

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

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Promotion: STI Epidemiology

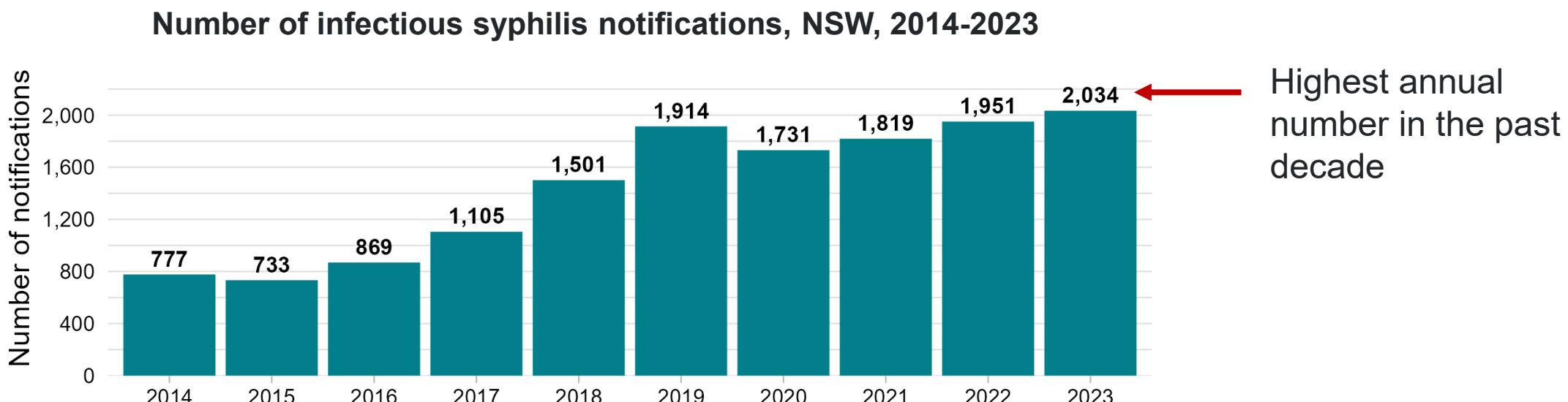
Disclosure of interest



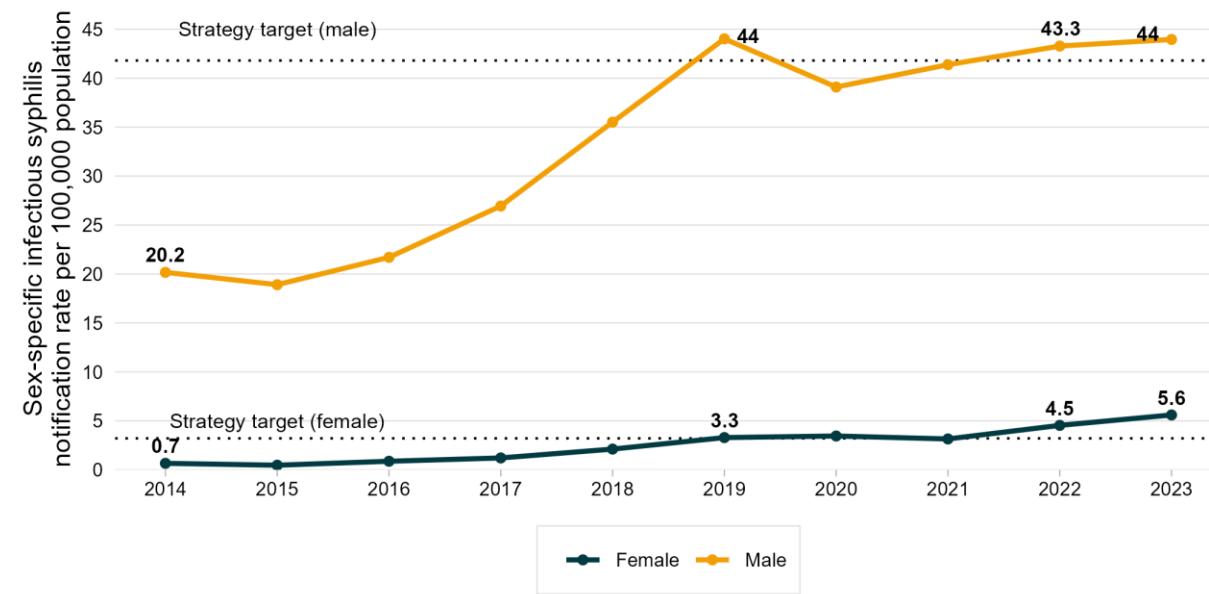
Nil disclosures

Syphilis in Australia

