

# Trends in bacterial STI diagnoses among gay and bisexual men before and after emergent doxyPEP guidance

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**Burnet**  
reach for the many



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.

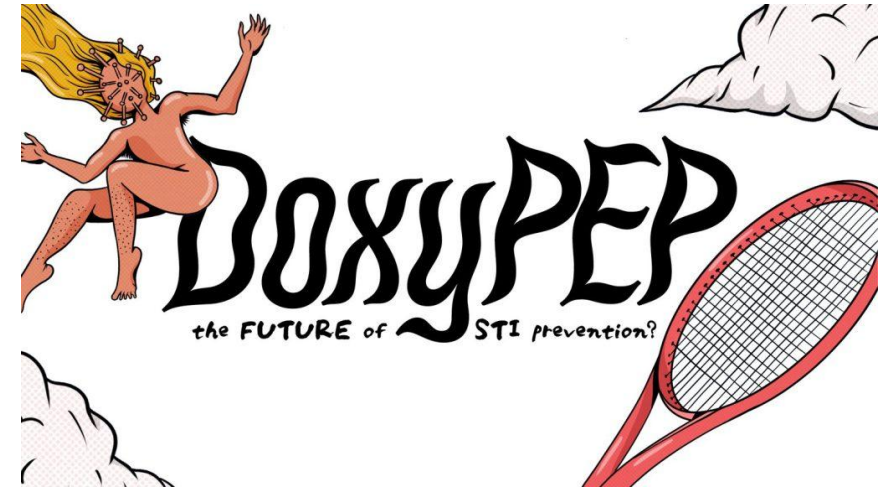


# Disclosures

- Honoraria from Gilead Sciences Ltd.

# Background

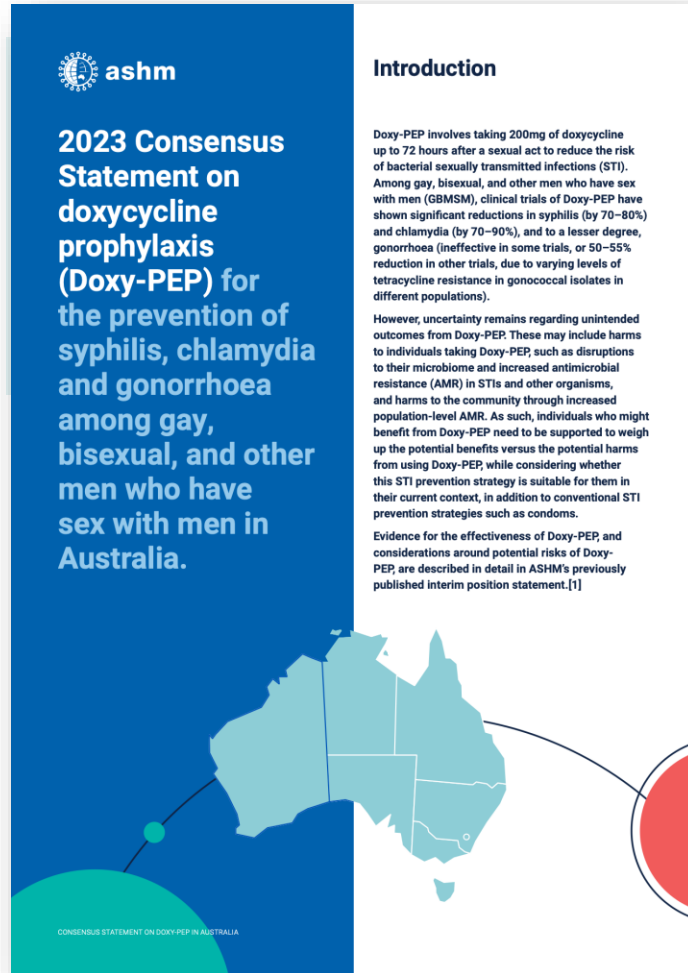
- DoxyPEP reduced syphilis & chlamydia in large RCTs of gay and bisexual men and transgender women<sup>1,2</sup>
- **DoxyPEP Consensus Statement released in 2023**
- US data suggest doxyPEP implementation is already having a significant population-level effect
- Few data are available on population-level uptake and impact of doxyPEP in Australia



