

Trends in gonorrhoea testing and incidence among gay and bisexual men in Australia over a decade spanning HIV PrEP implementation (2012-2023)

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AT BURNET INSTITUTE, WE PROUDLY ACKNOWLEDGE
THE BOON WURRUNG PEOPLE OF THE KULIN NATIONS
AS THE TRADITIONAL CUSTODIANS OF THE LAND ON
WHICH OUR OFFICE IS LOCATED. WE PAY OUR
RESPECT TO ELDERS PAST AND PRESENT, AND EXTEND
THAT RESPECT TO ALL FIRST NATIONS PEOPLE.



Background

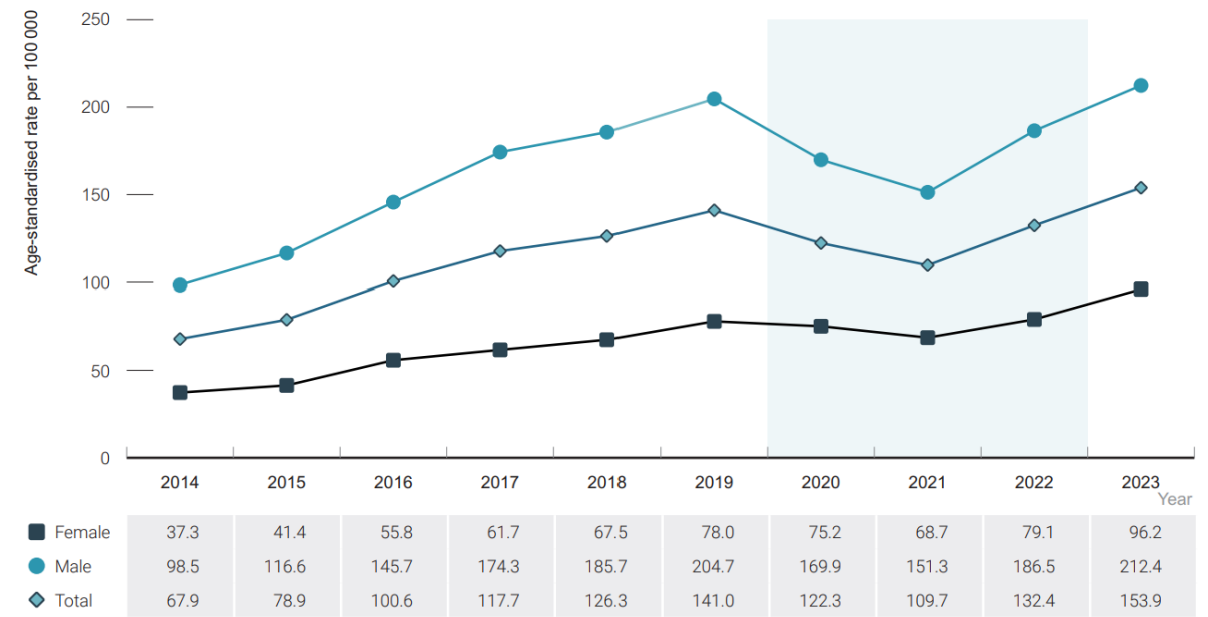
- Gonorrhoea - caused by *Neisseria gonorrhoeae*¹
- 2nd most prevalent bacterial sexually transmitted infection (STI)¹
- Mostly asymptomatic, no immunity provided by previous infection²
- Complications – pelvic inflammatory disease, ectopic pregnancy & infertility¹
- Resistant to all antibiotic classes including ceftriaxone (current first line).
- Asymptomatic screening is being reconsidered at the AMR era
- Priority population - Gay and Bisexual Men (GBM), sex workers, transgender people

Background

- In Australia, gonorrhoea notifications are increasing among both men and women
- GBM remain overrepresented in gonorrhoea notifications
- Prior to PrEP rollout, living with HIV was linked to higher gonorrhoea risk
- PrEP rollout is associated with reduction in population level-condom use and changes among sexual networks

Need to understand current testing practices and trends in gonorrhoea incidence and reinfection in the PrEP era

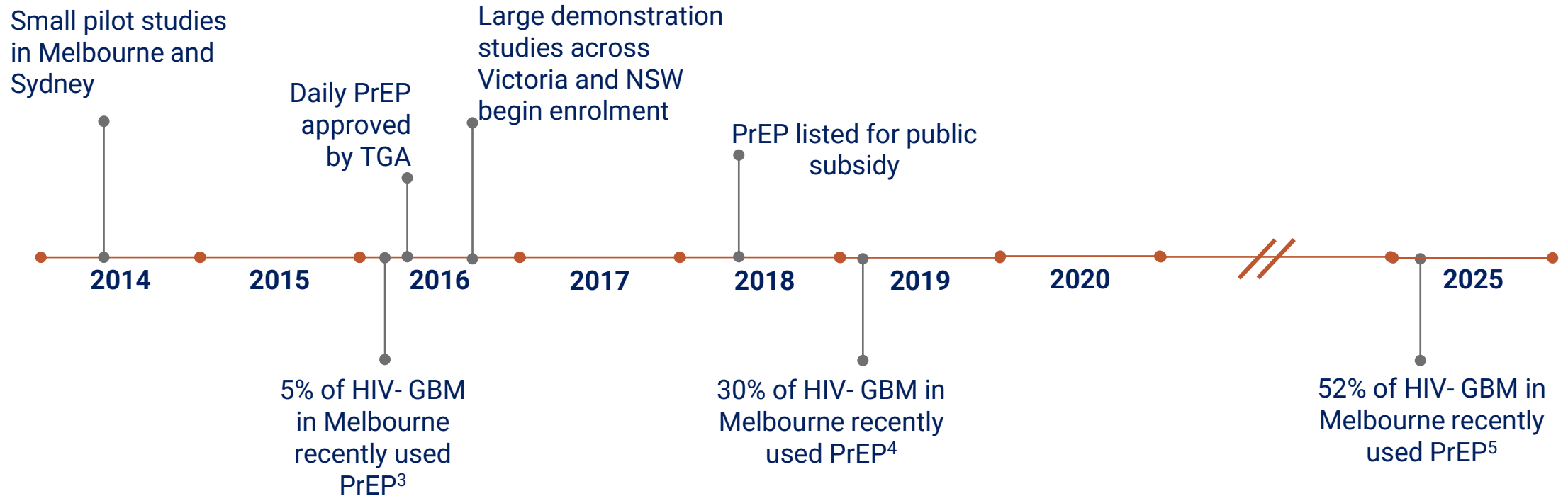
Figure 20 Gonorrhoea notification rate per 100 000 population by sex, 2014 – 2023³



Aims

- Use an established sentinel surveillance network for STIs to explore trends in gonorrhoea testing and incidence among gay and bisexual men in Australia
- Disaggregate trends by HIV status and PrEP use
- Explore trends spanning pre- to post-PrEP implementation
- Analyse risk factors of gonorrhoea diagnosis