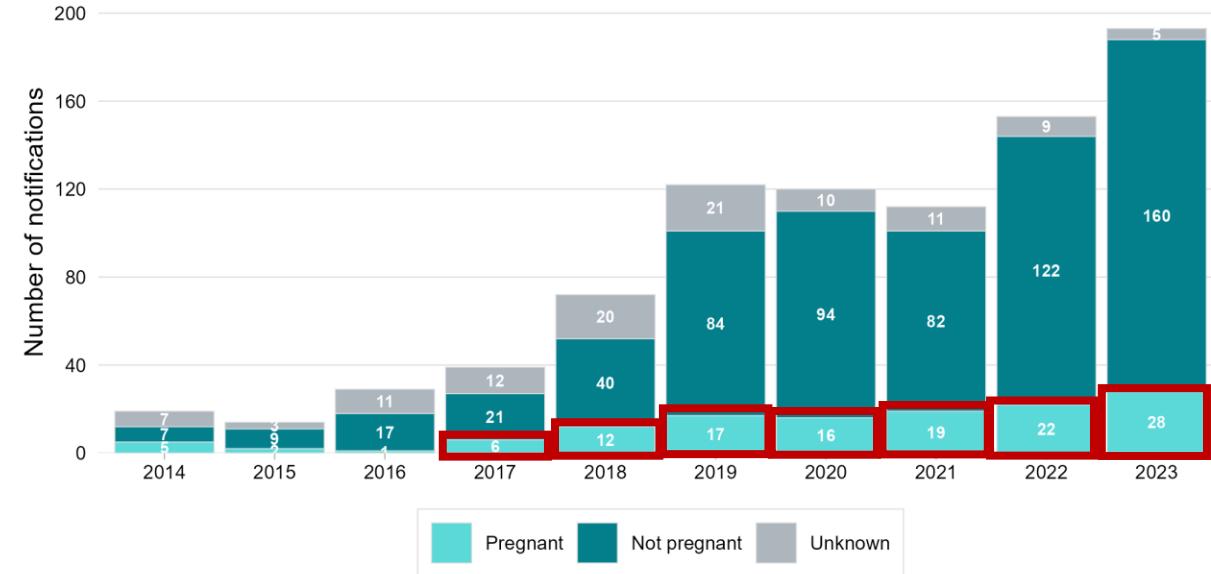
- Resurgence in early 2000's in high-income countries, predominately MSM
- Australia declared outbreak among First Nations people in Northern Australia
 - QLD 2011 → NT 2013 → WA 2014 → SA 2016
- In contrast, populated urban areas (Sydney & Melbourne) concentrated MSM epidemic



