

# Spatiotemporal expansion of infectious syphilis notifications by sexual exposure groups, NSW, 2017 to 2023

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ASRH Abstracts Session 7D:  
Epi, Prevention & Health  
Promotion: STI Epidemiology

# Disclosure of interest

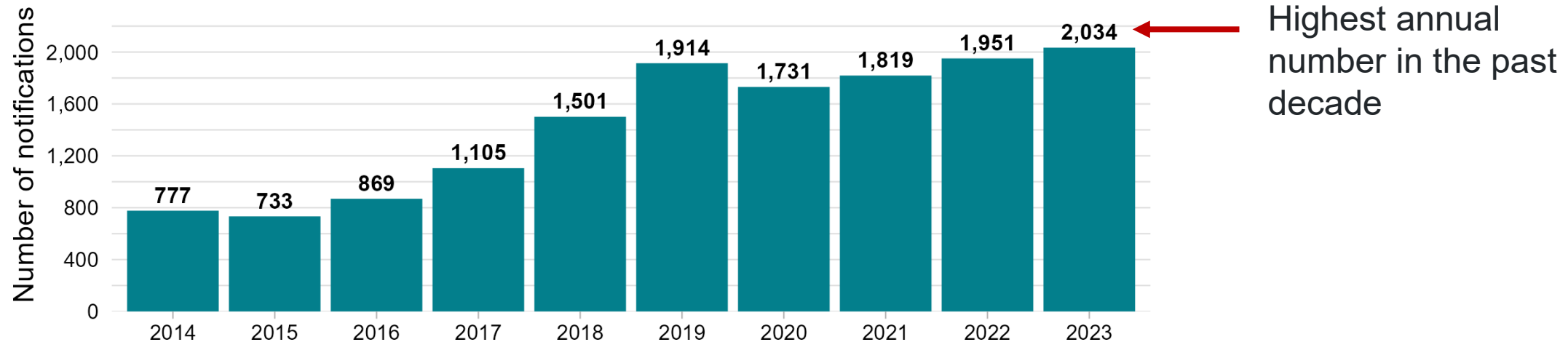


Nil disclosures

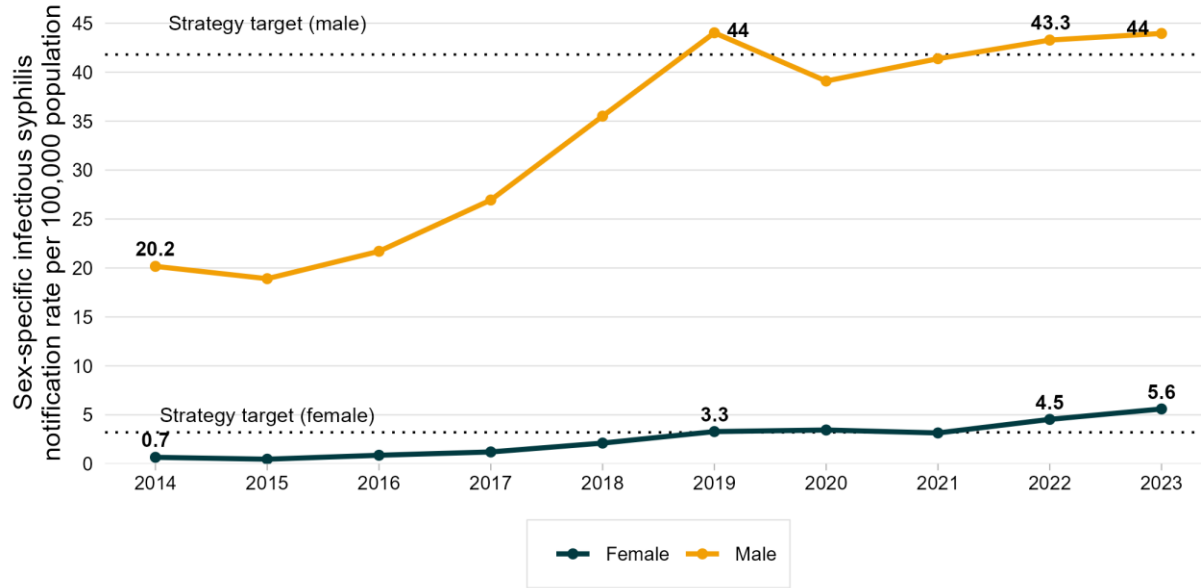
# Syphilis in Australia

- Resurgence in early 2000's in high-income countries, predominately MSM
- Australia declared outbreak among First Nations people in Northern Australia
  - QLD 2011 → NT 2013 → WA 2014 → SA 2016
- In contrast, populated urban areas (Sydney & Melbourne) concentrated MSM epidemic

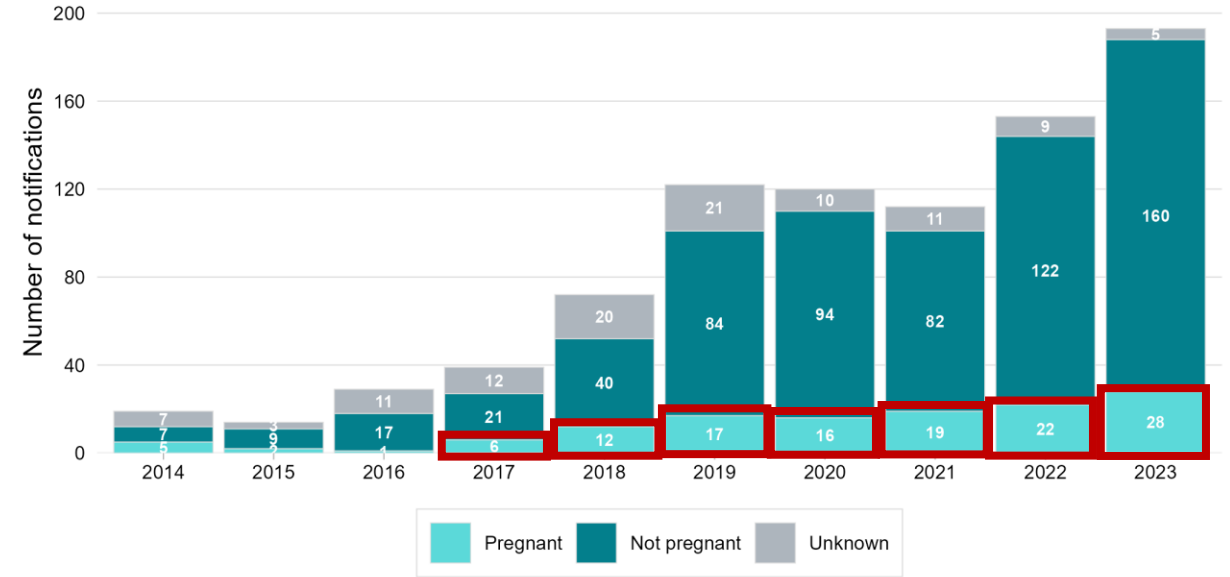
**Number of infectious syphilis notifications, NSW, 2014-2023**