PrEP implementation in Australia



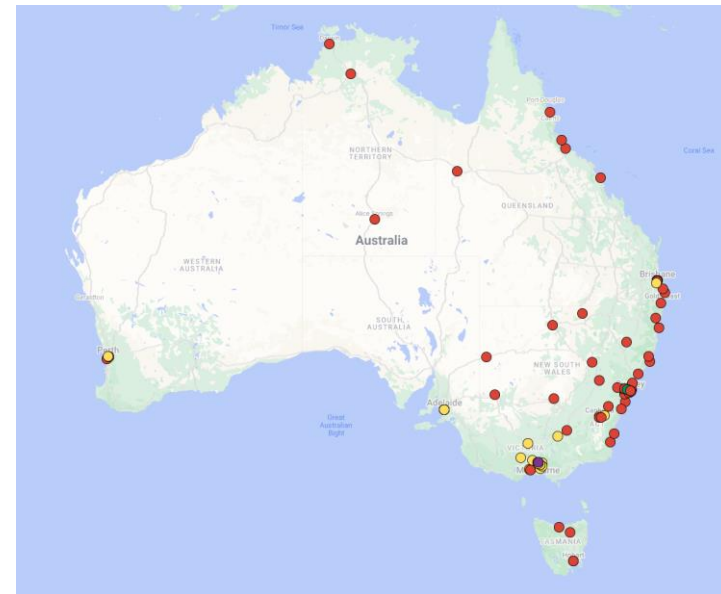
- PrEP available for \$13 - \$40 / month via universal healthcare

Data source



*Australian Collaboration for Coordinated Enhanced
Sentinel Surveillance of Blood-borne Viruses and
Sexually Transmitted Infections*

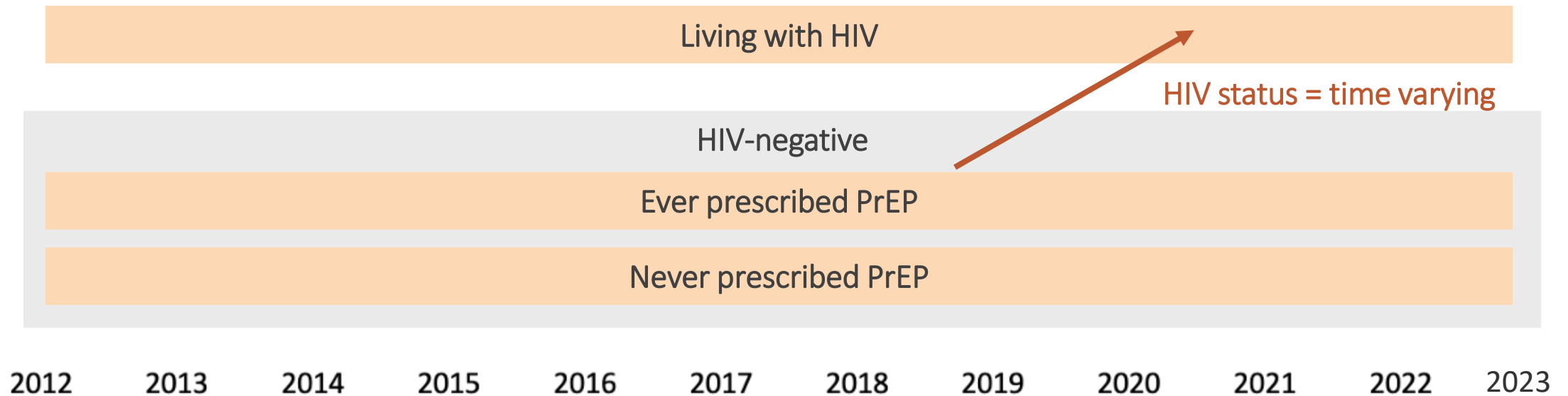
- Surveillance network established >10 years ago
- >100 services with national representation
- High coverage of PrEP users and PLWHIV
- Specialised data extraction software GRHANITE
- Linkage allows for individual-level, longitudinal monitoring over time and across clinics
- 76 services included in this study



- Sexual health clinic
- General practice
- Hospital clinics
- Community site
- Drug and alcohol service

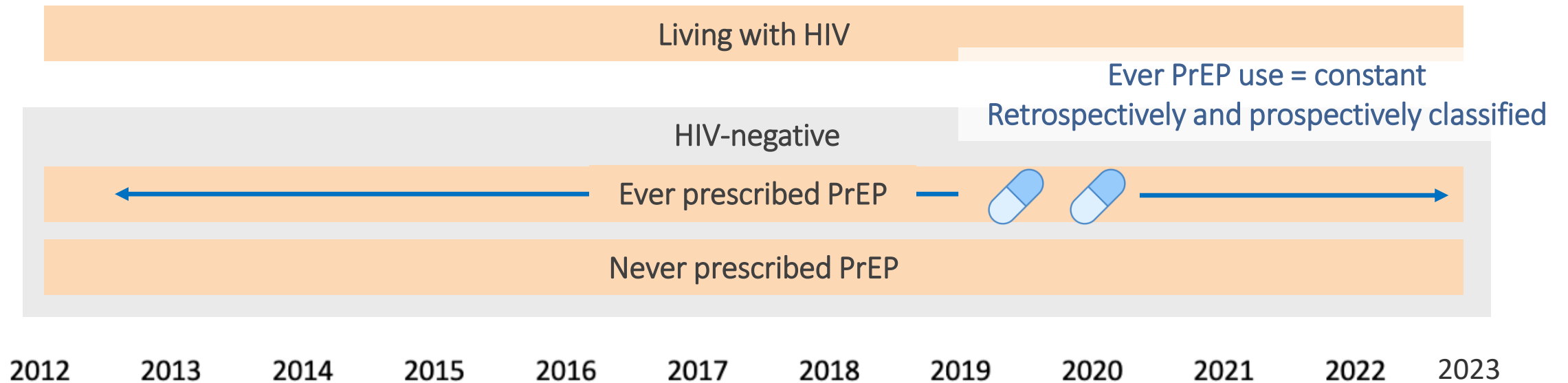
Methods

- Extracted clinical visits, gonorrhoea pathology, HIV status, PrEP prescriptions
- Calculated annual trends in gonorrhoea testing and gonorrhoea incidence from 2012-2023
- Disaggregated into 3 groups based on HIV status and PrEP use




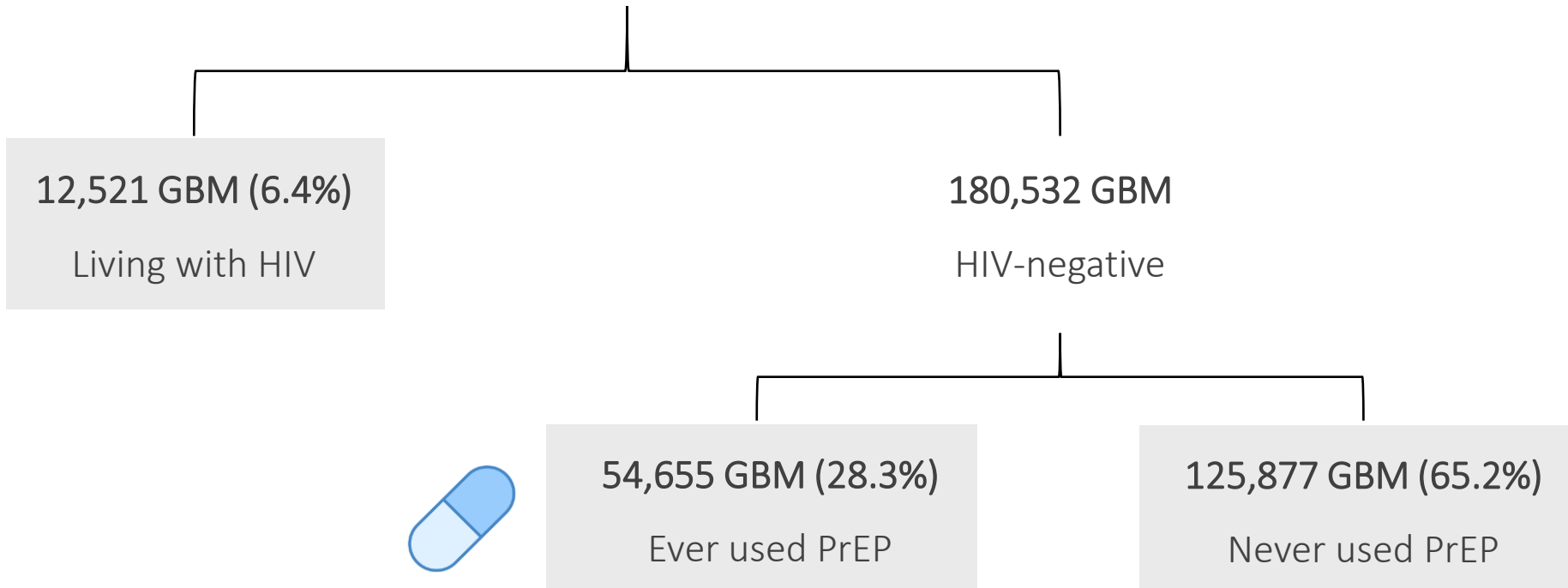
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Testing cohort