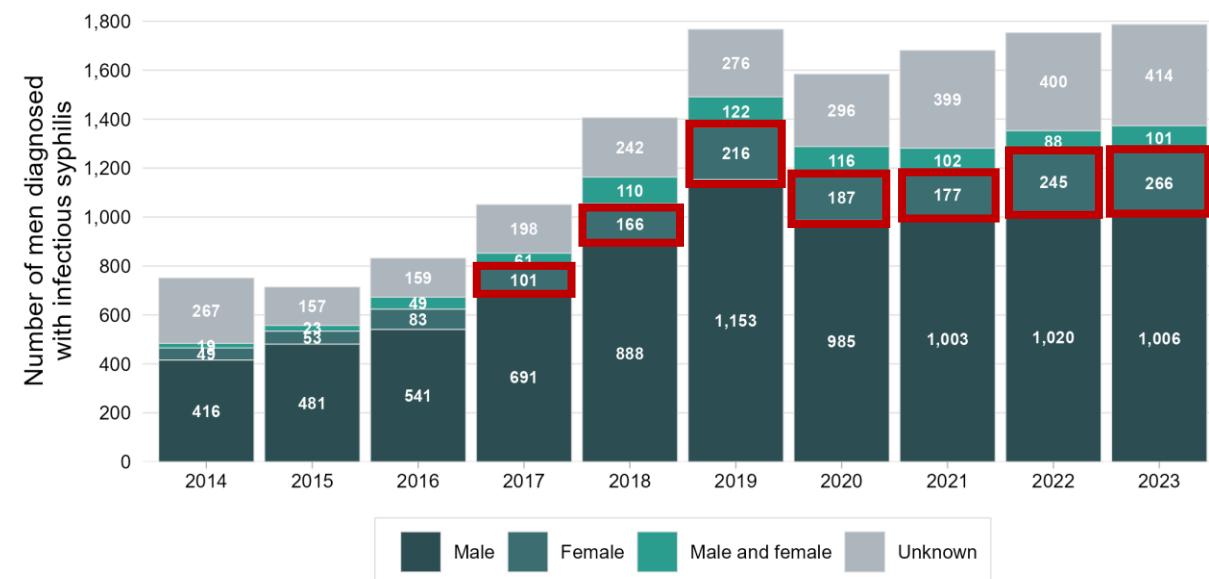
Sex-specific infectious syphilis notification rate, NSW, 2014-2023



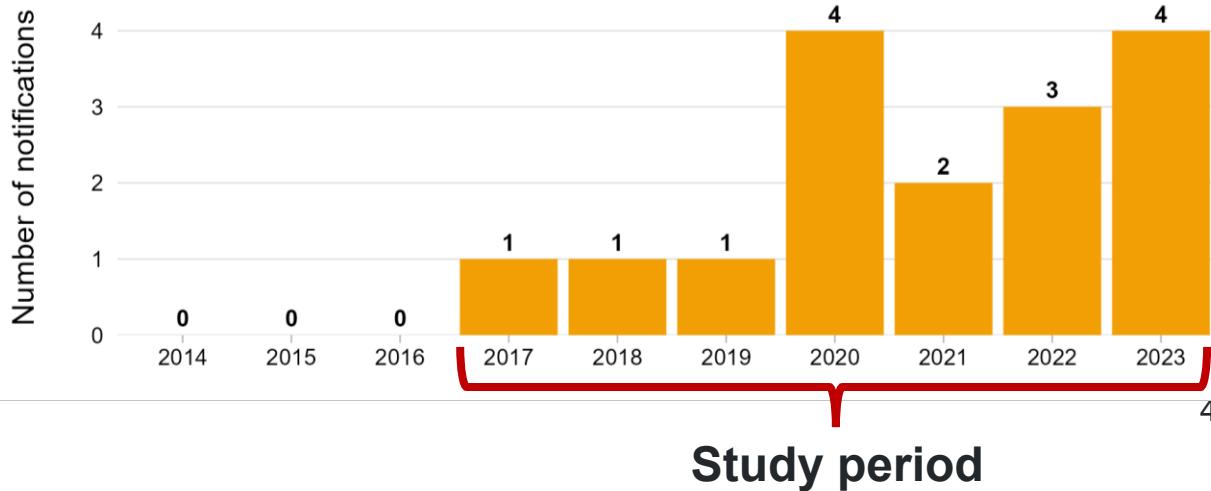
Number of notification in women of reproductive age, NSW, 2014-2023