## Aim

- Explore population-level changes in bacterial STIs among gay and bisexual men in Australia following the release of emergent doxyPEP guidance

# Australian consensus statement



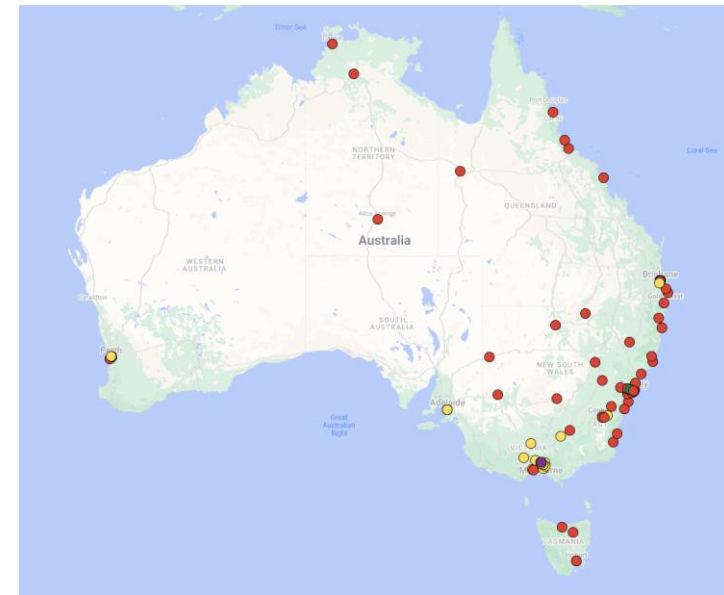
- 1 Doxy-PEP should be considered primarily for the prevention of syphilis in GBMSM who are at risk of this STI, although for some individuals the reduction in chlamydia, and the lesser reduction of gonorrhoea might be important. Some stakeholders held the view that Doxy-PEP should be considered *only* for the prevention of syphilis in GBMSM, for the reasons listed above.
- 2 While evidence for appropriate suitability criteria for commencing Doxy-PEP is limited, the following might be appropriate for considering doxy-PEP until further data emerges:
  - GBMSM with a recent syphilis diagnosis (e.g., within the previous six or twelve months); or
  - GBMSM with two or more recent other (i.e., not syphilis) bacterial STI diagnoses (e.g., within the previous six or twelve months); or
  - GBMSM who identify an upcoming period of heightened STI risk, for example, attendance at a sex event, or holiday plans that likely involve sexual activity with multiple casual sexual partners; or
  - GBMSM with concurrent male and cisgender female sexual partners or other sexual partners with a uterus, recognising the additional health risks posed by chlamydia, gonorrhoea and syphilis for people with a uterus.
  - GBMSM who present for HIV PEP can also consider Doxy-PEP, although the indications for HIV PEP do not necessarily indicate a need for Doxy-PEP.

# 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
- Line-listed data for HIV, STIs, viral hep, Rx, Dx, visits



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

# Data source



## Limitation:

- While doxycycline prescriptions are captured, data on **prescription reason** not well recorded
- DoxyPEP often **prescribed off-label**, with clinicians **not recording intended use** in EMS
- **High variability** in the amount prescribed and number of refills (no formal clinical guidelines)
- High levels of **informal use** (i.e., doxycycline not prescribed by a doctor)

Unable to classify individuals  
in ACCESS as doxyPEP users



Ecological analysis  
(with sensitivity analyses)

# Methods *Interrupted time series*

**Cohort:** Gay and bisexual men attending ACCESS clinics

**Data:** All positive diagnoses of

- Syphilis (newly identified case of infectious syphilis)
- Chlamydia (positive NAAT)
- Gonorrhoea (positive NAAT)