 193,053 GBM visited a clinic between 2012-2023

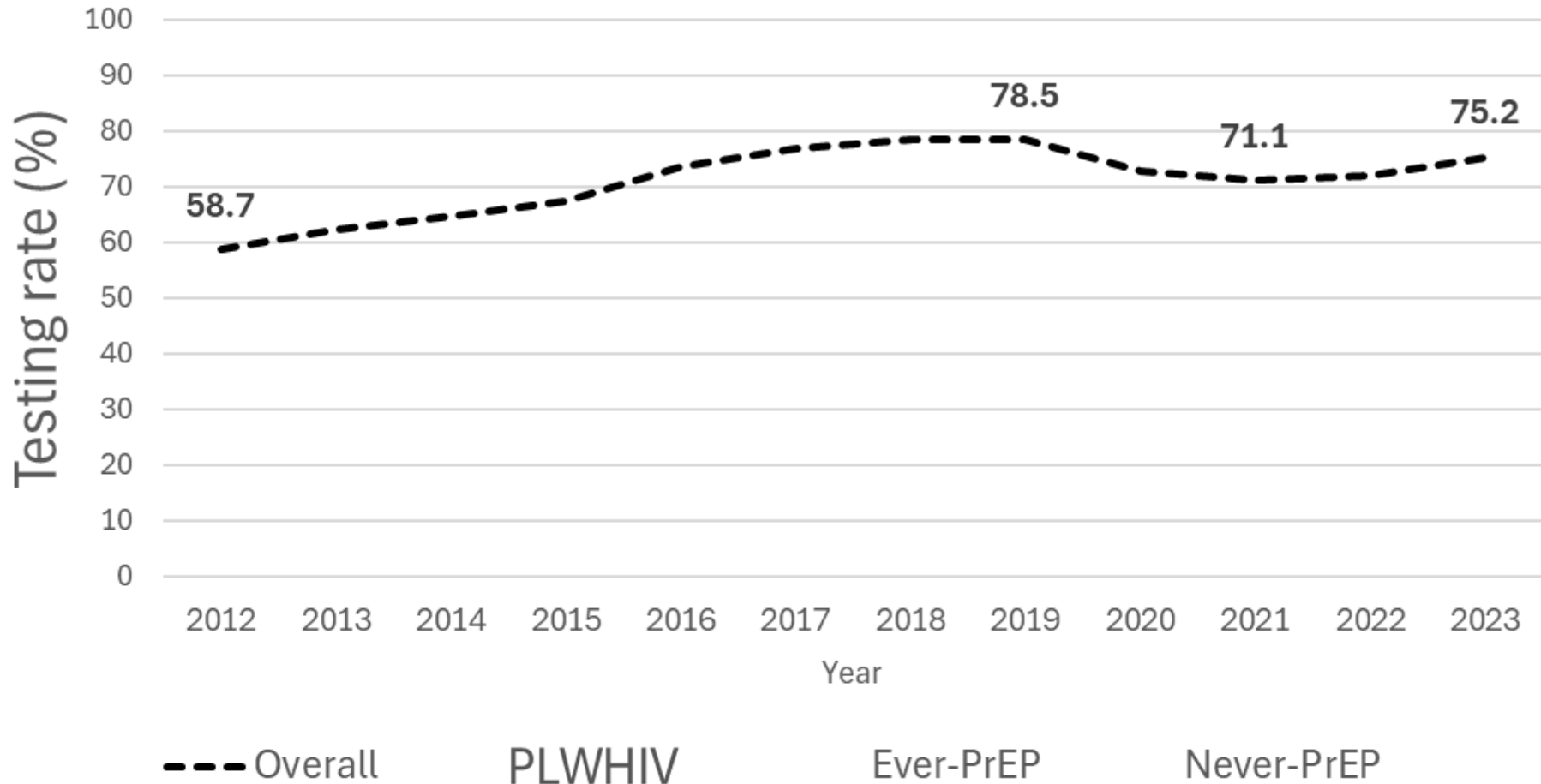


76 clinical services



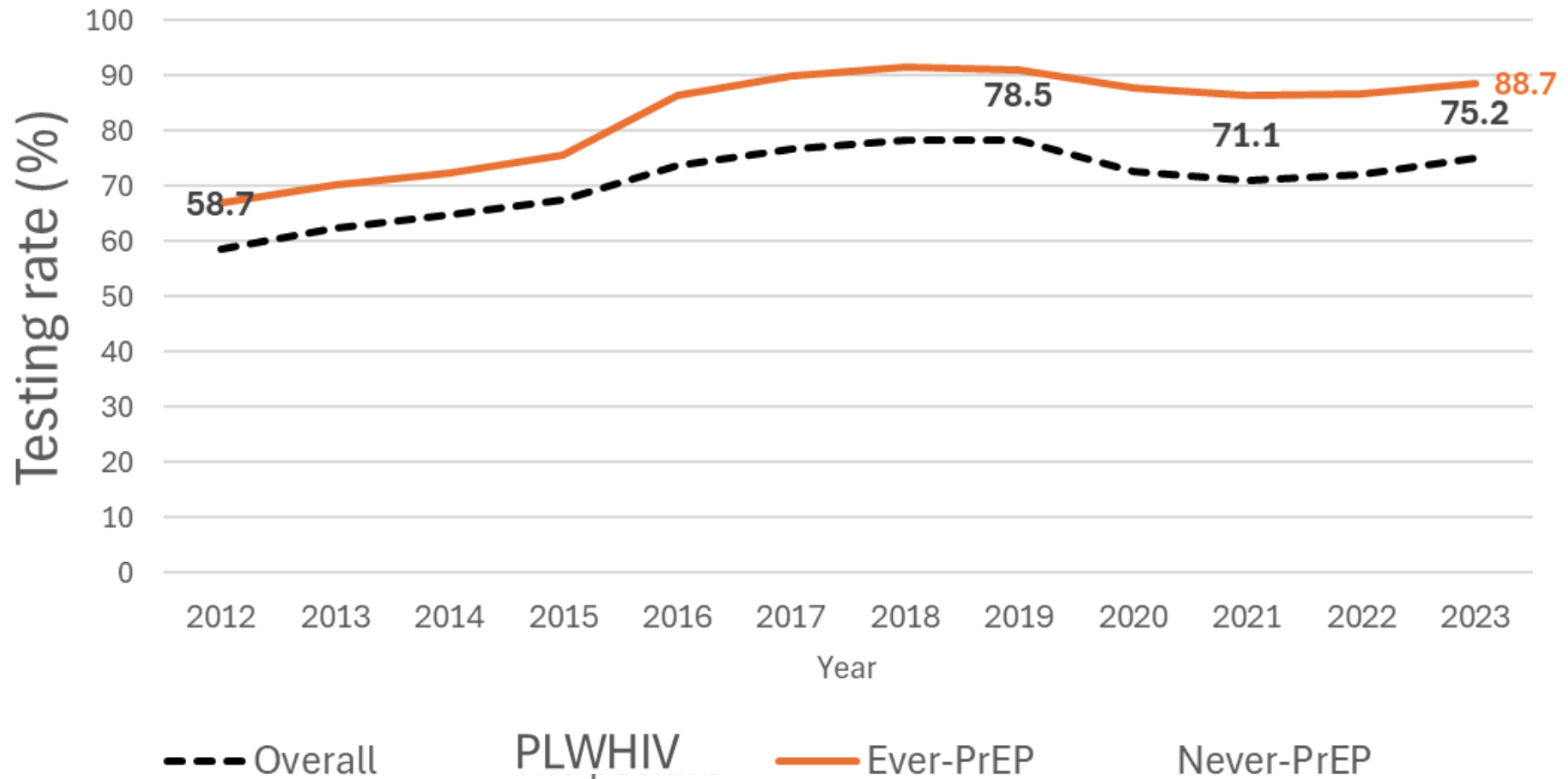
Gonorrhoea testing rate

% of GBM attendees tested for gonorrhoea at least once in a year