Male reported sexual exposure, NSW, 2014-2023



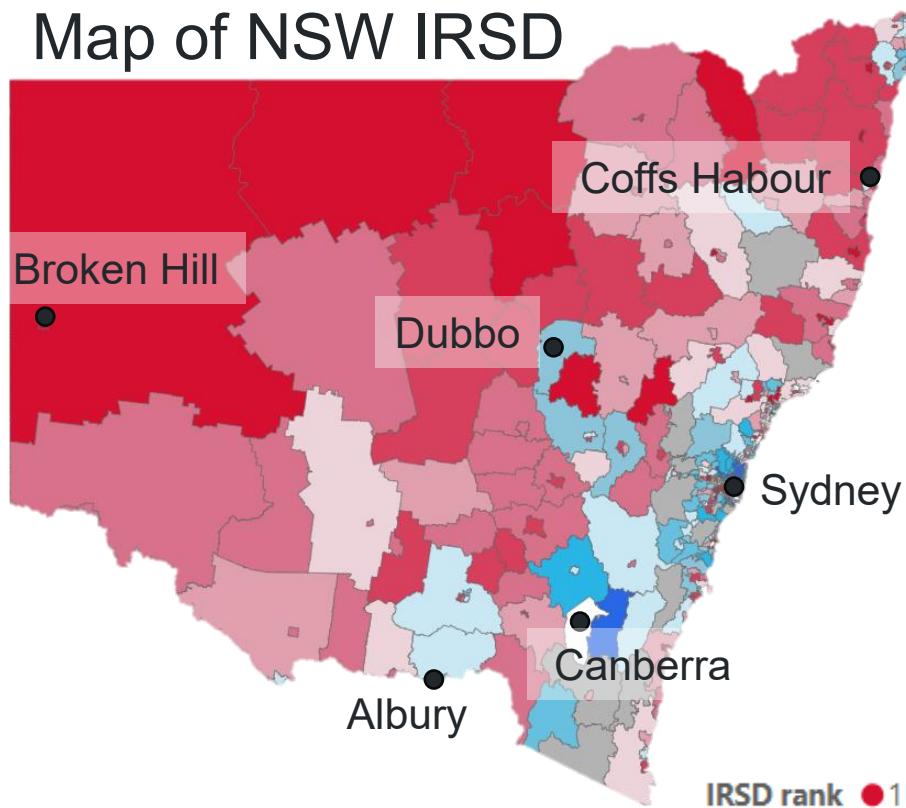
Number of congenital syphilis notifications, NSW, 2014-2023



