

MODELLING THE IMPACT OF COVID-19-RELATED DISRUPTIONS ON HIV IN THE UNITED STATES

Kate M Mitchell, MSc, PhD

Imperial College London
London, United Kingdom

Presented at virtual CROI 2021

Background

- During the COVID-19 pandemic, gay, bisexual and other men who have sex with men (MSM) in the United States (US) have reported similar or fewer sexual partners and reduced access to HIV testing and care
- Pre-exposure prophylaxis (PrEP) use has declined

AIM: Quantify the potential impact of COVID-19 on HIV incidence and HIV-related mortality among US MSM

Methods

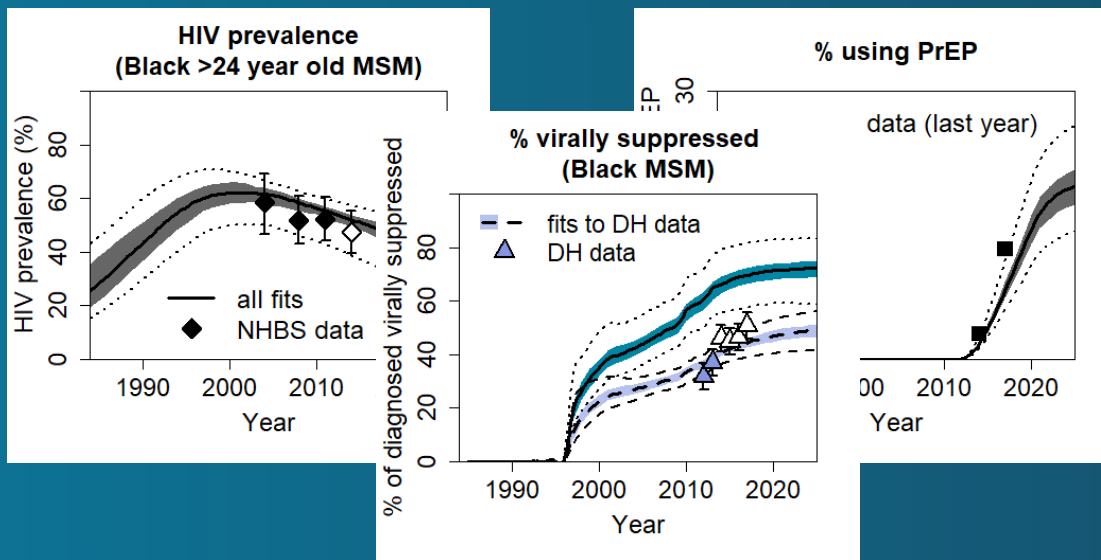
We used:
a calibrated **HIV transmission model** for MSM in Baltimore, Maryland
+ available **first-wave data on COVID-19-related disruptions** (from national online surveys of US MSM¹ and a Boston clinic²)

to predict impacts of 6-month **data-driven reductions** in:

- sexual partners (0%, 25% or 50%)
- condom use (5%)
- HIV testing (20%)
- viral suppression (10%)
- PrEP adherence (9%)
- PrEP initiations (72%)
- HIV testing on PrEP (85%)
- ART initiations (50%)

national
online
surveys¹

Boston
clinic data²



Outcomes: relative change in

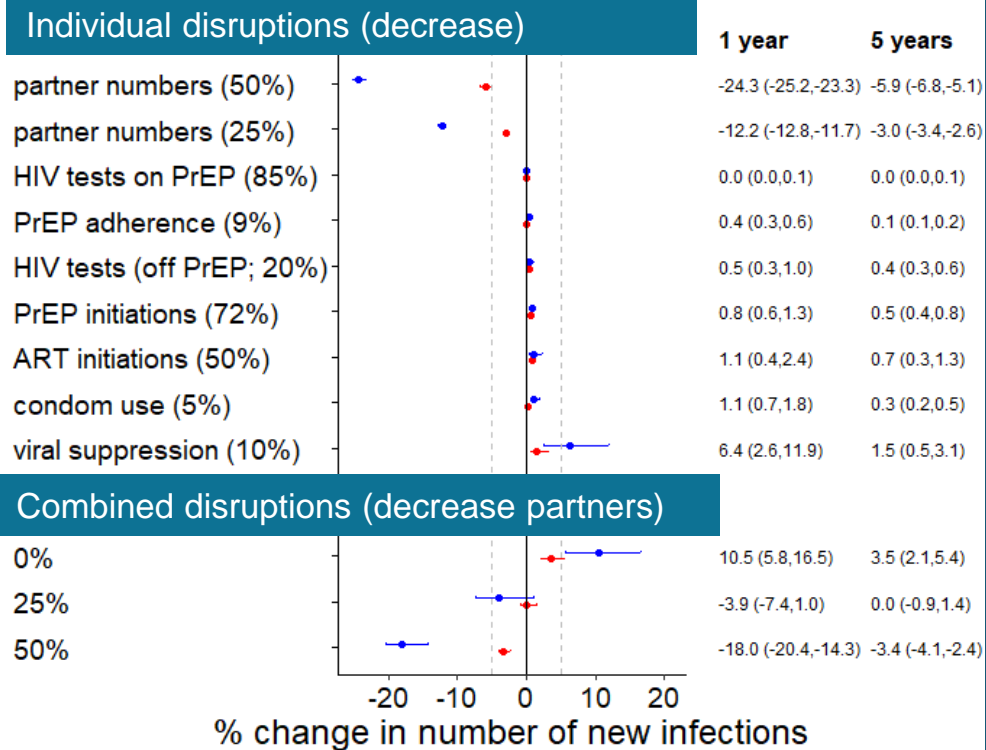
- cumulative **new HIV infections**
- cumulative **HIV-related deaths** measured over 1 and 5 years