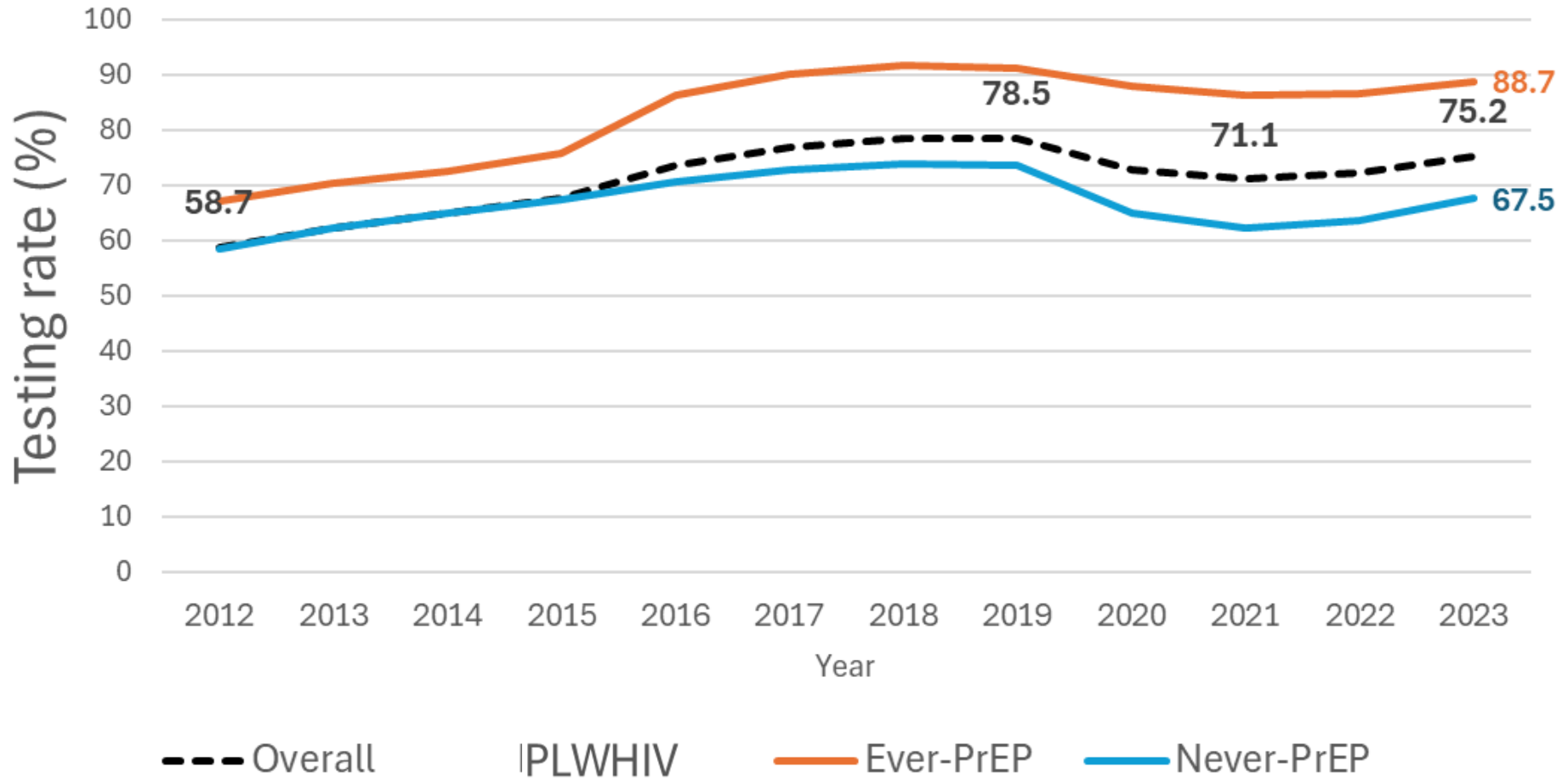
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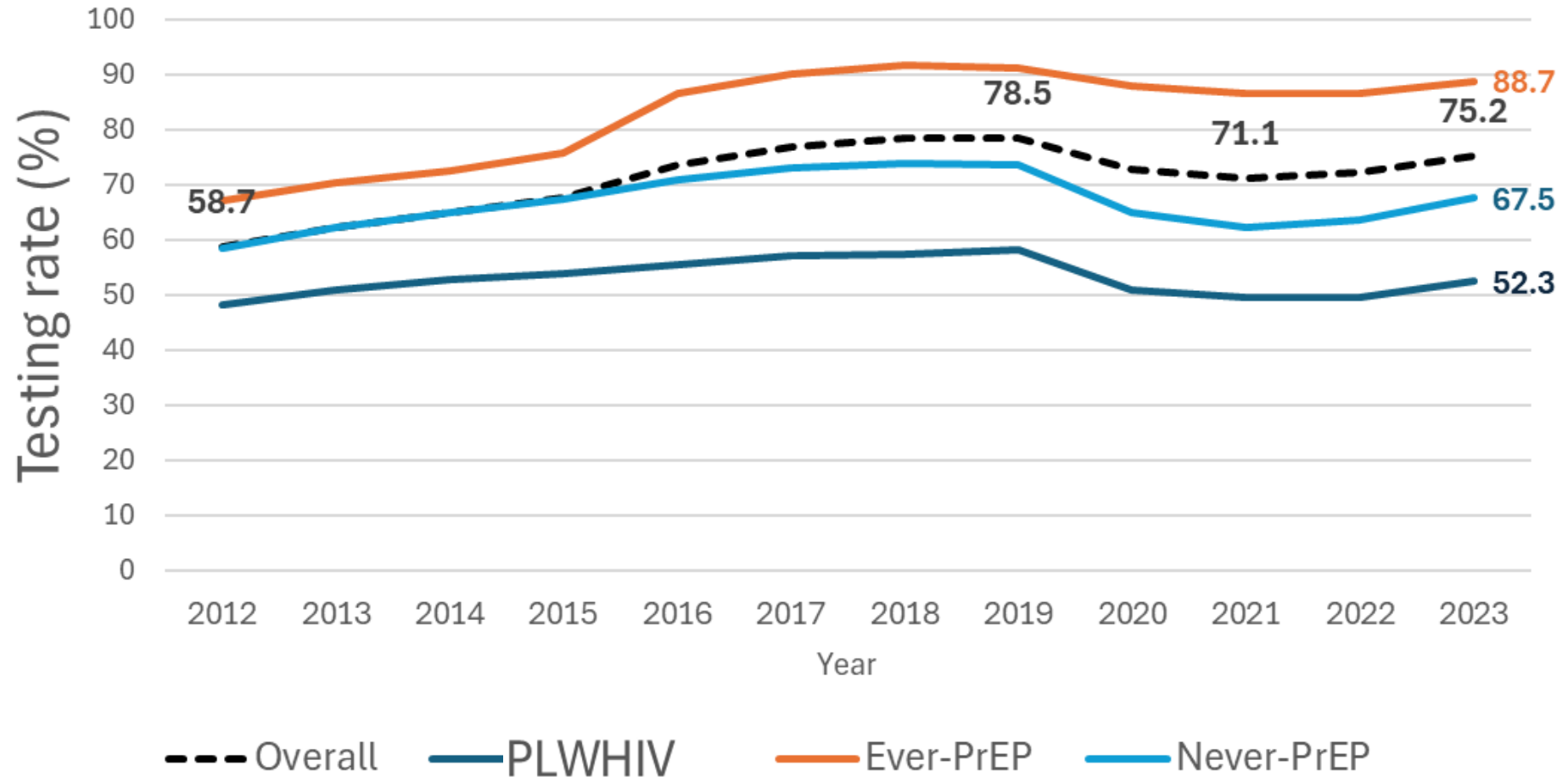
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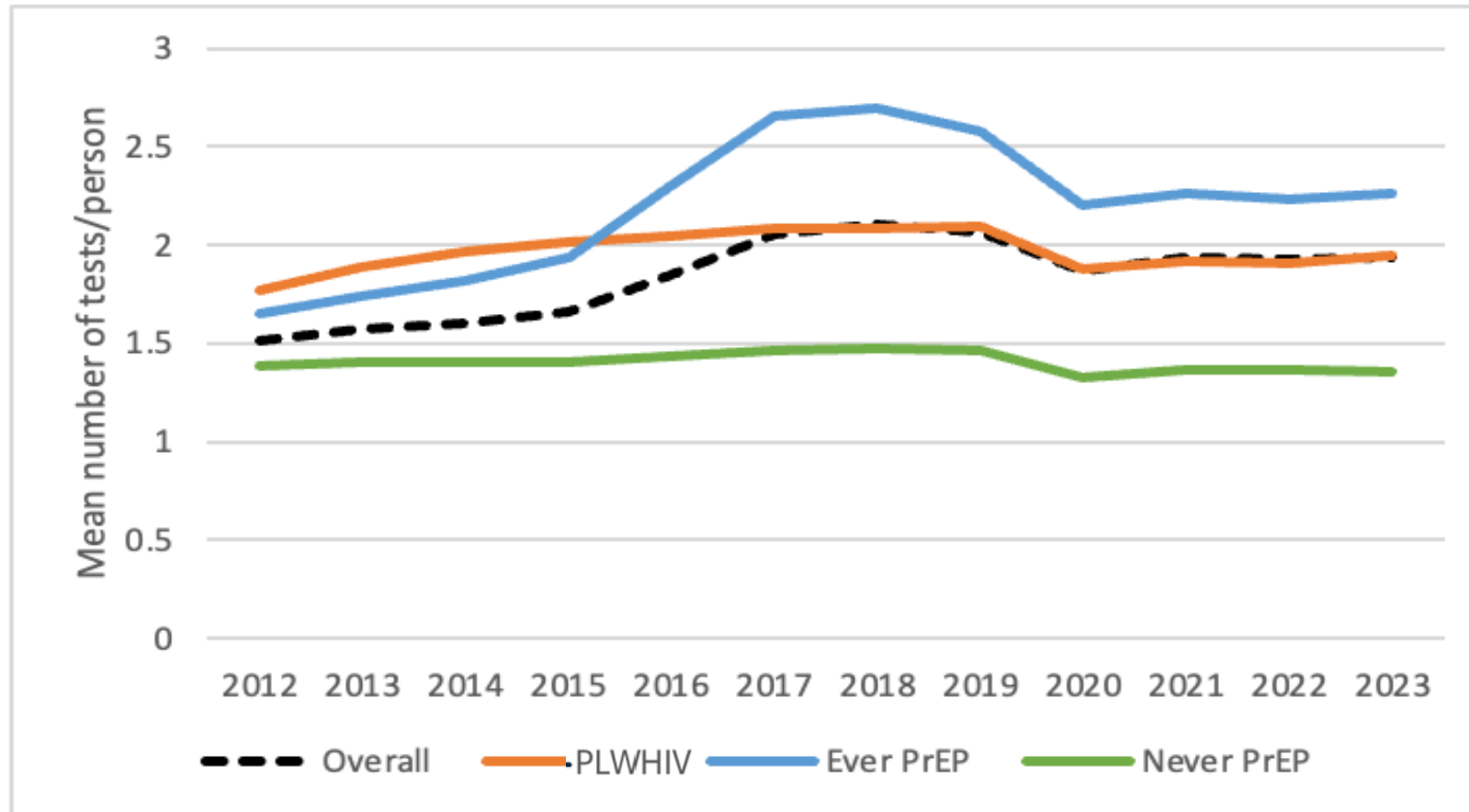


