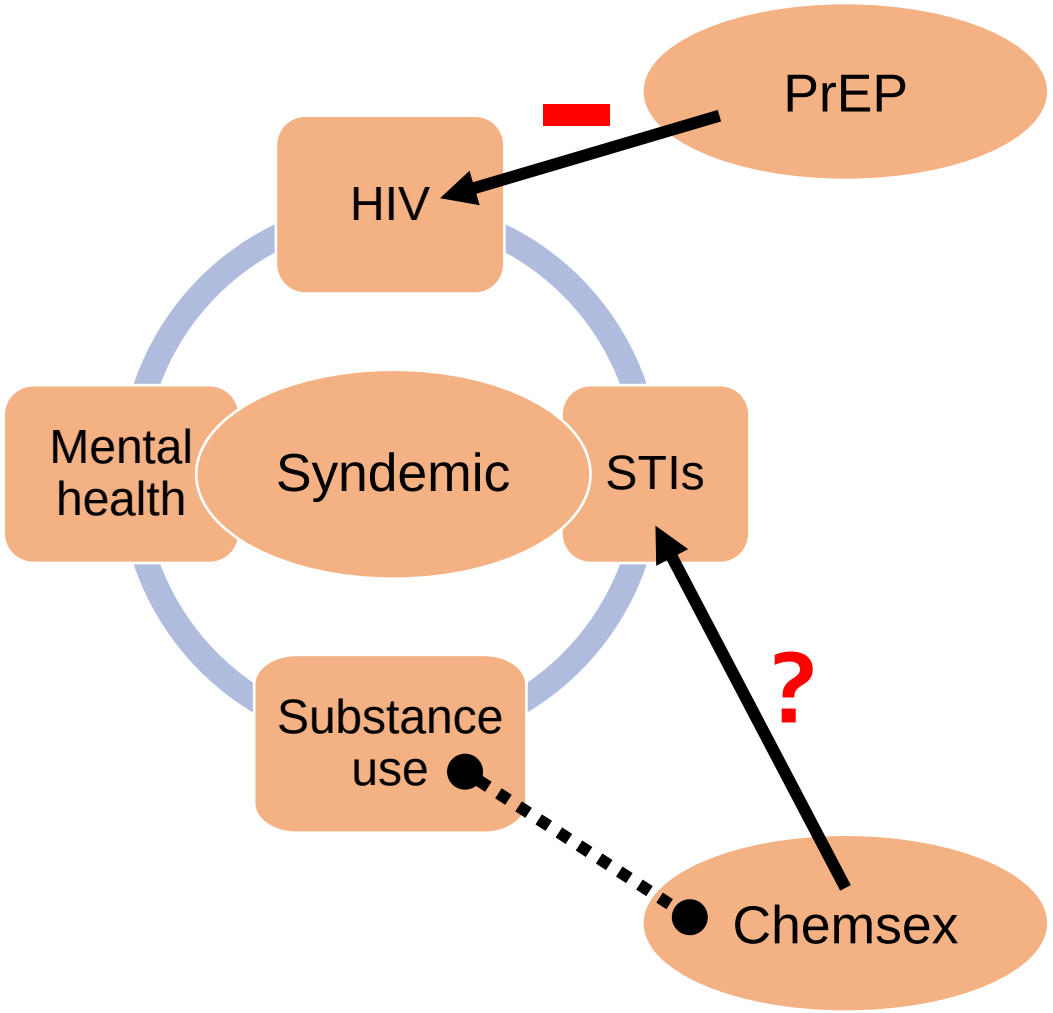
Introduction



Background

- gbMSM experience syndemics of HIV, STIs, mental health and substance use, meaning components are mutually reinforcing and perpetuate health disparities
- Within the past decade, **chemsex** and **PrEP** have changed the syndemic
  - **Chemsex** is defined as intentional use of illicit substances during sex, associated with increases in STI and HIV transmission, and with poorer mental health
  - **PrEP** is a highly effective HIV-prevention tool, available in Quebec since 2013, possibly linked to higher STI transmission due to risk compensation
- Past evidence on chemsex-STI association mostly cross-sectional or qualitative

Research question

Is chemsex associated with higher STI incidence among PrEP users?

gbMSM: gay, bisexual and other men who have sex with men;
PrEP: pre-exposure prophylaxis; STIs: sexually transmitted infections.

Methods

Study population

- *L'Actuel PrEP cohort*, a large prospective cohort with quarterly follow-up and STI screening (study period: 2013–2020)
- Selection criteria
  - Adult gbMSM and transgender women
  - HIV-negative at baseline
  - Initiated PrEP (≥ 1 follow-up visit)

Exposure definitions

- **Chemsex** defined as reporting, at baseline, sex in the past year while under the influence of
  - Ecstasy, GHB, cocaine, crystal meth, ketamine or crack
- **Polysubstance use** defined as reporting ≥2 substances

Survival analysis

- **Outcome:** time to first STI diagnosis
  - Laboratory-confirmed diagnosis (NAAT)
  - **STI:** either gonorrhea or chlamydia
- **Time zero:** first PrEP consultation
- **Censoring:** reaching 2 years of follow-up, stopping follow-up, or discontinuing PrEP

- Kaplan-Meier curves and Cox proportional hazards regression adjusted for
  - Age (categorized), Education (post-secondary vs not), Income (categorized), PrEP regimen (daily vs intermittent), Year of entry into cohort (categorized)

- **Effect modification** analysis by including product terms for chemsex with age and income

gbMSM: gay, bisexual and other men who have sex with men; NAAT: nucleic acid amplification test PrEP: pre-exposure prophylaxis; STIs: sexually transmitted infections.

