



# Sexually Transmissible Infections in the Era of HIV PrEP

Dr Phillip Read  
Director, Kirketon Road Centre, Sydney  
ASHM conference 2018

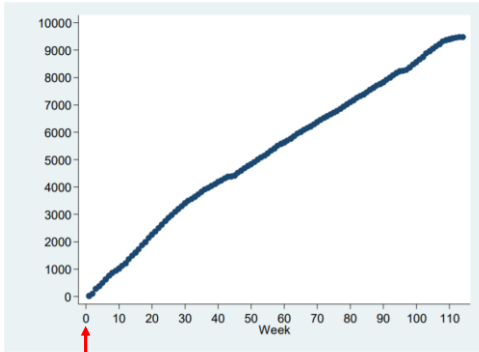


## Conflicts of interest

- Nil in relation to PrEP
- Speaking fees and honoraria- Gilead Sciences, Abbvie, MSD
- Research funding Gilead

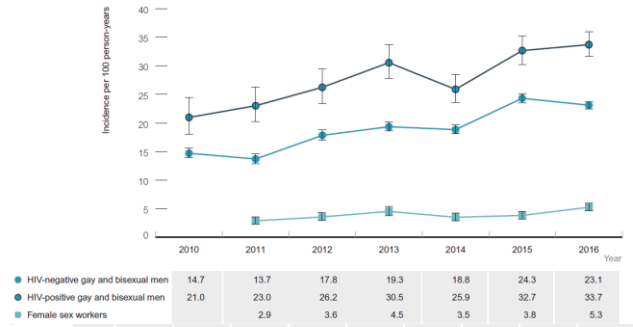


# So what's the issue?... 16-18k taking PrEP in Australia



10,000 PrEP users in NSW- most since March 2016..... Est. 13% of GBM in state

Figure 3.2.12 Gonorrhoea incidence in sexual health clinic attendees, 2010–2016, by population



Incidence of gonorrhoea, and syphilis notifications continue to rise But have been steadily doing so many years before PrEP uptake

NSW HIV data report June 2018, Kirby Surveillance report 2017



# How might PrEP impact on STIs?

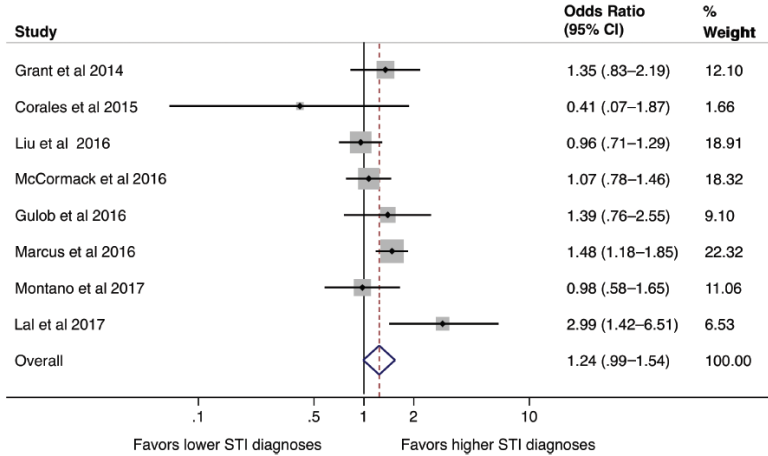
Table 16: Anal intercourse and condom use with casual partners

	2014 n (%)	2015 n (%)	2016 n (%)	2017 n (%)	2018 n (%)	Change from 2017 (p-value)	Trend over time (p-value)
No anal intercourse	209 (17.6)	363 (19.2)	296 (16.7)	316 (16.5)	320 (18.3)	ns	ns
Always uses a condom	552 (46.5)	791 (41.9)	724 (40.7)	583 (30.4)	463 (26.5)	Decrease <.01	Decrease <.001
Sometimes does not use a condom	427(35.9)	734 (38.9)	757 (42.6)	1,017 (53.1)	965 (55.2)	ns	Increase <.001
<b>Subcategories of men who did not always use condoms:</b>							
HIV-positive on treatment with undetectable viral load	59 (5.0)	114 (6.0)	109 (6.1)	148 (7.7)	135 (7.7)	ns	Increase <.001
HIV-negative on PrEP	7 (0.6)	27 (1.4)	99 (5.6)	328 (17.1)	327 (18.7)	ns	Increase <.001
HIV-positive not on treatment or detectable viral load	16 (1.4)	22 (1.2)	13 (0.7)	6 (0.3)	14 (0.8)	ns	Decrease <.01
HIV-negative/untested not on PrEP (only insertive anal intercourse)	112 (9.4)	205 (10.9)	165 (9.3)	169 (8.8)	155 (8.9)	ns	ns
HIV-negative/untested not on PrEP (any receptive anal intercourse)	233 (19.6)	366 (19.4)	371 (20.9)	366 (19.1)	334 (19.1)	ns	ns
<b>Total</b>	<b>1,188 (100)</b>	<b>1,888 (100)</b>	<b>1,777 (100)</b>	<b>1,916 (100)</b>	<b>1,748 (100)</b>		

Note: This table only includes data from men who reported that they had any casual male partners in the six months prior to the survey.