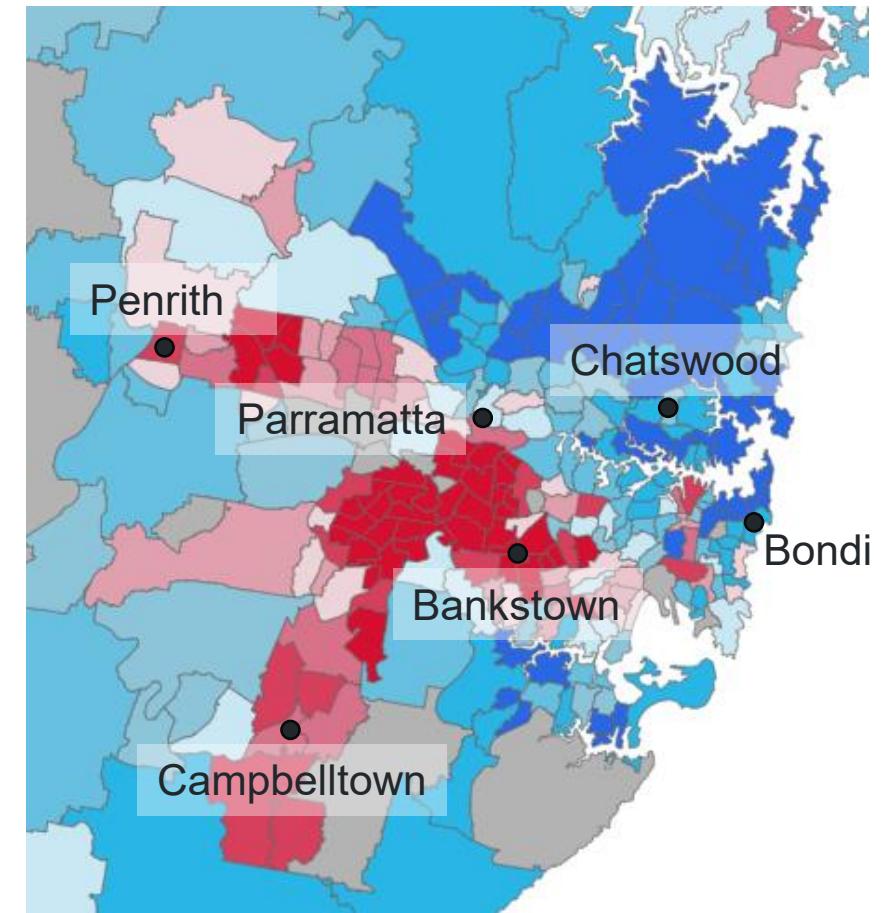
Aim

- 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

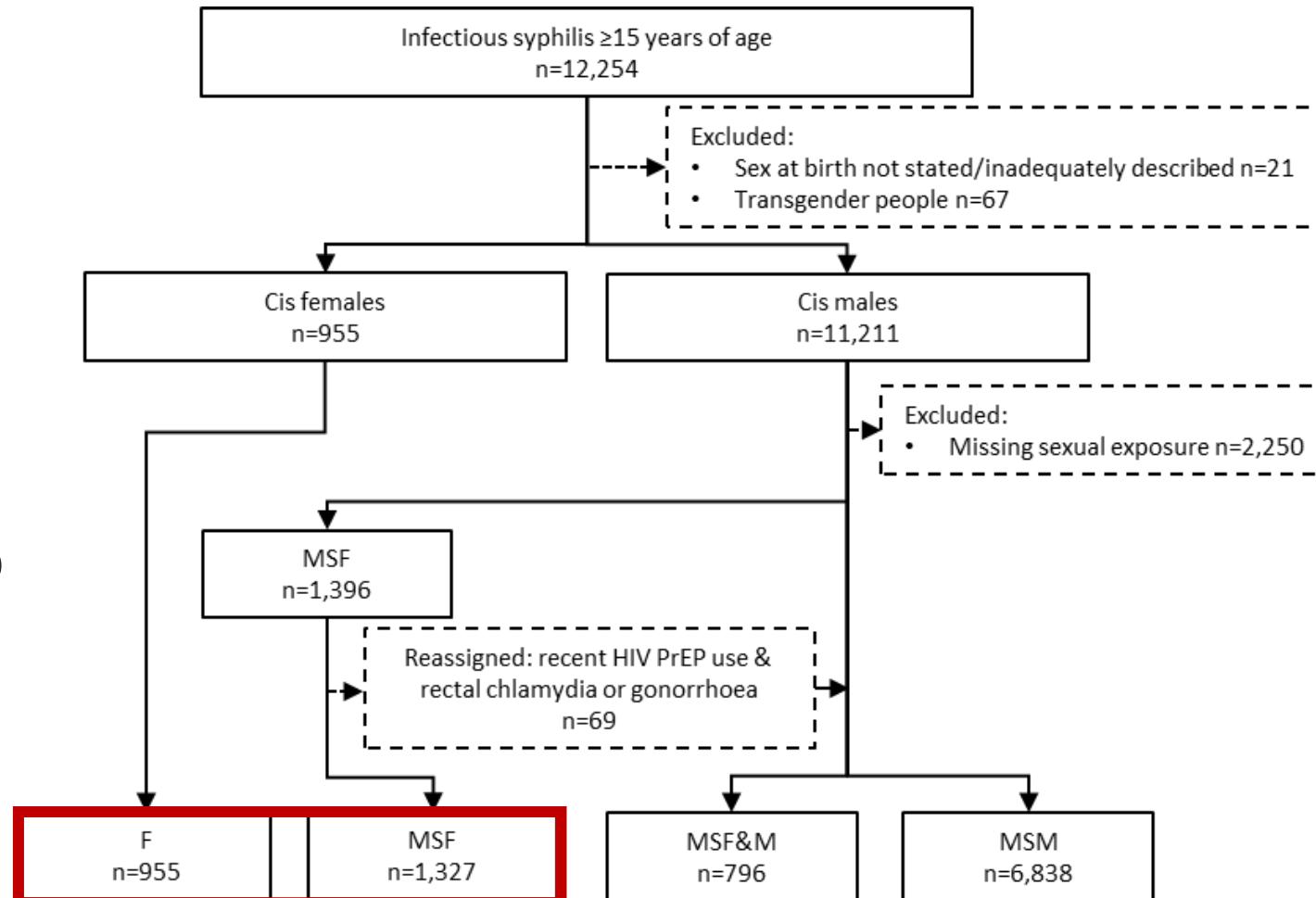


Map of Sydney IRSD

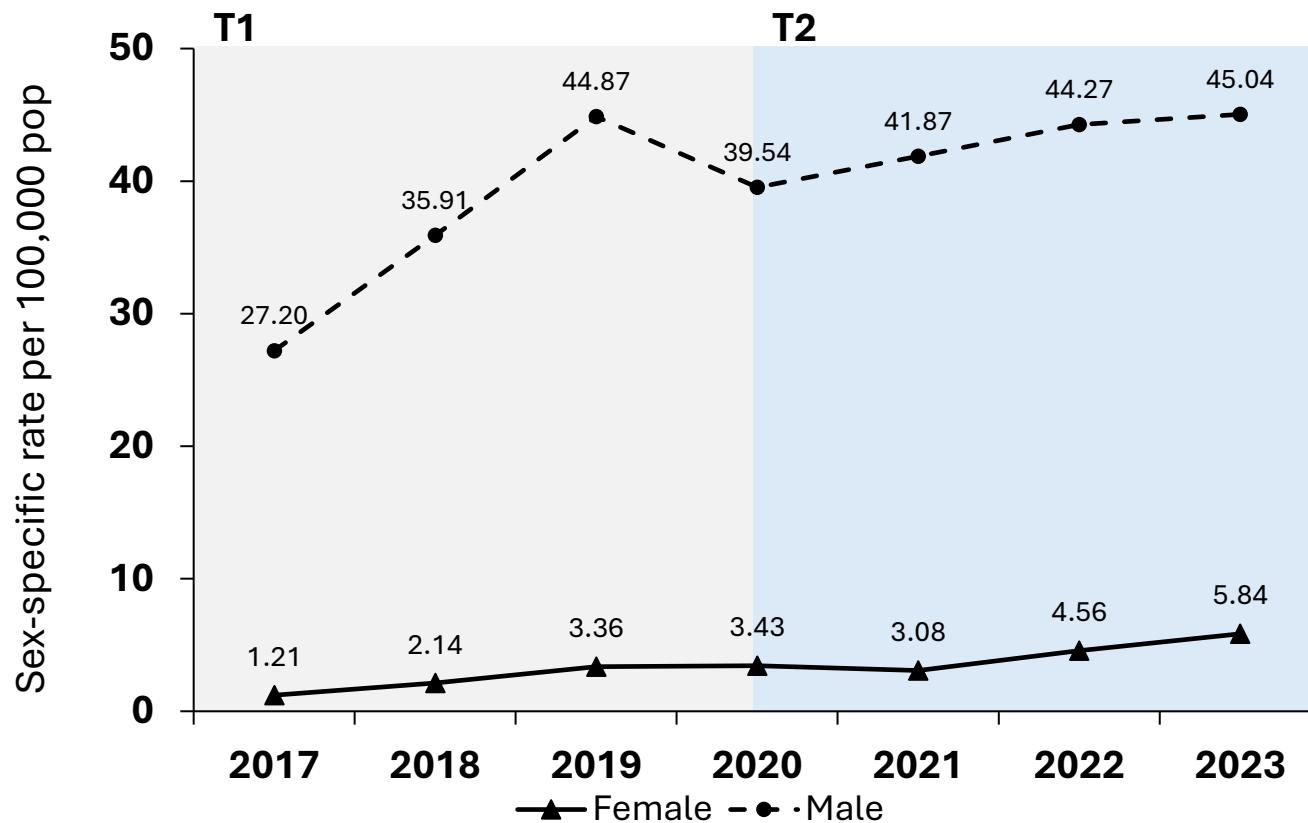