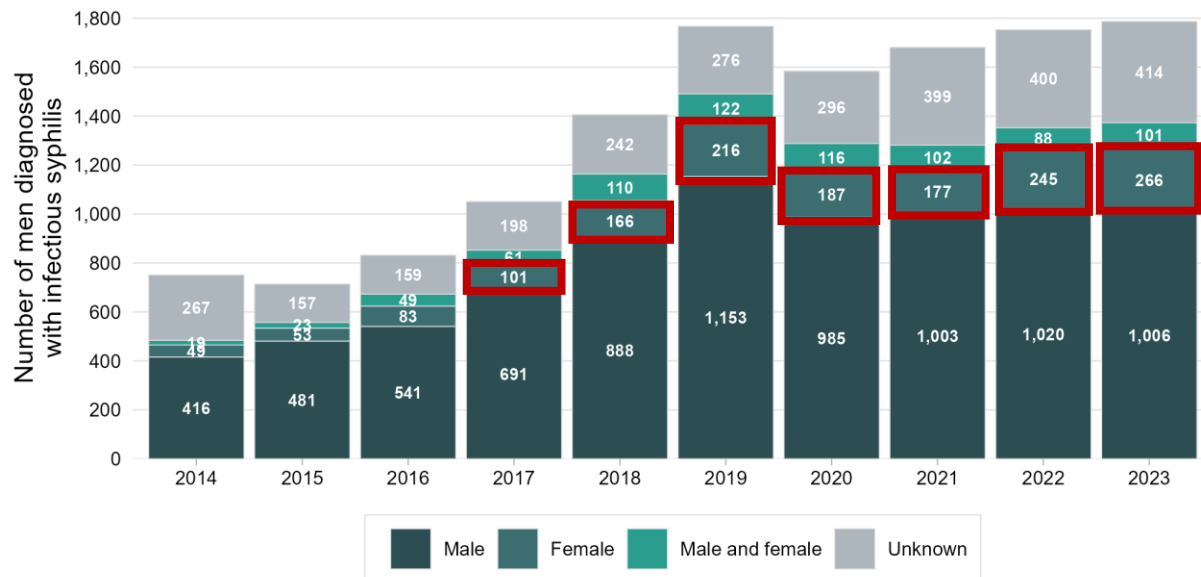
### Sex-specific infectious syphilis notification rate, NSW, 2014-2023



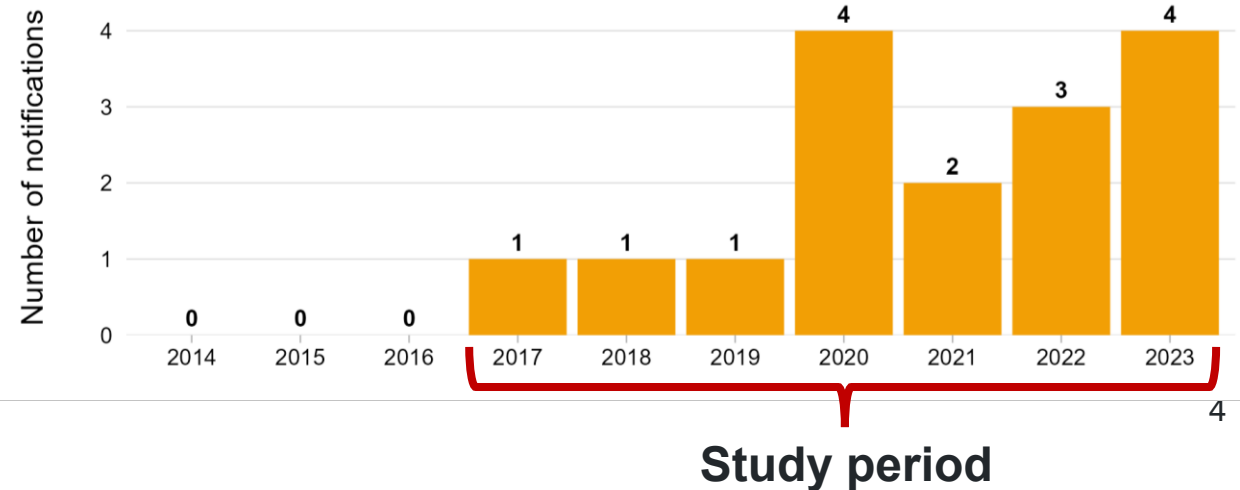
### Number of notification in women of reproductive age, NSW, 2014-2023



### Male reported sexual exposure, NSW, 2014-2023



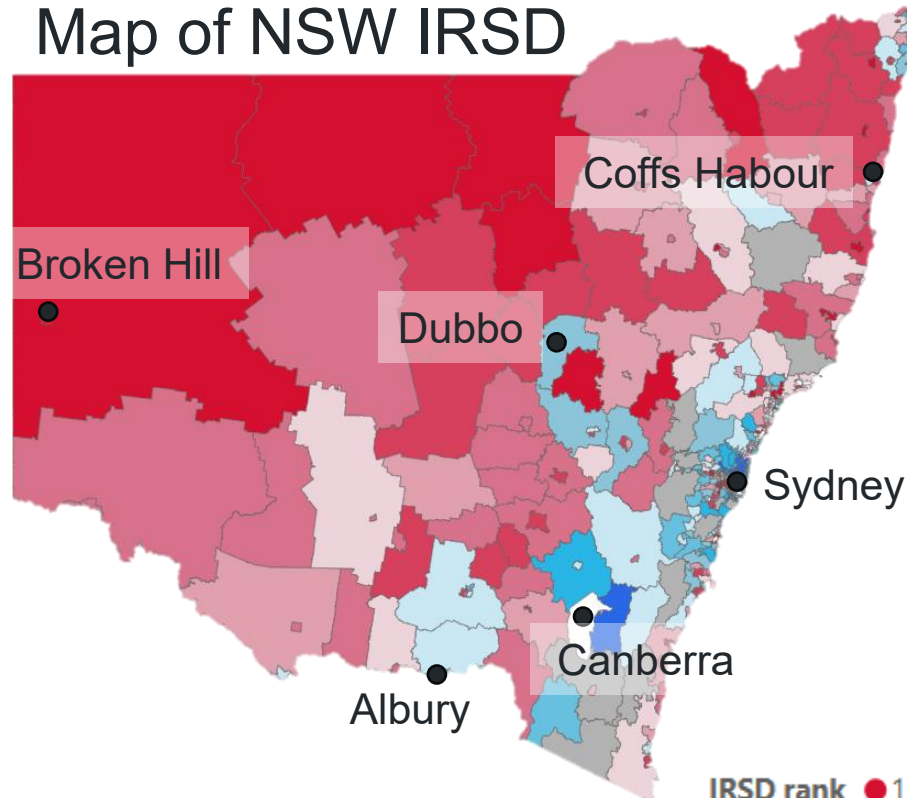
### Number of congenital syphilis notifications, NSW, 2014-2023