**Study period:** 1<sup>st</sup> January 2022 - 31<sup>st</sup> December 2024 (3 years)

**Interrupted time series:** Segmented linear regression

- Number of new STI diagnoses per calendar month
- Estimated relative change in diagnoses at **December 2024** (last time point)
- Compared **fitted value of observed data** vs **expected value under counterfactual scenario** of no doxyPEP guidance



# Methods *Interruptions*

**Interruption 1:** Publication of US DOXYPEP study in NEJM (Leutkemeyer et al)

Coincided with community health promotion about doxyPEP in US & Australia

Published April 5<sup>th</sup> 2023

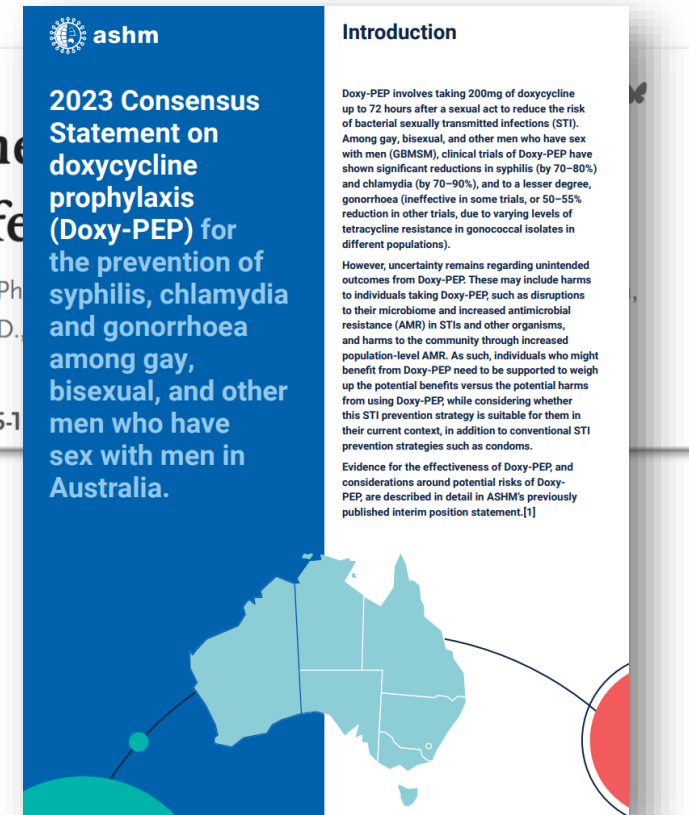
Interruption set at **April 2023**



**Interruption 2:** Release of Australian DoxyPEP Consensus Statement

Published September 27<sup>th</sup> 2023

Interruption set at **October 2023**



# Methods *Sensitivity analyses*

## Main analysis :

- All STI diagnoses among GBM attending an ACCESS clinic

## Sensitivity analysis 1:

- Only include diagnoses among GBM with a recent (past 24 months) STI
- **-> Proxy for doxyPEP eligibility criteria**

## Sensitivity analysis 2:

- Only include diagnoses among GBM with any doxycycline prescription during the study period
- **-> Closer to cohort of GBM prescribed doxyPEP at an ACCESS clinic**