1. Sanchez et al. 2020 AIDS Behav 24:2024-32, McKay et al. 2020 SSRN, Stephenson 2020 AIDS Behav, Starks et al. 2020 Drug Alcohol Depend 216:108260.
2. Krakower et al. 2020 Intl AIDS conf [abstract number OACLB0104]

Final Results

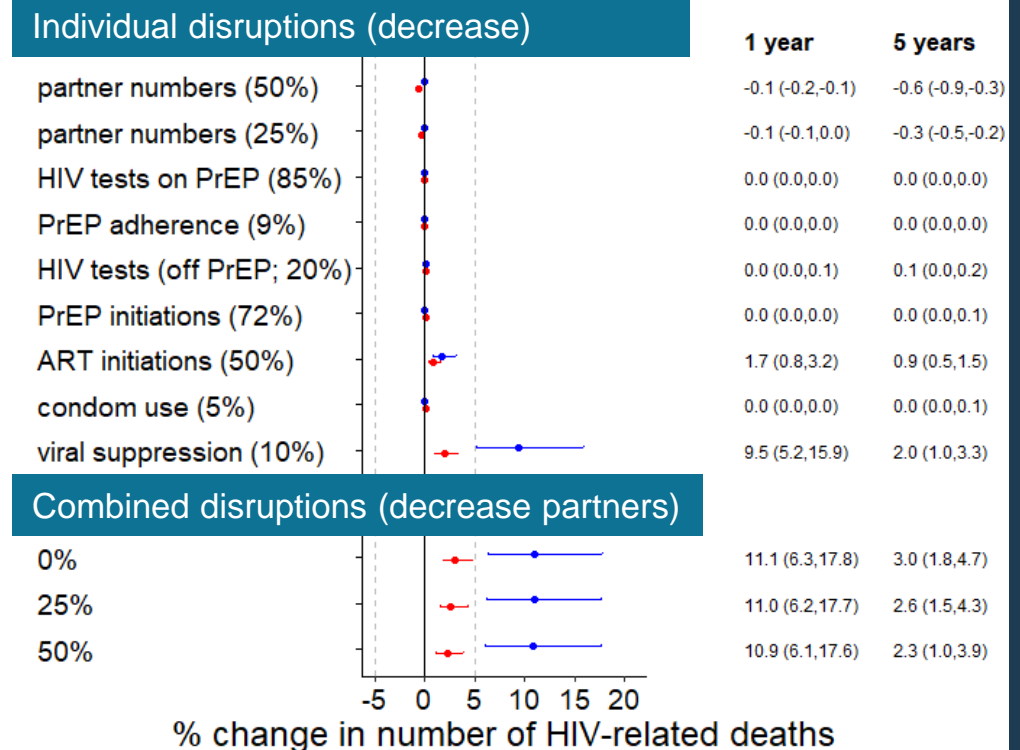
6 month disruption: impact on new HIV infections

Impact over — 1 year — 5 years



6 month disruption: impact on HIV-related deaths

Impact over — 1 year — 5 years



- Of the different service disruptions, a 10% reduction in viral suppression was predicted to have the greatest impact on new infections and HIV-related deaths
- A 25% reduction in partnerships offsets the negative impact of the combined service disruptions on new HIV infections but not on HIV-related deaths

Conclusions

- Maintaining access to ART and adherence support is of the utmost importance to minimise excess HIV-related mortality due to COVID-19 restrictions in the US, even if accompanied by reductions in sexual partnerships
- To achieve this, scaling up and evaluating telemedicine services and other delivery models for HIV treatment is critical

Publication: Mitchell et al. Lancet HIV doi: 10.1016/S2352-3018(21)00022-9

Acknowledgments

- **Coauthors:** Dobromir Dimitrov, Romain Silhol, Lily Geidelberg, Mia Moore, Albert Liu, Chris Beyrer, Kenneth H. Mayer, Stefan Baral, Marie-Claude Boily
- **Funding:** Overall support for the HIV Prevention Trials Network (HPTN) is provided by the National Institute of Allergy and Infectious Diseases (NIAID), Office of the Director (OD), National Institutes of Health (NIH), National Institute on Drug Abuse (NIDA), and the National Institute of Mental Health (NIMH) under Award Numbers UM1AI068619-15 (HPTN Leadership and Operations Center), UM1AI068617-15 (HPTN Statistical and Data Management Center), and UM1AI068613-15 (HPTN Laboratory Center).
- The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.



**Imperial College
London**



hptnmodelling.org
hptn.org