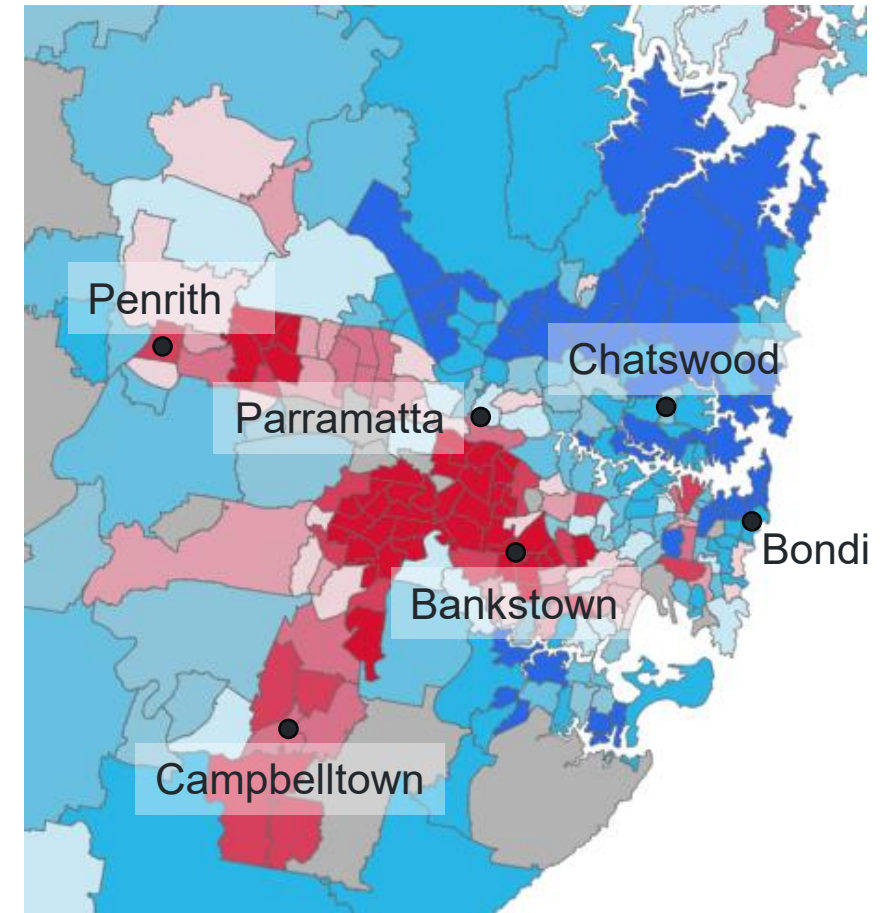
# Aim

- Improve our understanding of the NSW syphilis epidemic using:
  - Enhanced surveillance data (Syphilis Notification Form)
  - Index of Relative Socio-economic Disadvantage (IRSD)
  - Remoteness Areas (RA)