# Results

## STI diagnoses



**8,075** syphilis diagnoses

**40,773** chlamydia diagnoses

**36,074** gonorrhoea diagnoses

## Cohort



**36,027 GBM**  
with at least one  
STI diagnosis

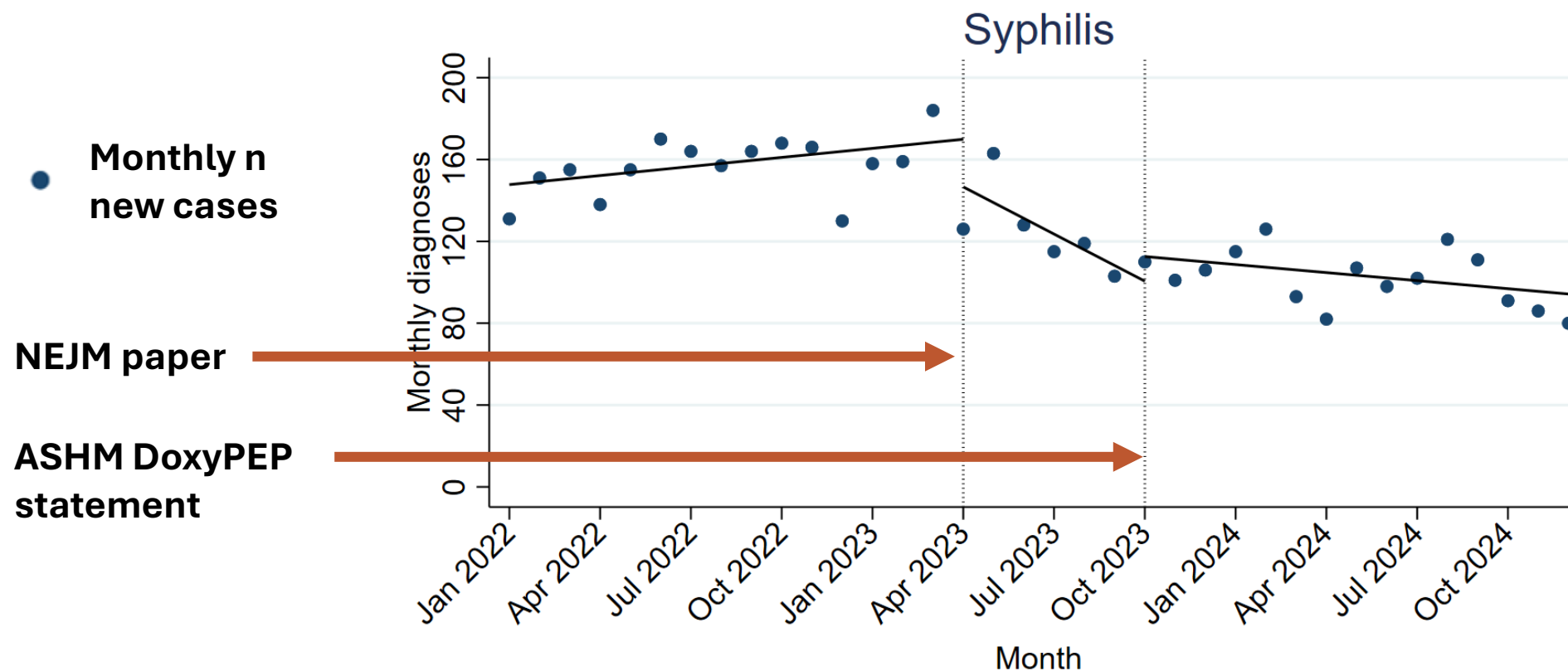
## Clinics



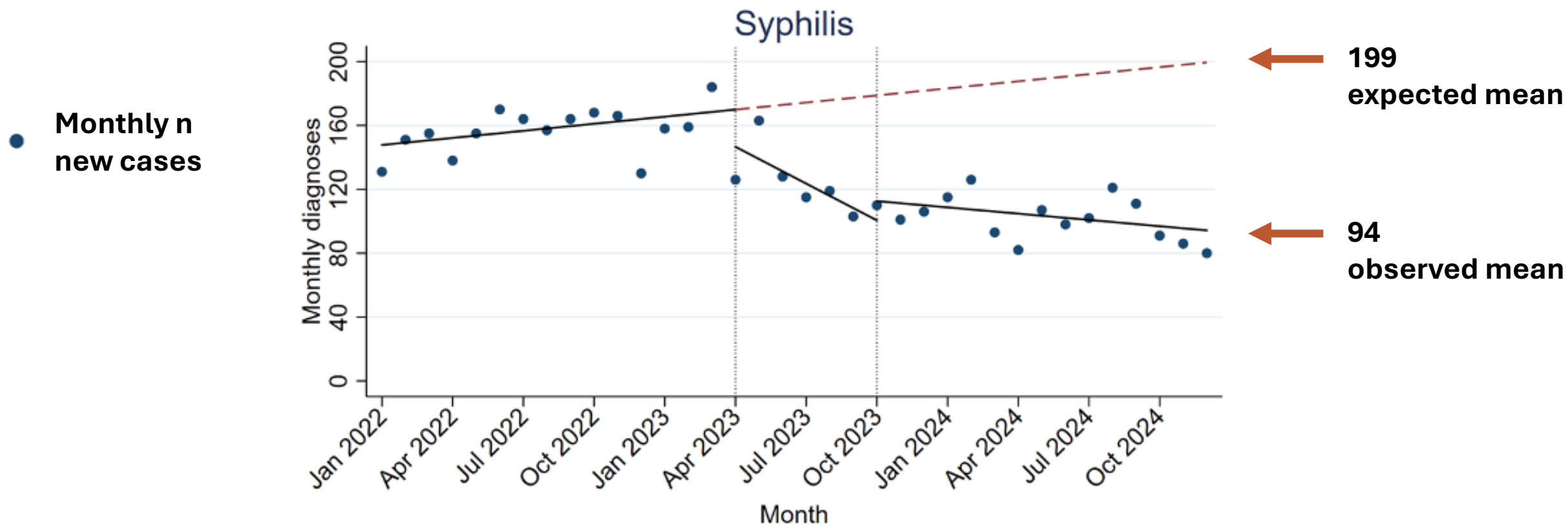
**27 services**

58% SHCs  
42% GPs

# Results *Monthly syphilis diagnoses*

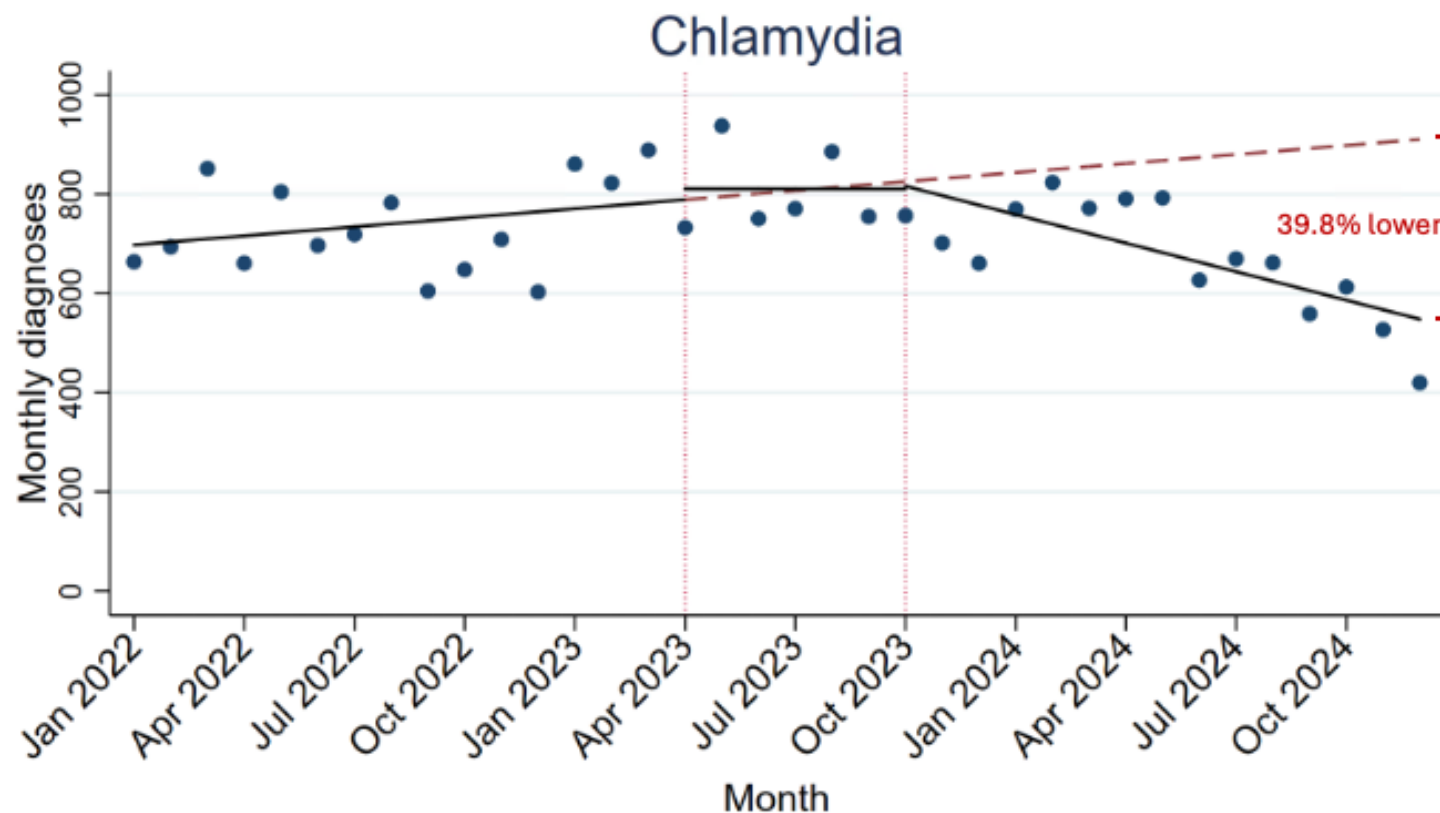


# Results *Monthly syphilis diagnoses*



# Results *Monthly chlamydia diagnoses*

● Monthly n new cases

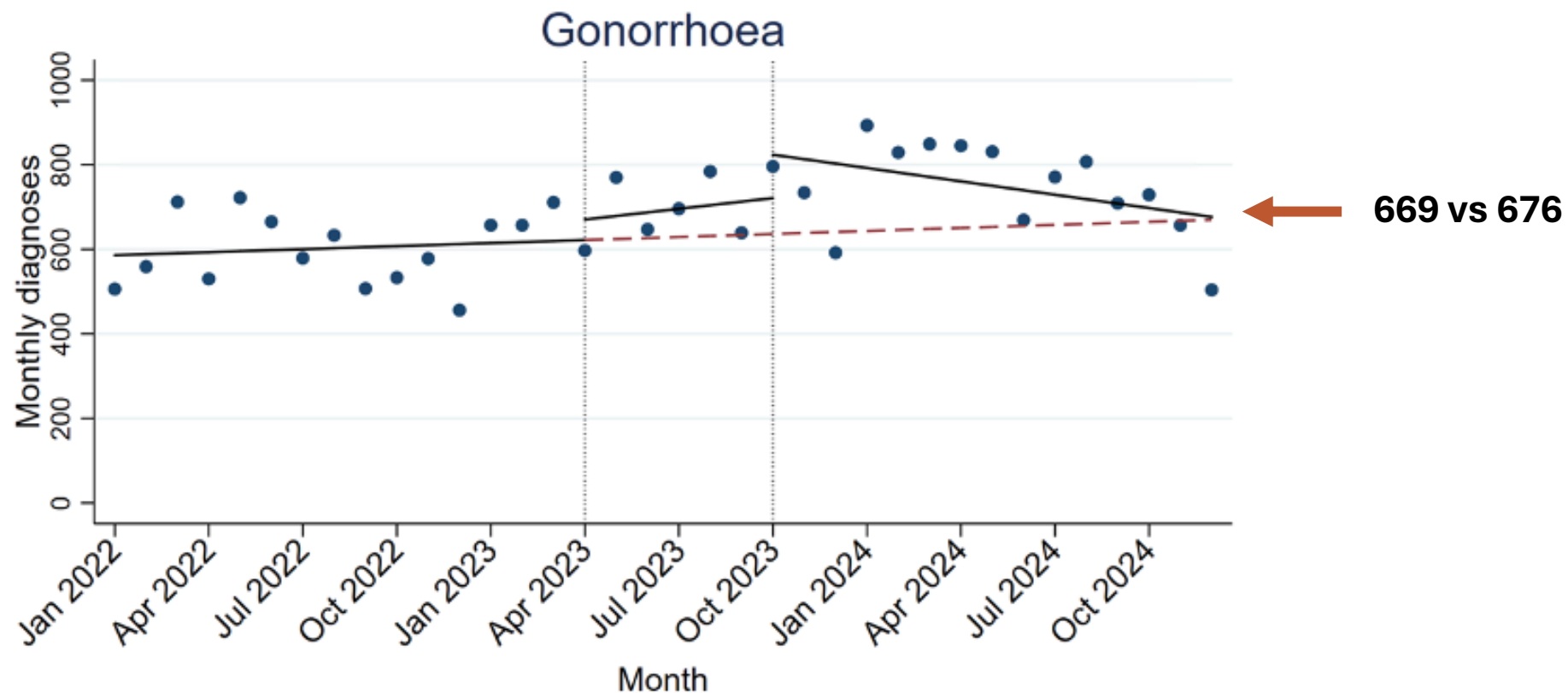