# Global: Meta-analysis 8 studies with STI diagnoses



Overall OR 1.24 for STI if taking PrEP

- Variability in measurements
- Variability in sites tested
- Stronger association with later data (≥2016)

Traeger et al CID 2018;67(5):676-86



# Specific STIs in meta-analysis

Outcome assessment

Outcome	n	OR (95% CI)	p-value
<b>Infection<sup>a</sup></b>			
Syphilis	6	1.12 (.86-1.47)	.41
Chlamydia <sup>a</sup>	5	1.23 (1.00-1.51)	.051
Rectal	4	1.59 (1.19-2.13)	.002
Urethral	3	0.96 (.61-1.51)	.86
Pharyngeal	2	0.93 (.53-1.62)	.80
Gonorrhoea <sup>a</sup>	5	1.13 (.78-1.64)	.52
Rectal	4	1.21 (.78-1.88)	.40
Urethral	3	1.61 (.45-5.78)	.47
Pharyngeal	3	1.20 (.88-1.64)	.26
<b>Site<sup>a</sup></b>			
Rectal	6	1.39 (1.03-1.87)	.03
Urethral	5	1.11 (.64-1.92)	.71
Pharyngeal	3	1.13 (.79-1.60)	.51

Rectal CT

Any rectal STI

Syphilis/NG not significant

Traeger et al CID 2018;67(5):676-86



# Impact on rectal chlamydia

**Table 3. Risk of sexually transmitted infections among preexposure prophylaxis patients in the 12 months following preexposure prophylaxis initiation versus 12 months prior to preexposure prophylaxis.**

	IRR	95% CI	aIRR <sup>a</sup>	95% CI
<i>Neisseria gonorrhoeae</i>				
Anal	1.6	0.73–3.53	1.29	0.57–2.89
Oral	1.08	0.49–2.37	0.85	0.38–1.90
Urethral	0.78	0.29–2.09	0.60	0.22–1.64
Any site	1.35	0.79–2.31	1.05	0.60–1.82
<i>Chlamydia trachomatis</i>				
Anal	<b>2.13</b>	<b>1.16–3.94</b>	1.78	0.95–3.34
Oral	1	0.20–4.96	0.75	0.15–3.81
Urethral	2.33	0.90–6.07	1.85	0.70–4.91
Any site	<b>2.10</b>	<b>1.25–3.52</b>	<b>1.74</b>	<b>1.02–2.96</b>
Syphilis	1.78	0.79–4.02	1.47	0.64–3.40
All combined	<b>1.72</b>	<b>1.22–2.41</b>	1.39	0.98–1.96

Before and after study British Columbia n=109

Nguyen et al AIDS 2018, 32:523–530

Anatomic site	12 months prior to PrEP initiation		At PrEP initiation (± 30 days)		During PrEP use <sup>a</sup>	
	Mean	SD	Mean	SD	Mean	SD
Pharyngeal gonorrhea	13	7.1	33	18.0	34	18.6
Rectal gonorrhea	27	14.8	51	27.9	32	17.5
Urethral gonorrhea	15	8.2	12	6.6	17	9.3
Pharyngeal chlamydia	5	2.7	3	1.6	8	4.4
<b>Rectal chlamydia</b>	<b>21</b>	<b>11.5</b>	<b>29</b>	<b>15.8</b>	<b>53</b>	<b>29.0</b>
Urethral chlamydia	11	6.0	6	3.3	15	8.2

Before and after Seattle n=183

Impact of test frequency important

Questions:

Why rectal CT?

Relative importance of condoms vs NG/syphilis?

Different predominant mode of transmission?

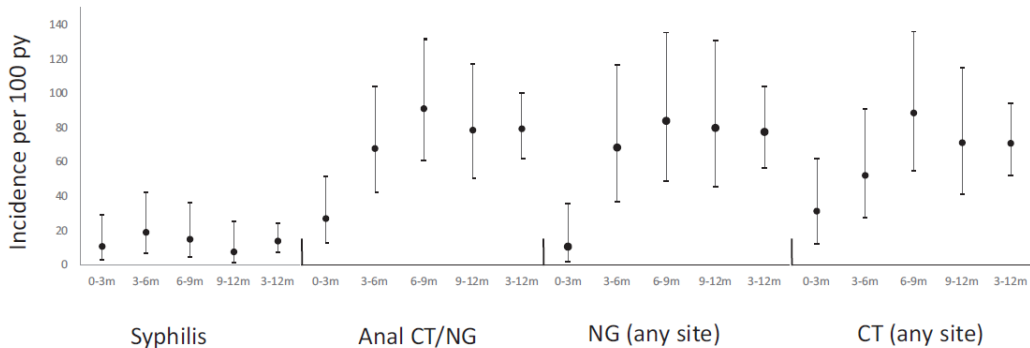
Why less impact on other sites for CT?