## Map of NSW IRSD

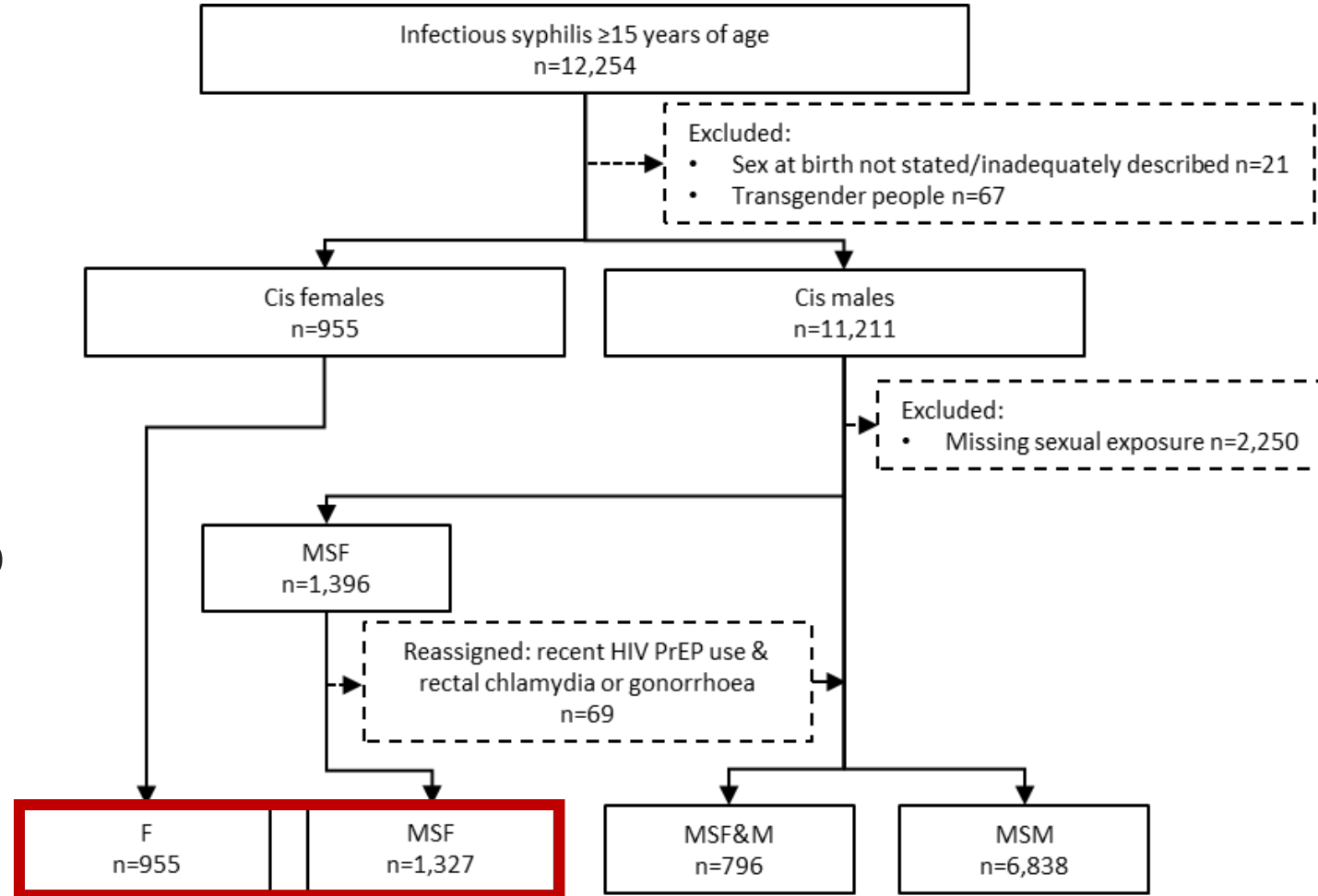


## Map of Sydney IRSD

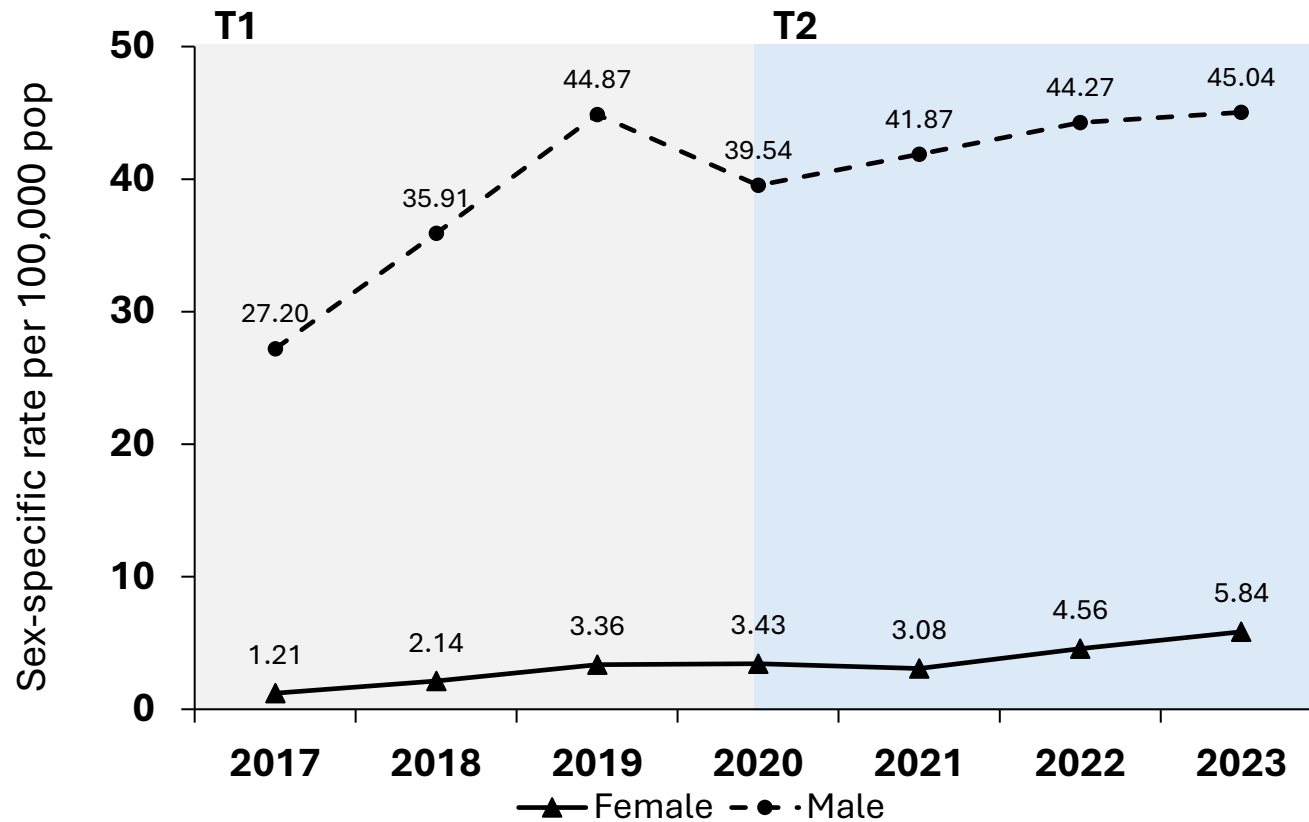


# Methods

- ~12,000 notifications extracted
- Some exclusion & reassignment criteria
- Four sexual exposure groups:
  - Females (F)
  - Males who report sex with females only (MSF)
  - Males who report sex with females and males (MSF&M)
  - Males who report sex with males only (MSM)
- Two equal time periods for comparison
  - T1: 1 Jan 2017 to 30 Jun 2020
  - T2: 1 Jul 2020 to 31 Dec 2023
- SA2 place of residence joined to SA2 IRSD and RA
- Concordance mapping to SA3 for confidentiality
- Ethics under governance Health Protection NSW



# Relative change in number of notifications by sexual exposure group over time



Sexual exposure risk group	T1 n, %	T2 n, %	Relative change <sup>1</sup>	Total n, %
F	327 7.1%	628 11.8%	92.0%	955 9.6%
MSF	562 12.3%	765 14.4%	36.1%	1,327 13.4%
MSF&M	402 8.8%	394 7.4%	-2.0%	796 8.0%
MSM	3,294 71.8%	3,544 66.5%	7.6%	6,838 69.0%
Total	4,585 100%	5,331 100%	16.3%	9,916 100%