910  
expected mean

548  
observed mean

# Results *Monthly gonorrhoea diagnoses*

● Monthly n  
new cases



# Results    *Sensitivity analyses*

Counterfactual vs observed (relative reduction)  
at December 2024

	Syphilis	Chlamydia	Gonorrhoea
Main analysis	199 vs 94 (-52.7%)	910 vs 548 (-39.8%)	669 vs 676 (+1.0%)



# Results    *Sensitivity analyses*

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Sensitivity 1: GBM with >1 STI in past 24 months	104 vs 44 (-57.7%)	458 vs 293 (-36.0%)	312 vs 334 (+7.1%)

# Results *Sensitivity analyses*

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<b>Main analysis</b>	199 vs 94 <b>(-52.7%)</b>	910 vs 548 <b>(-39.8%)</b>	669 vs 676 (+1.0%)
<b>Sensitivity 1: GBM with &gt;1 STI in past 24 months</b>	104 vs 44 <b>(-57.7%)</b>	458 vs 293 <b>(-36.0%)</b>	312 vs 334 (+7.1%)
<b>Sensitivity 2: GBM with &gt;1 doxycycline prescription (any indication) in study period</b>	127 vs 54 <b>(-57.5%)</b>	888 vs 509 <b>(-42.7%)</b>	494 vs 454 (-8.4%)

# Discussion

## Syphilis & chlamydia among gay and bi men have curtailed following doxyPEP guidance

- We estimated a relative reduction of 57% for syphilis and 40% for chlamydia
- Impact may have been earlier for syphilis than for chlamydia
- Similar to population-level data from San Francisco showing similar trends<sup>1</sup>

## DoxyPEP use increased over the study period

- GBQ+ Periodic Survey in 2025<sup>2</sup> - 13% of GBM in Melbourne had used doxyPEP in past 6m
- Survey of 2,095 GBM in Australia in July-November 2024 found that (Latt et al)  
**15.4% had ever used doxyPEP** and **14.6% had used doxyPEP in the past year**