Montano et al AIDS and Behaviour 2018 online



# Australasian data

**VicPREP n=114**



Significant increase in proportion diagnosed with STI at months 9-12 vs months 0-3 IRR 2.77. Coincided with condom use changes.

Lal et al AIDS 2017, 31:1709–1714



## Australasian data

Prelude NSW- data presented at IAS 2017

N=317, 381 person years of F/up

Baseline:

16.8% any STI (3.3% anorectal NG, 9.5% anorectal CT, 0.7% syphilis)

Incidence:

- Any STI 92/100py
- 32.4/100py NG
- 50.2/100py CT
- 9.5/100py syphilis

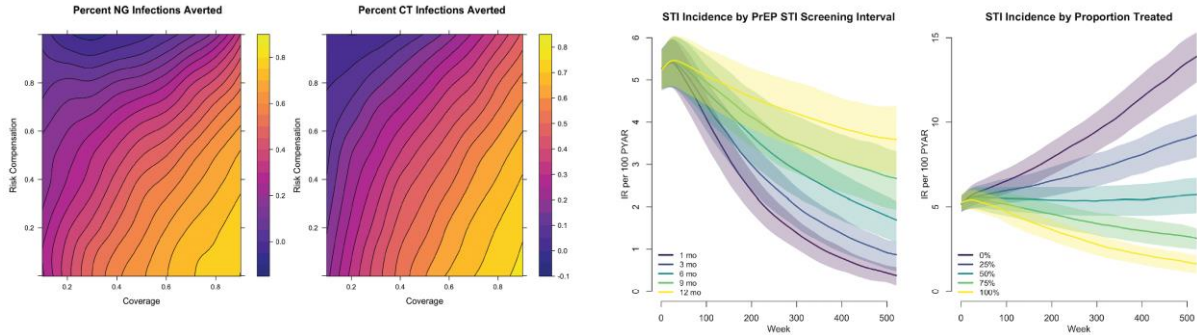
Ref: Zablotska et al IAS 2017 abstract 4296



## Considerations in interpreting data

- PrEP initially targeted and taken up by men at highest STI risk
- STI diagnosis (and presumably treatment) is eligibility criteria
- STI notifications in these groups already increasing
- Need to consider, not just change from baseline, but change in trend
- PrEP users tested for STIs more frequently, thus more likely to detect high incidence low prevalence conditions
- Clinical caseload in PrEP clinics may not reflect changed transmission
- Symptomatic vs asymptomatic infections
- Latest Australasian data to be revealed
  - Weds Session 1100-1230 Grand Lodge 1 PrEPX-Vic and EPIC- NSW

## Could increased STI testing be beneficial?



Modelling study based on US data

Assumptions- 40% PrEP uptake, and 40% risk compensation

Resulted in 40% of NG and CT infections averted, and robust for greater compensation

Depends significantly on baseline testing rate in population.... 4 x per year seems practical maximum

Jenness et al CID 2017;65(5):712–18

## Other possible impacts of PrEP on STIs

- Benefits of engaging in regular care
  - HPV vaccination, HAV vaccination
  - Assessment of drug use
  - Screening for Hep C in those at risk
- Most work is in MSM, but globally impact of PrEP on STIs among heterosexuals unknown
- Little data in Aboriginal populations where STI burden is greatest
- How to incorporate STI testing into PrEP programs where syndromic management is standard of care
- Increased diagnoses= increased treatment= increased opportunities to select resistant strains



## Summary

- Condomless sex increasing among gay men
- STI notifications also increasing, and testing has increased
- Both preceded PrEP, but highly likely PrEP is an additional contributing factor to these trends but proportional role difficult to establish
- STIs do not undermine the efficacy of PrEP
- PrEP has given HIV negative people at risk the opportunity to prevent HIV acquisition without secondary impact on STI prevention
- Although most people would wish to avoid STIs, people may have a greater risk tolerance for STI acquisition than HIV acquisition
- Impact of altered condom use practice for anal sex may have a differential impact on specific STIs
- Small changes can impact on reproductive rate...where is the new equilibrium?



## Future responses

- How to validate the role of condoms for STI prevention alone?
- Consideration of STI pre or post-exposure prophylaxis
- Novel interventions for specific STIs... NG/Mouthwash etc
- Impact of PBS listing and easy importing on linkage to STI testing and care
- Novel testing methods; postal, outreach, home testing, rapid testing
- Understanding the meaning and significance of STIs among gay men in the era of biomedical HIV prevention
- How can we adapt these findings to other affected populations globally (PNG/ SE Asia) and locally?



Thank you

[phillip.read1@health.nsw.gov.au](mailto:phillip.read1@health.nsw.gov.au)

**Acknowledgments:**

Bridget Haire, Rebecca Guy, Hamish McManus, Mark Stoové, Martin Holt,  
Iryna Zablotska-Manos