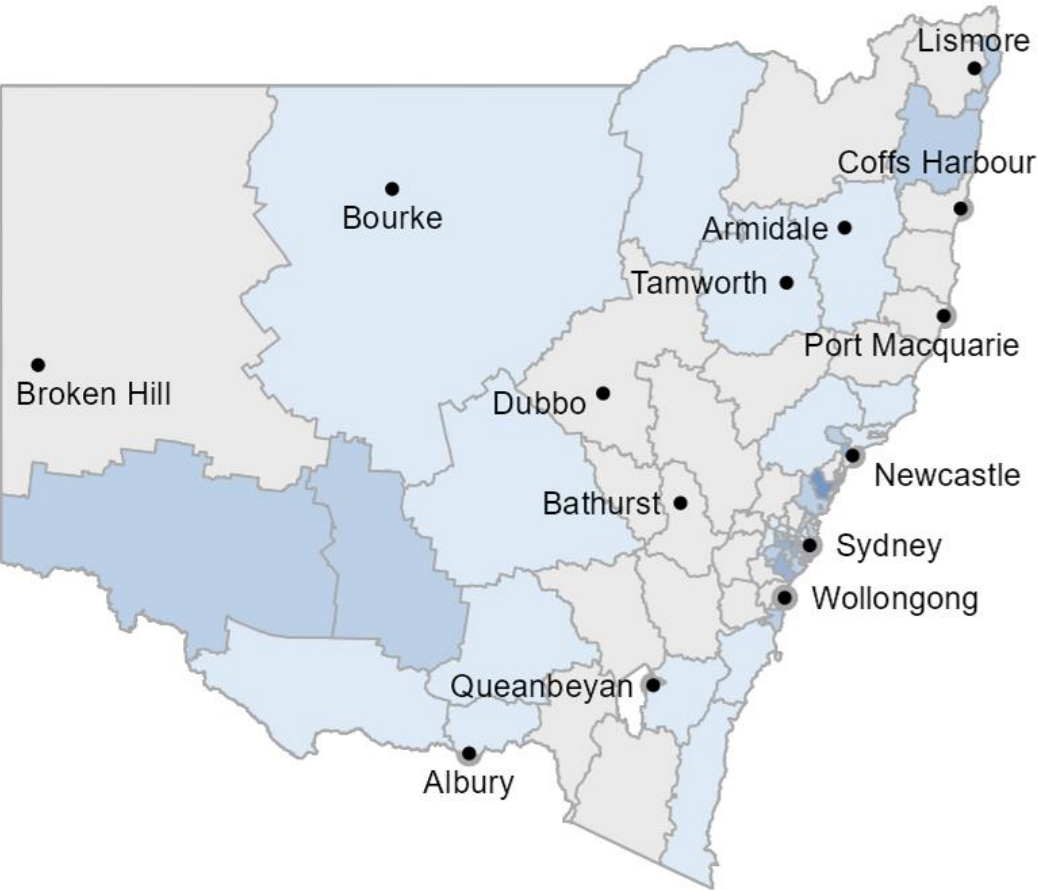
<sup>1</sup> (T2-T1)/T1) %



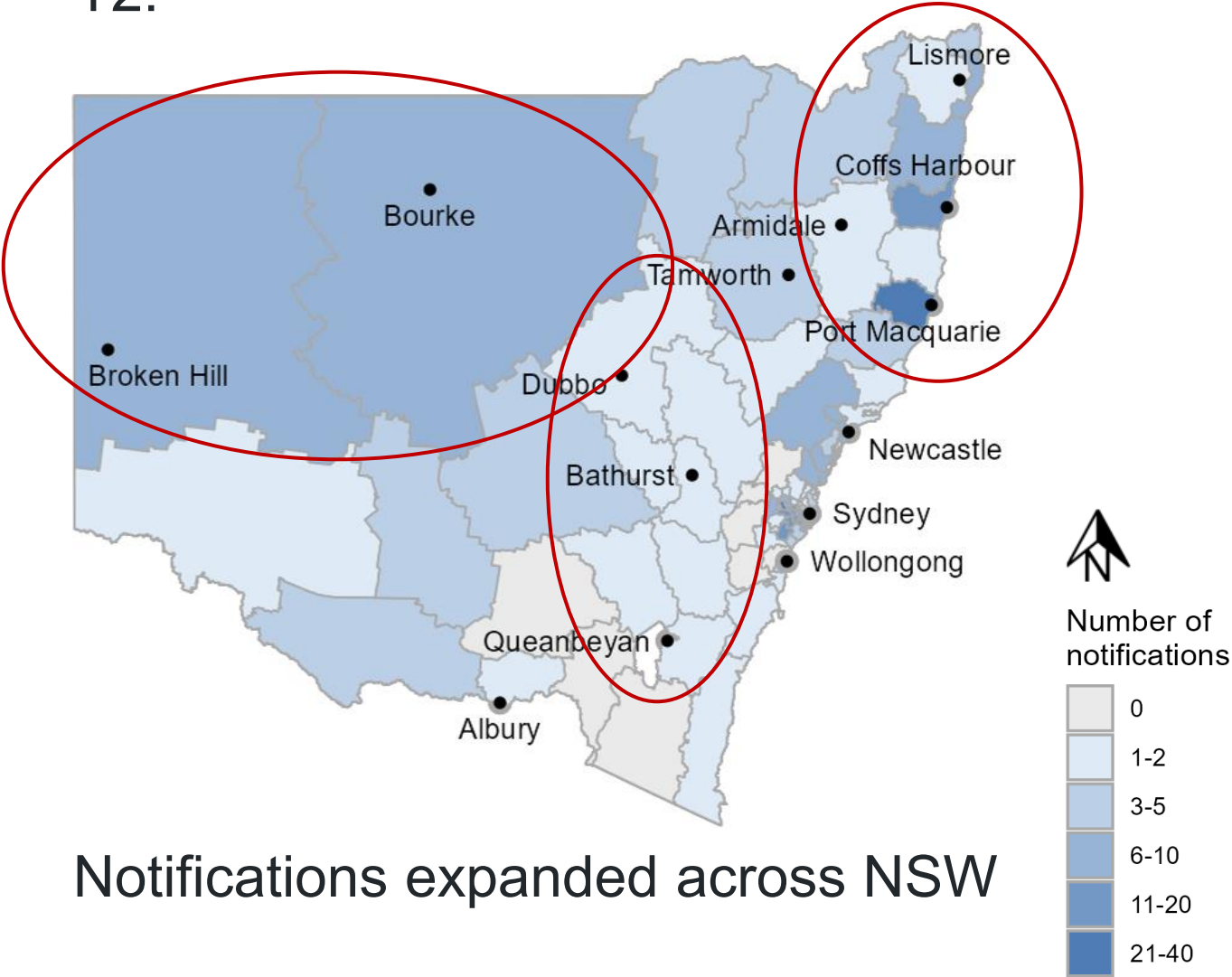
# Female notifications, NSW



T1:



T2:

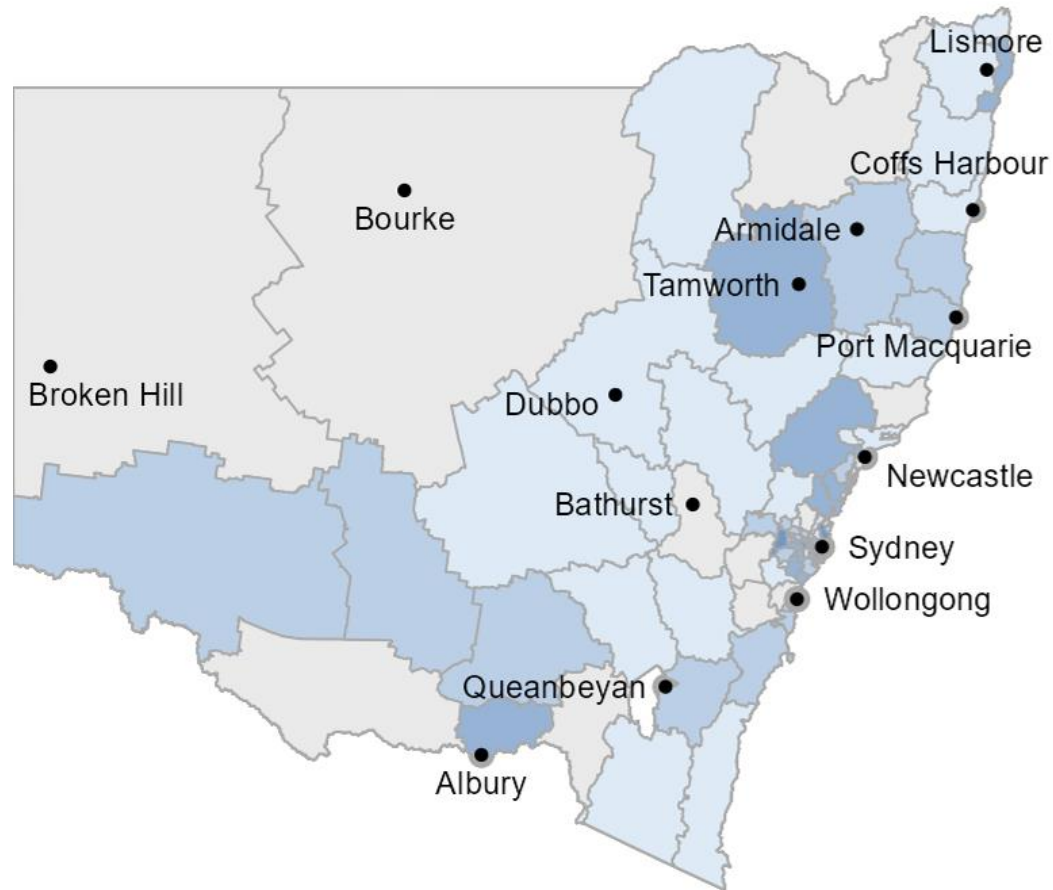


Notifications expanded across NSW

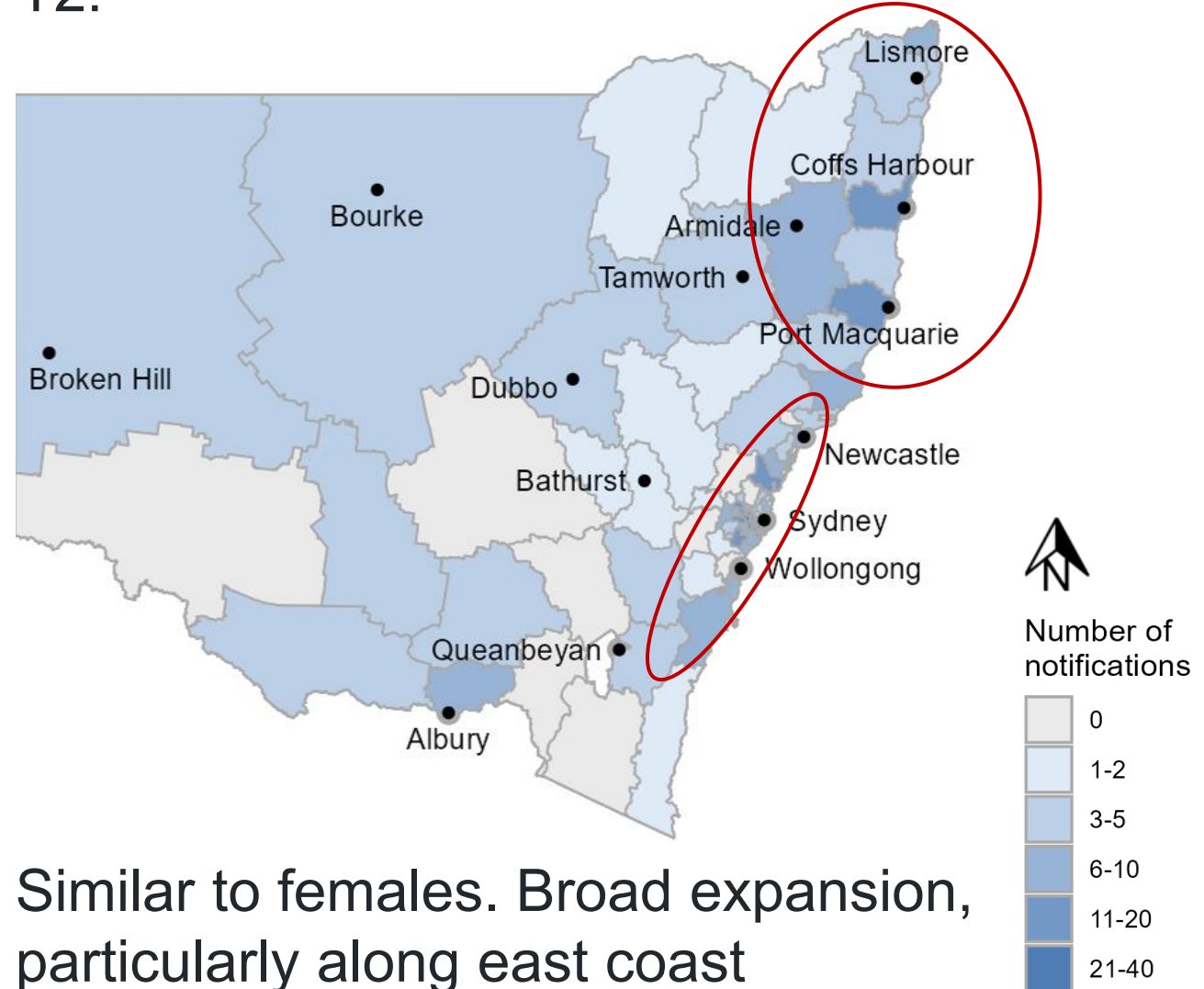


# Heterosexual male notifications, NSW

T1:



T2:



Similar to females. Broad expansion, particularly along east coast

# Remoteness (RA) by sexual exposure group

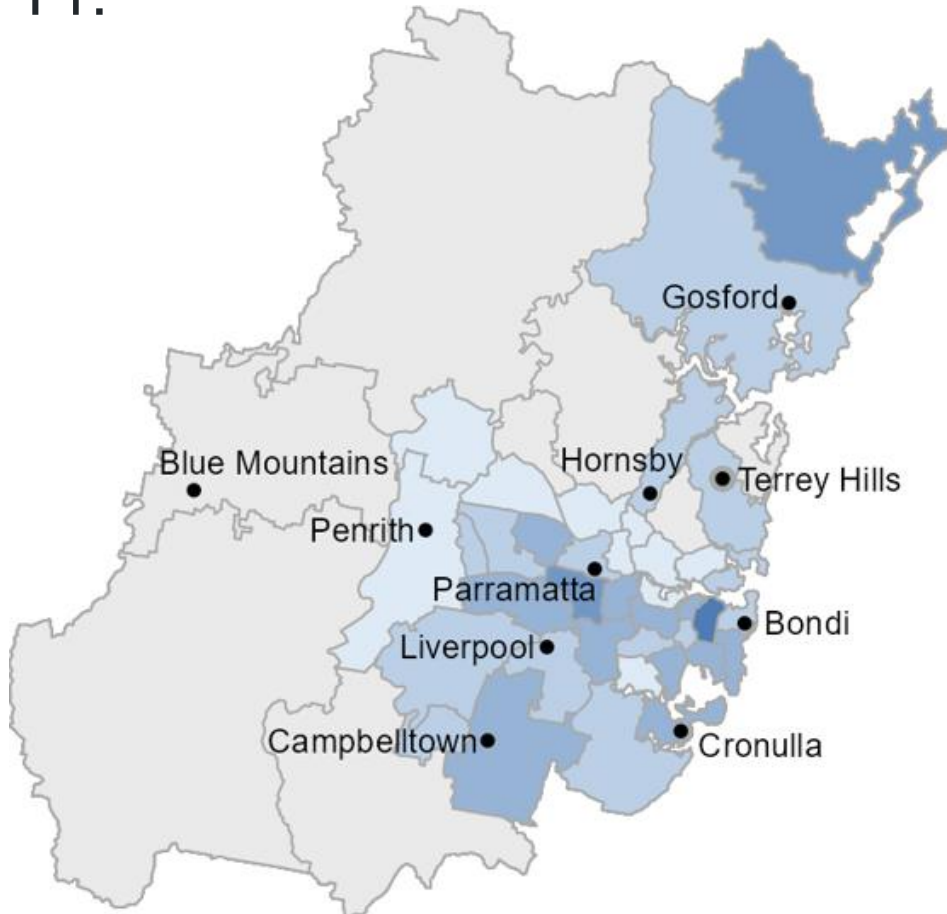
- Proportion of notifications in regional and remote areas increased for all sexual exposure groups
  - In T2, >25% of female notifications in regional and remote ( $P < 0.001$ )