Gonorrhoea testing rate

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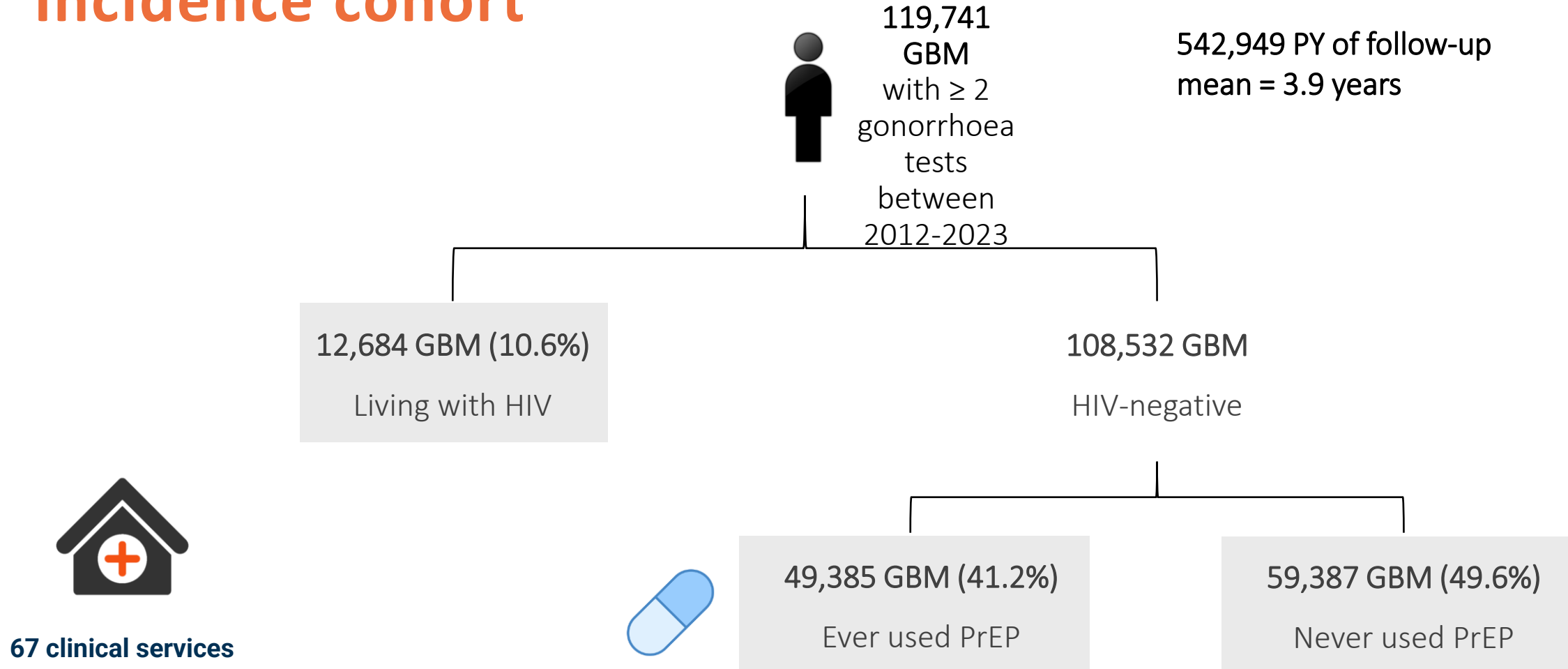