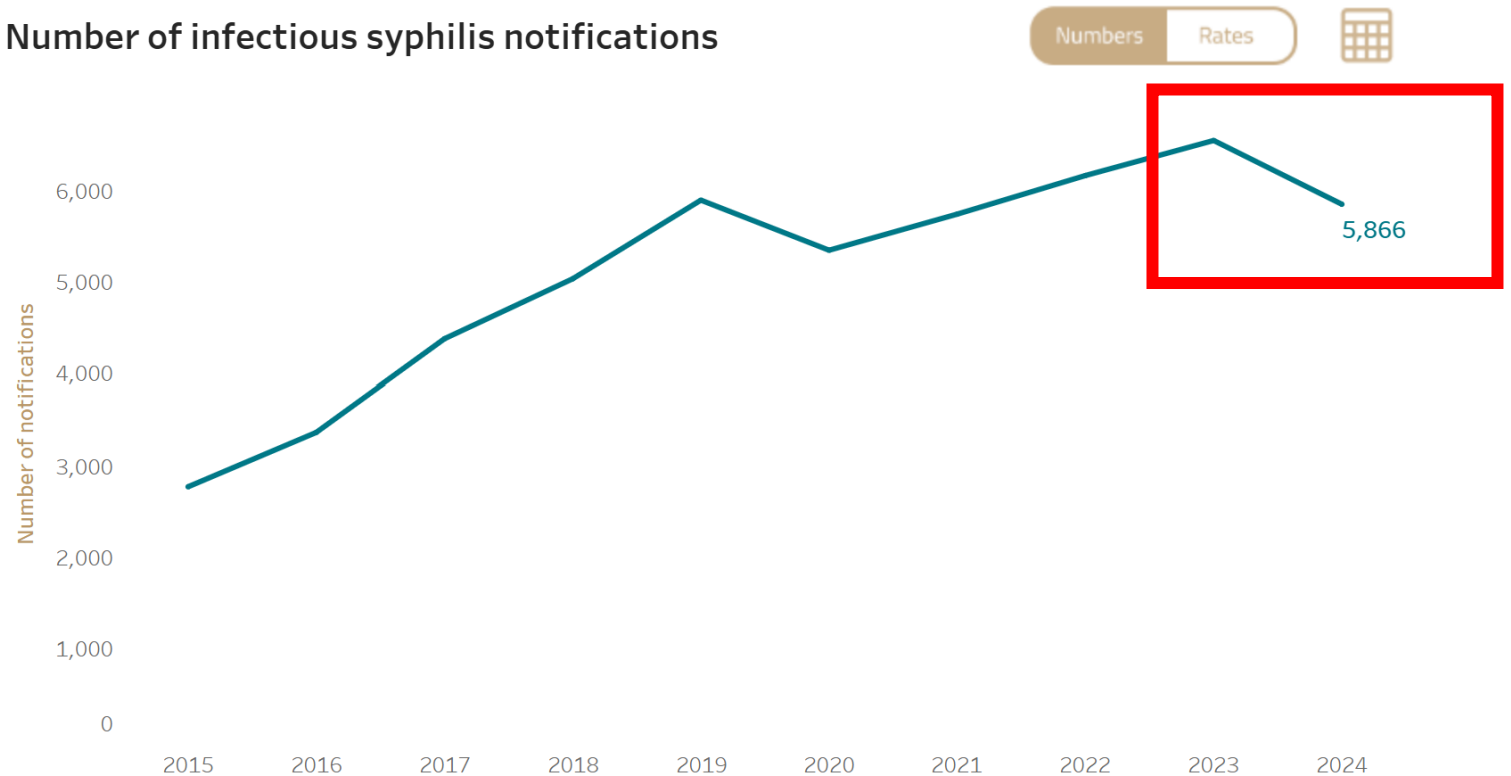
## Data suggest doxyPEP may already be having an impact on population-level STIs

## Need for ongoing surveillance including changes in gonorrhoea AMR

# Next steps

- Larger model incorporating testing rates
- Compare to trends in non-GBM populations
- Explore trends in NNDSS notification data
- Work with ACCESS sites to capture self-reported doxyPEP use

Number of infectious syphilis notifications



# Acknowledgements

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# Thank you

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