	Female			Heterosexual male		
Characteristic	T1	T2	p-value	T1	T2	p-value
	n =	n =		n =	n =	
	327	628		562	765	
RA	<0.001			0.3		
Major cities	229	401		385	524	
	85.8%	73.3%		82.6%	80.2%	
Regional & remote	38	146		81	129	
	14.2%	26.7%		17.4%	19.8%	
Missing	60	81		96	112	

Pearson's Chi-squared test

# Female notifications, Greater Sydney

T1:



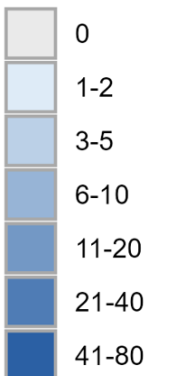
T2:



Notifications increased in western & southwestern Sydney

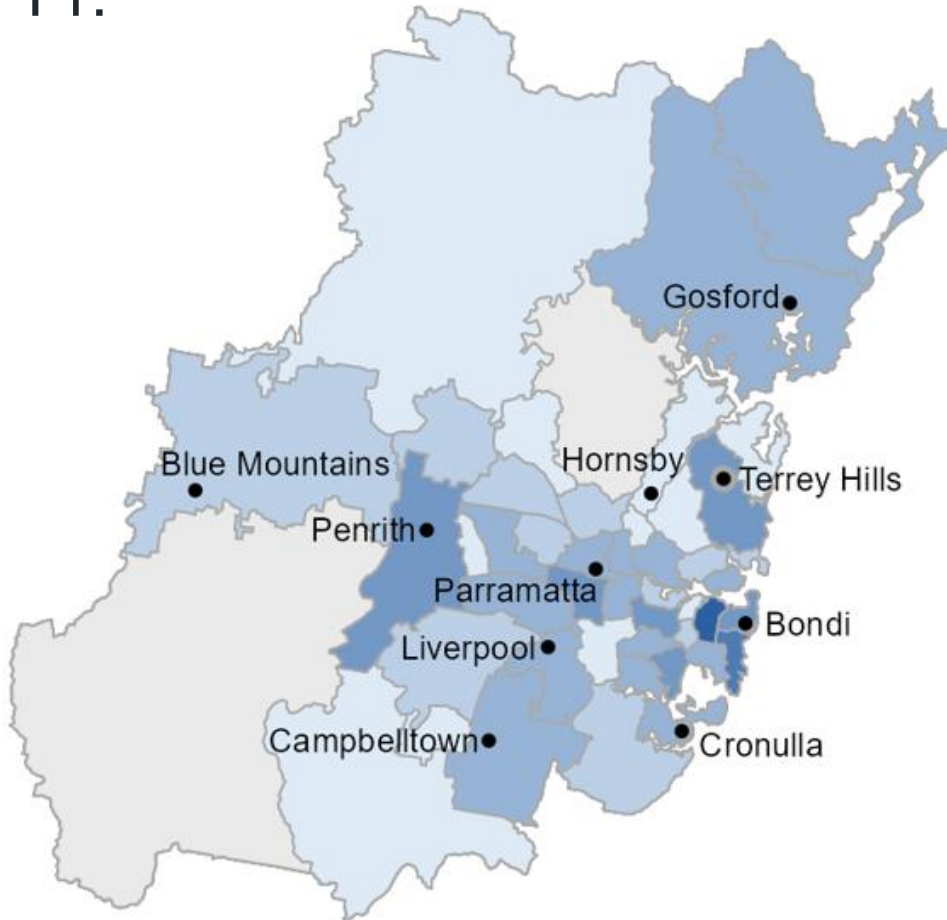


Number of  
notifications



# Heterosexual male notifications, Greater Sydney

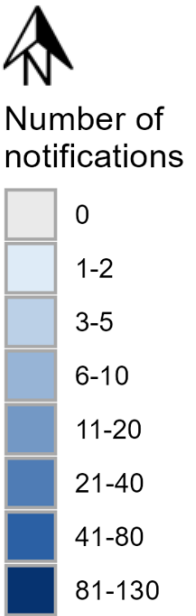
T1:



T2:

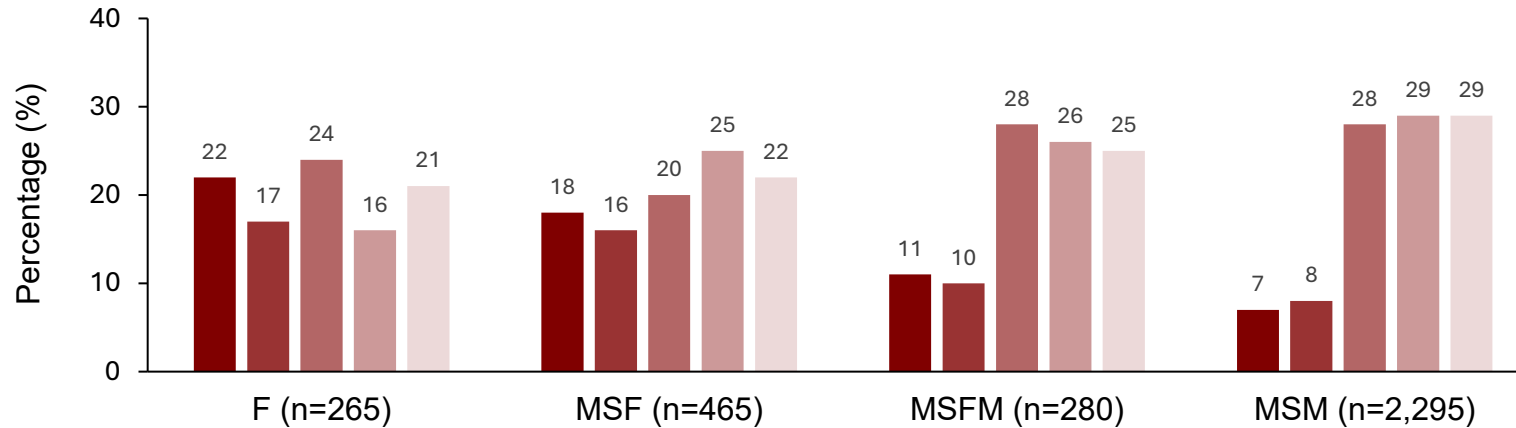


Notifications increased in inner northwest and southwestern Sydney

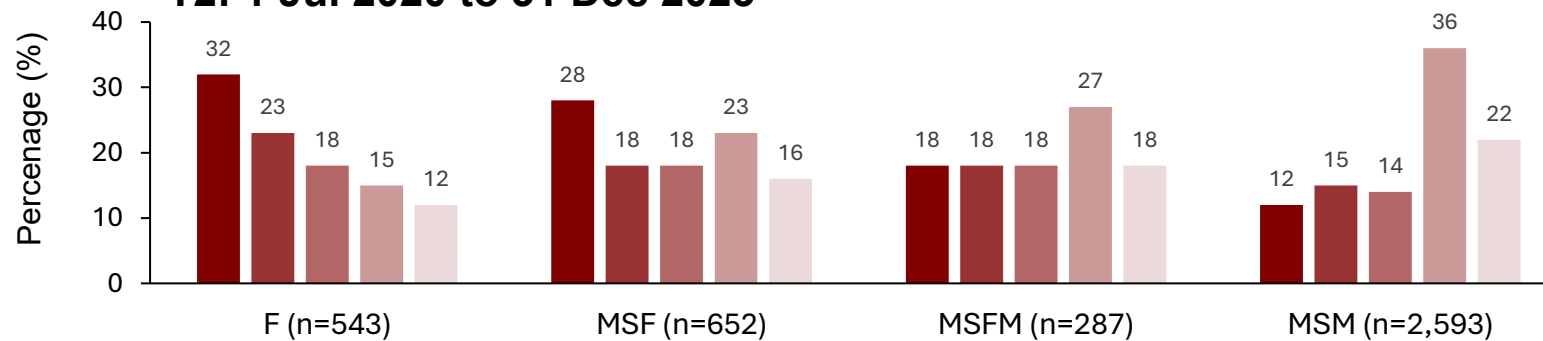


# Sexual exposure group and associated IRSD

**T1: 1 Jan 2017 to 30 Jun 2020**



**T2: 1 Jul 2020 to 31 Dec 2023**



- Females – largest proportion of most disadvantage (29%)
- In T2, all group observed increases in proportion of disadvantage (p-value 0.017 to <0.001)

# Findings

- MSM majority of syphilis notifications in study (69%)
- Greatest relative change in female notifications (92% increase)
- Distribution of notifications in females and heterosexual males expanded to nearly all regions of NSW after 2020
  - >25% female notifications in regional and remote
- All sexual risk groups after 2020 experienced an increased in associated disadvantaged
  - Impact of Mid North Coast/Northern NSW outbreak
  - Increase in notifications in western and southwestern Sydney
- Disadvantage impacts health outcomes through complex individual and community factors
- Emphasises 'No Wrong Door' policy for syphilis testing/treatment and encourages inter-agency collaboration
- Only the notifications we are aware of...tip of the iceberg?

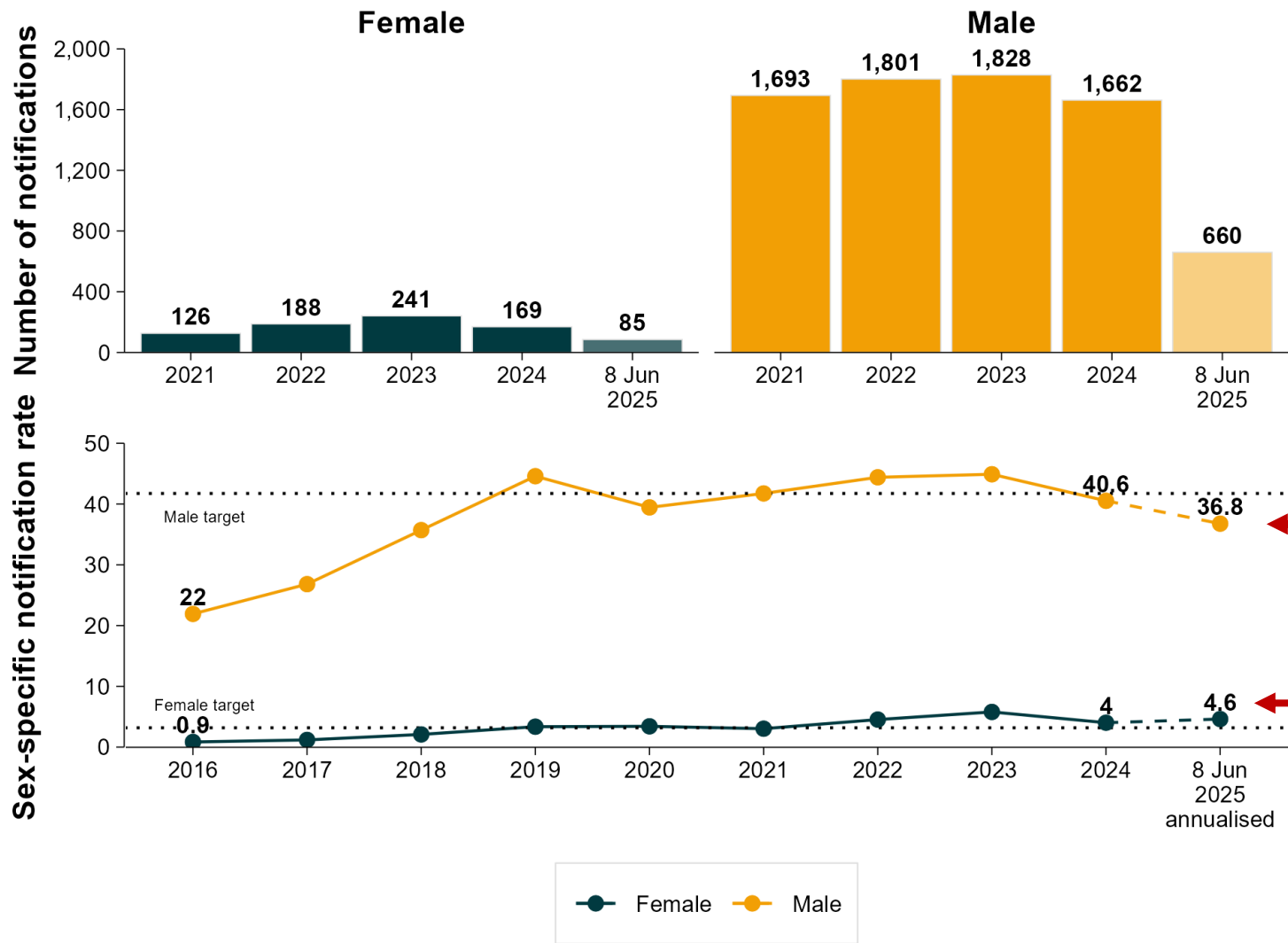


# Limitations

- No syphilis denominator testing data
- Sexual exposure group requires completion of Syphilis Notification Form
- Willingness to disclosure type of sexual exposure maybe impacted by perceived stigma and discrimination
- Socio-economic disadvantage was associated, not indicative – pattern is at the population level
- Count data by sexual exposure group
  - Population rates provide more accurate measure of disease occurrence/change
  - 2026 Census will include pivotal questions on gender and sexual identity



# Where are we now with infectious syphilis in NSW?



Promising decreases in male notification rate

Concerning rebound in female notification rate