Gonorrhoea testing rate Mean tests per person

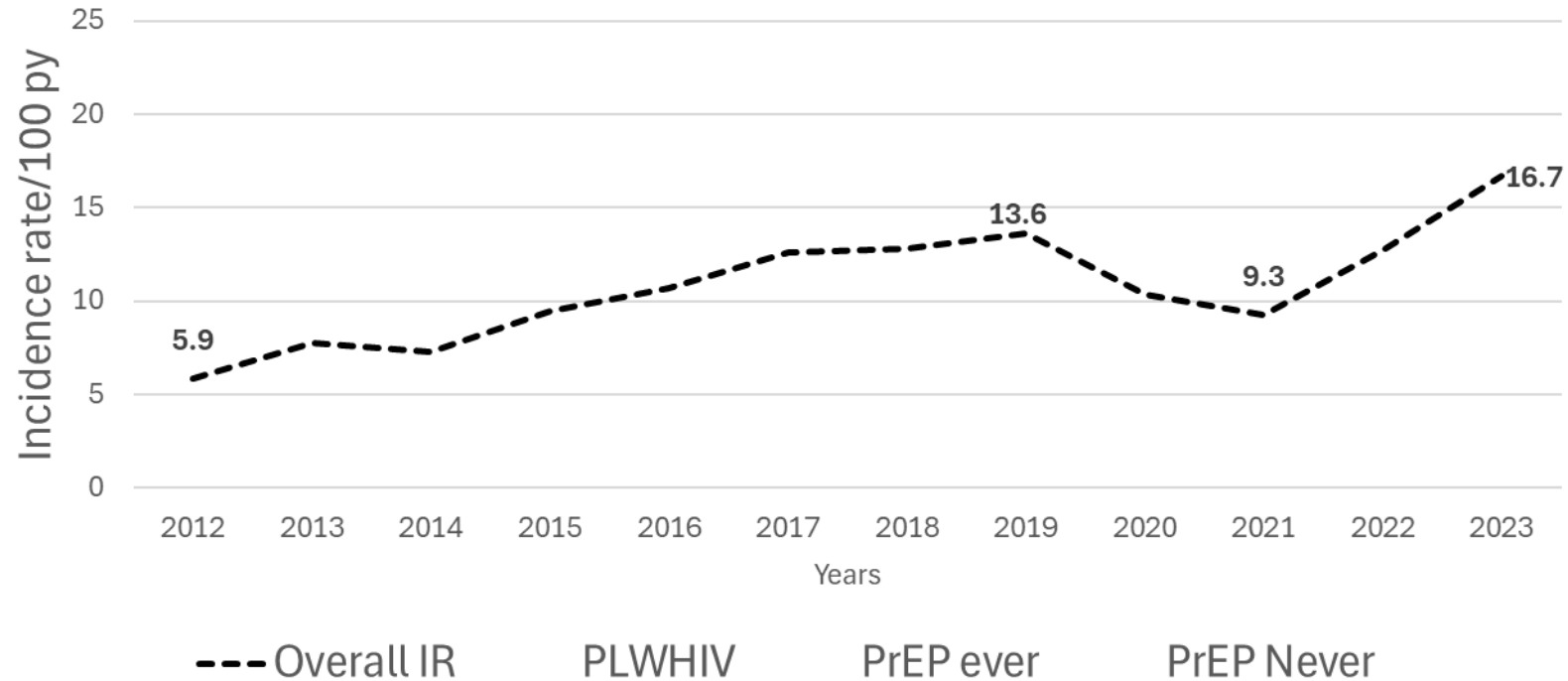


1.4 - 2.2
tests per/year

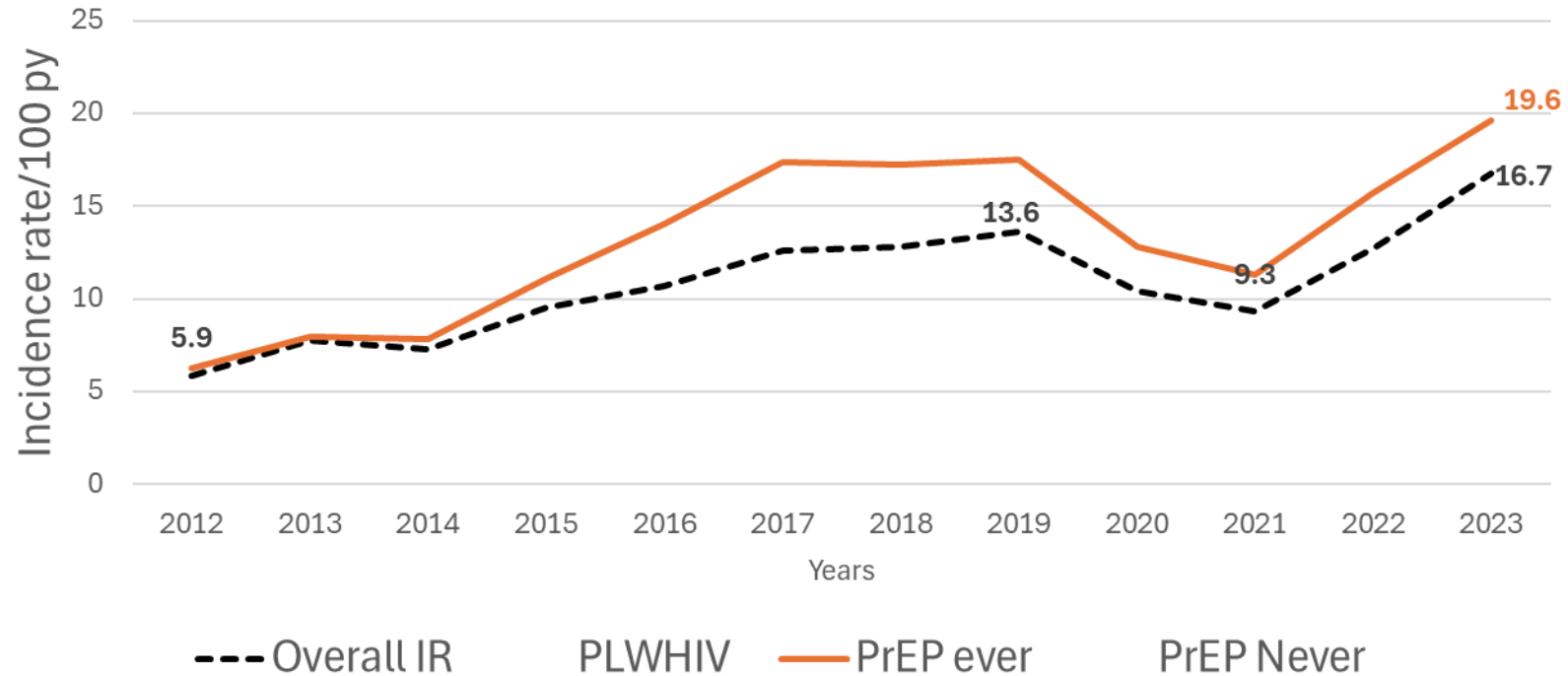
Incidence cohort



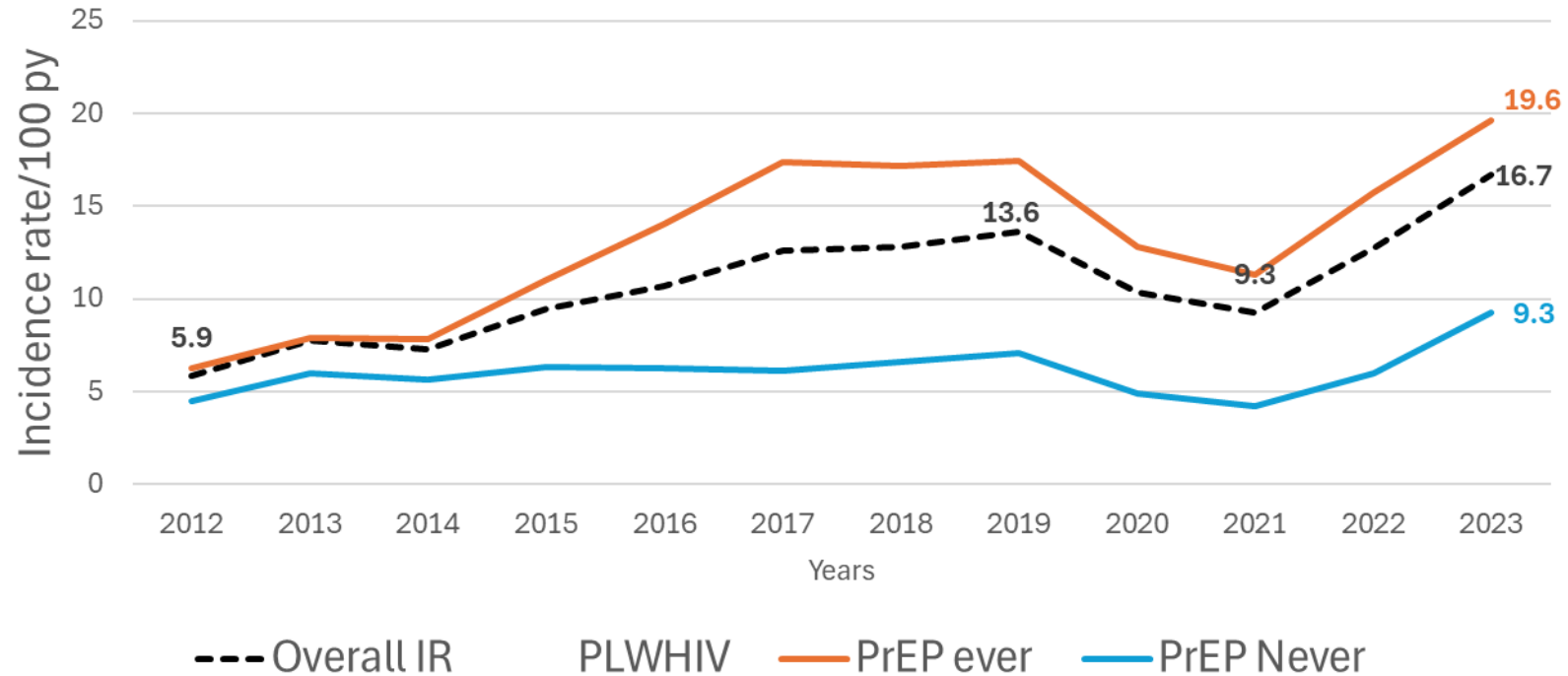
Gonorrhoea incidence by PrEP/HIV status



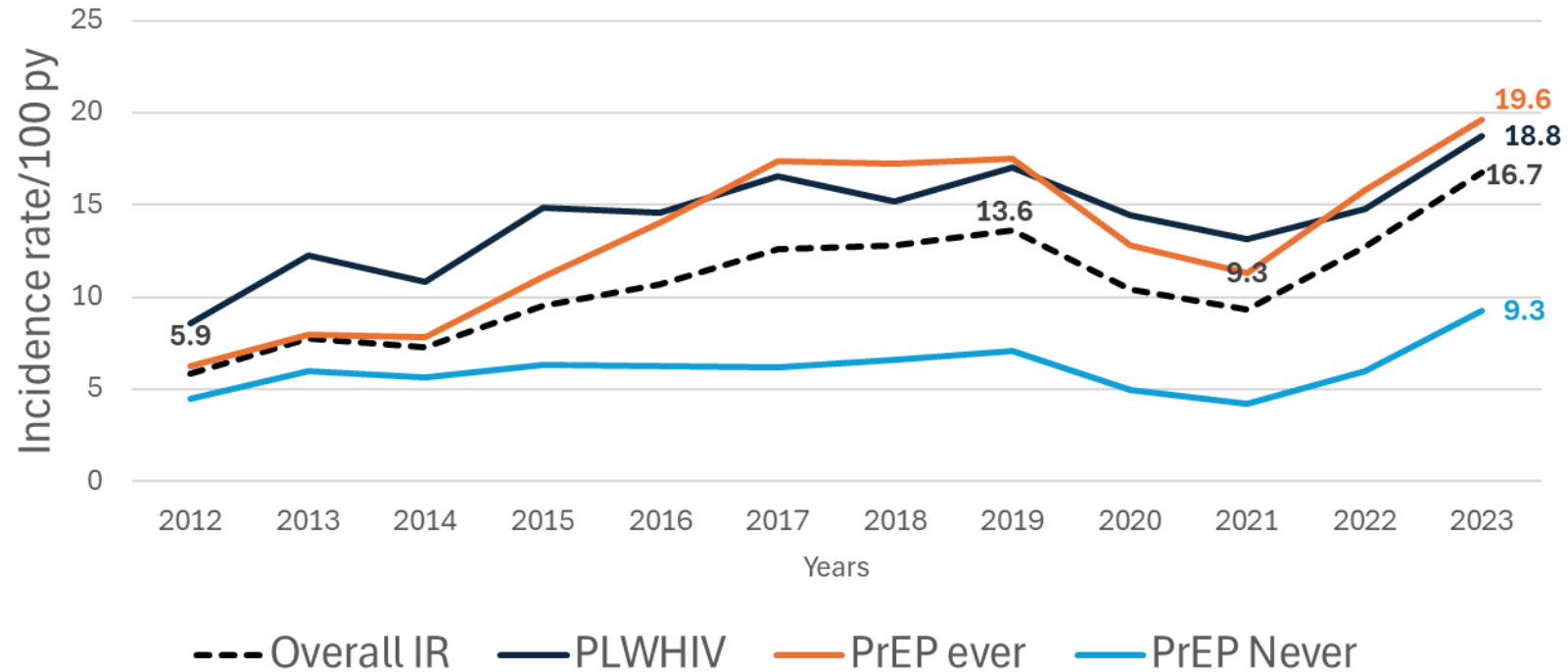
Gonorrhoea incidence by PrEP/HIV status



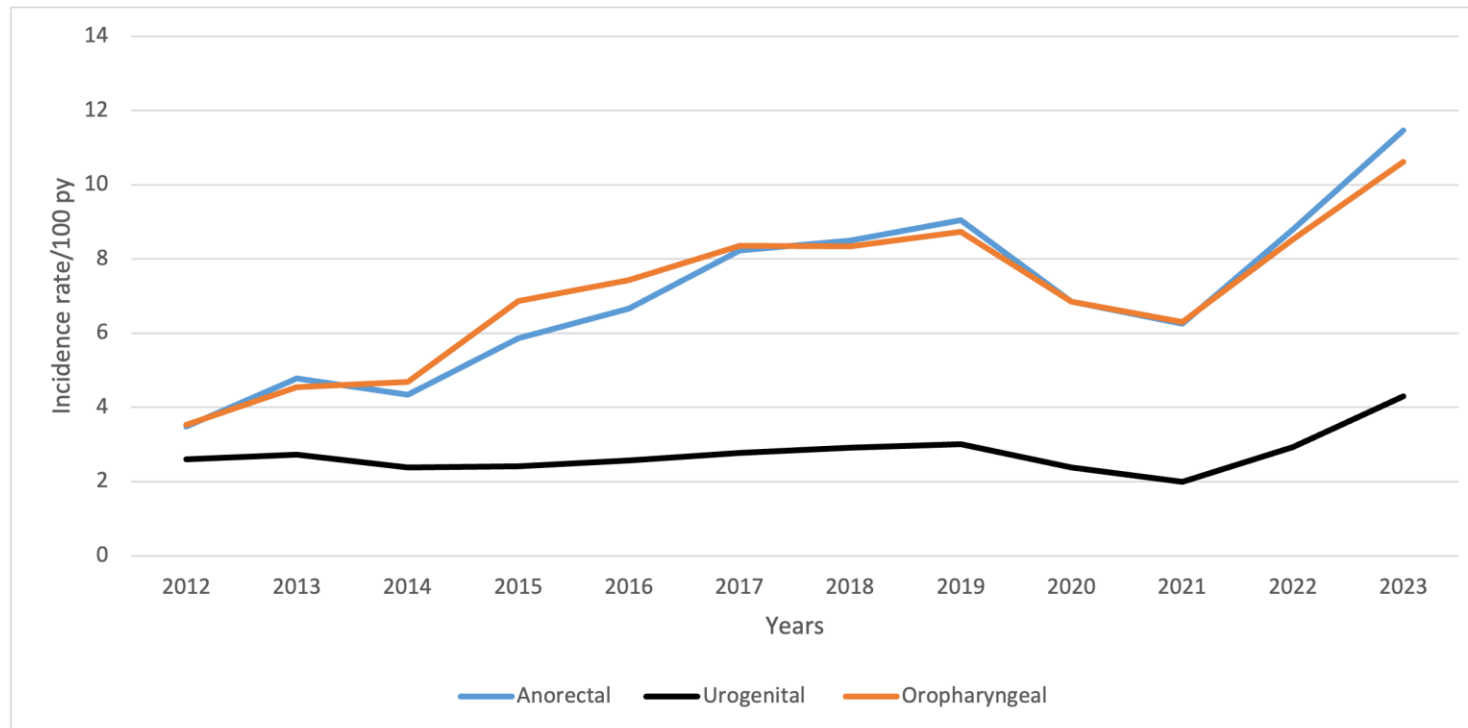
Gonorrhoea incidence by PrEP/HIV status



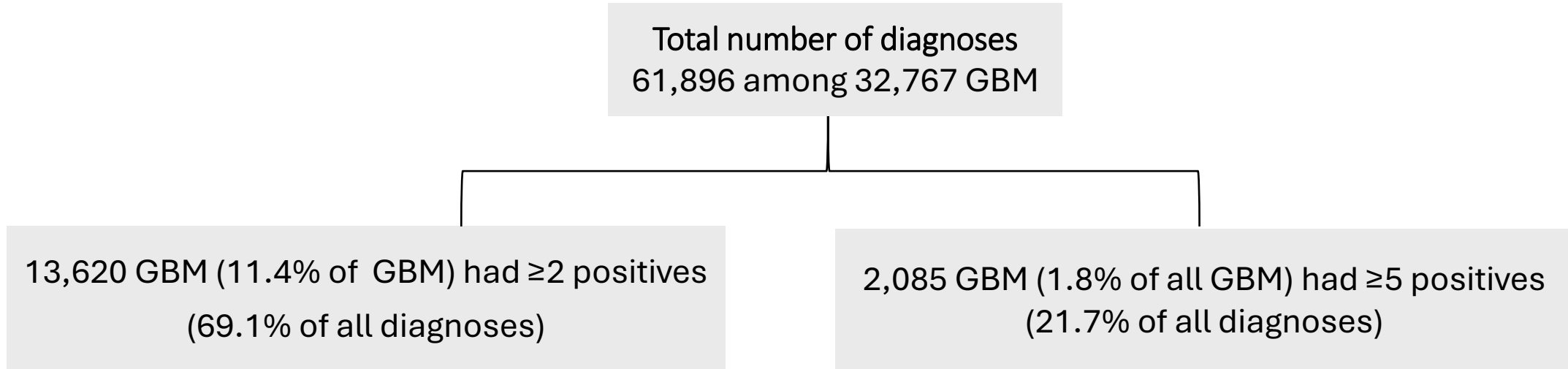
Gonorrhoea incidence by PrEP/HIV status



Gonorrhoea incidence by anatomic site



Gonorrhoea diagnosis



Multivariable Poisson model exploring factors associated with gonorrhoea

After adjusting for country of birth, age, clinic type and Indigenous status