Results

- Adjusted HR
  1.35 (95% CI 1.13–1.62)

Dichotomous chemsex variable: chemsex at baseline vs not

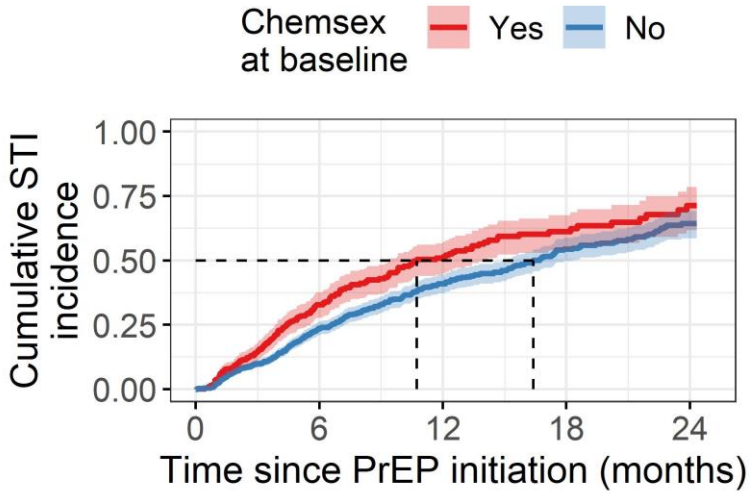


Fig 1. Chemsex at baseline is associated with higher STI incidence

Adjusted regression

- Chemsex HR
  1.14 (95% CI 0.89–1.46)
- Polysubstance HR
  1.58 (95% CI 1.26–1.97)

Trichotomous chemsex variable: no chemsex, 1 substance reported, polysubstance use

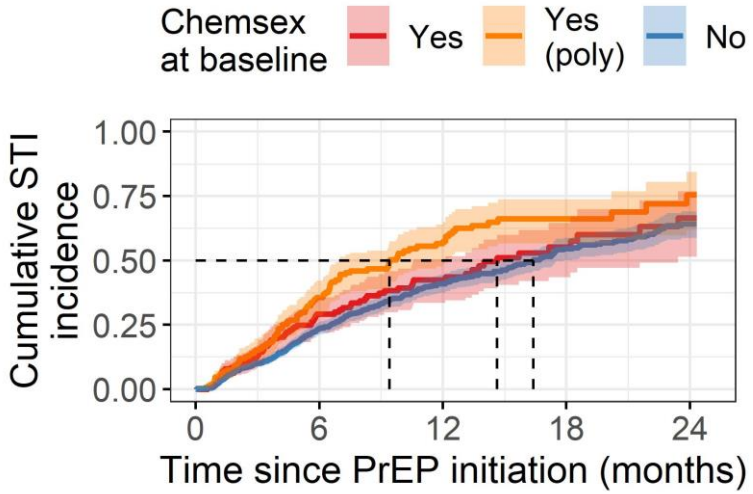


Fig 2. Polysubstance use has a stronger association with STI incidence

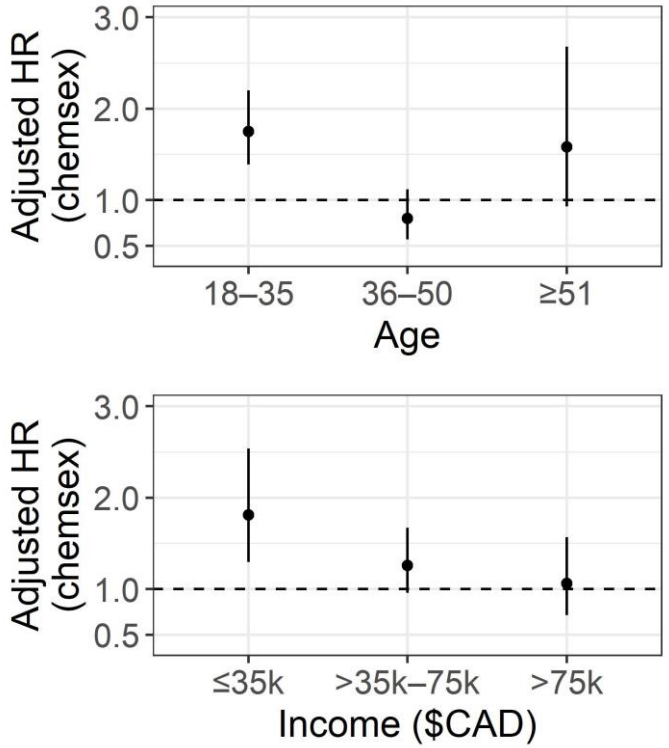


Fig 3. There is effect modification of the chemsex-STI association by age and income

Dichotomous chemsex variable: chemsex at baseline vs not

All analyses are adjusted for age (categorical), education, income, PrEP regimen and year of entry into the cohort (categorical)

HR: hazard ratio; STIs: sexually transmitted infections.

Conclusions and acknowledgements

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Conclusions

- Chemsex at baseline is associated with higher hazard of STI diagnosis among gbMSM using PrEP
- The magnitude of the association is stronger among gbMSM who are ≤35 years old and those reporting yearly income of ≤$35k
- High STI incidence highlights (1) need for integrated services for gbMSM who practice chemsex and (2) that PrEP is an important harm-reduction intervention (no incident HIV infections)

Strengths

- Large sample size and 7-year timespan
- Lab-confirmed diagnosis and regular screening

Limitations

- Exposure only measured at baseline
- Did not account for recurrent infections
- Not enough transgender women for stratified results

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