Living with HIV aIRR = 3.05 (95%CI: 2.97-3.31)

Ever prescribed PrEP aIRR = 2.40 (95%CI: 2.35-2.45)

Summary

Converging incidence trends among GBM with HIV and GBM using PrEP

- Gonorrhoea increased three-fold over the 10 years spanning PrEP implementation
- Gonorrhoea incidence in ever PrEP cohort is now greater than in men living with HIV
- Incidence was increasing among PrEP cohort prior to PrEP introduction

Moderate increases in gonorrhoea testing driven by PrEP users

- Testing frequency have not increased among PLWHIV and non-PrEP users
- Testing has not reached the recommended 4 times per year

Diagnoses are concentrated among men with high rates of reinfection

Discussion

Implications for gonorrhoea control

- Current testing levels have not been adequate to curtail gonorrhoea in GBM
 - Incidence increased faster than testing rate, suggesting increased transmission
 - The majority of cases are pharyngeal & rectal (often asymptomatic)
- ↓
- Reduced testing may lead to increased prevalence.
 - Modelling needed to understand impact of reduced screening on prevalence & AMR
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- People with previous infection, PrEP users, and men with HIV at highest risk of infection
 - Biomedical interventions such as vaccination can be targeted to maximise benefit

Acknowledgements

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Thank you

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