Methods

- ~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



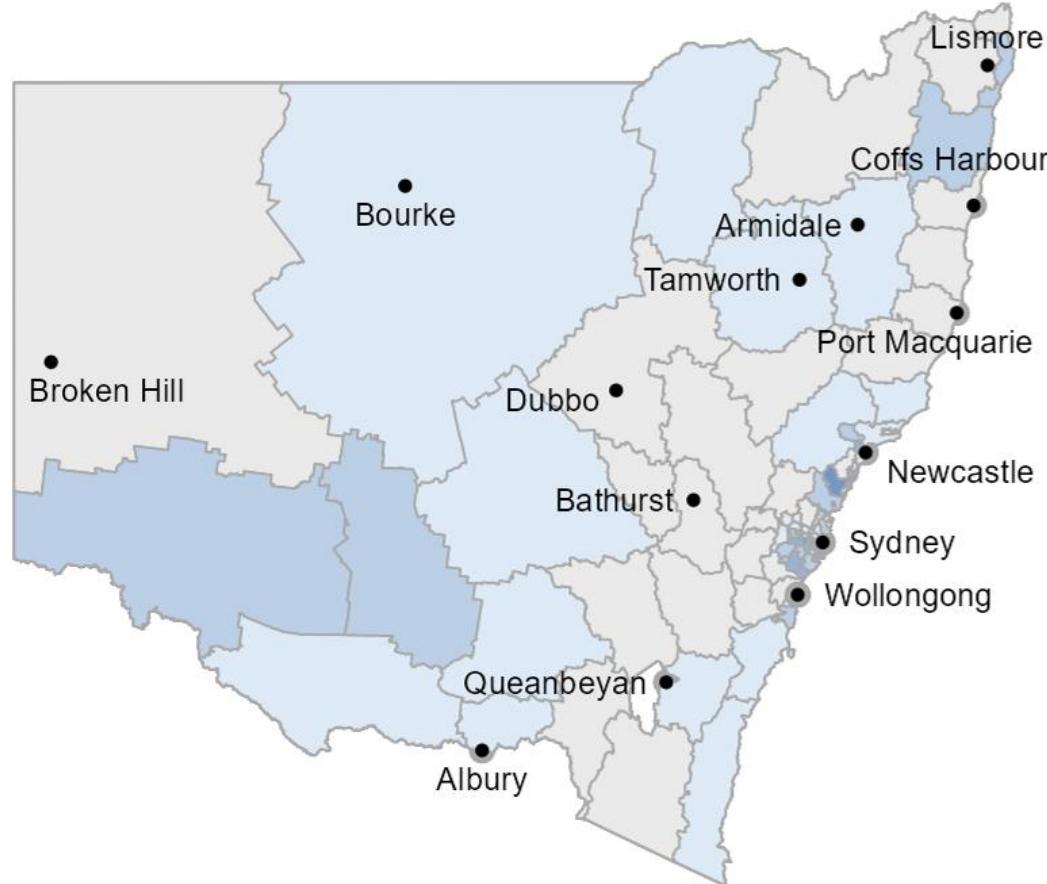
Sexual exposure risk group	T1 n, %	T2 n, %	Relative change ¹	Total n, %
F	327 7.1%	628 11.8%	92.0%	955 9.6%
MSF	562 12.3%	765 14.4%	36.1%	1,327 13.4%
MSF&M	402 8.8%	394 7.4%	-2.0%	796 8.0%
MSM	3,294 71.8%	3,544 66.5%	7.6%	6,838 69.0%
Total	4,585 100%	5,331 100%	16.3%	9,916 100%

¹ $(T2-T1)/T1$ %

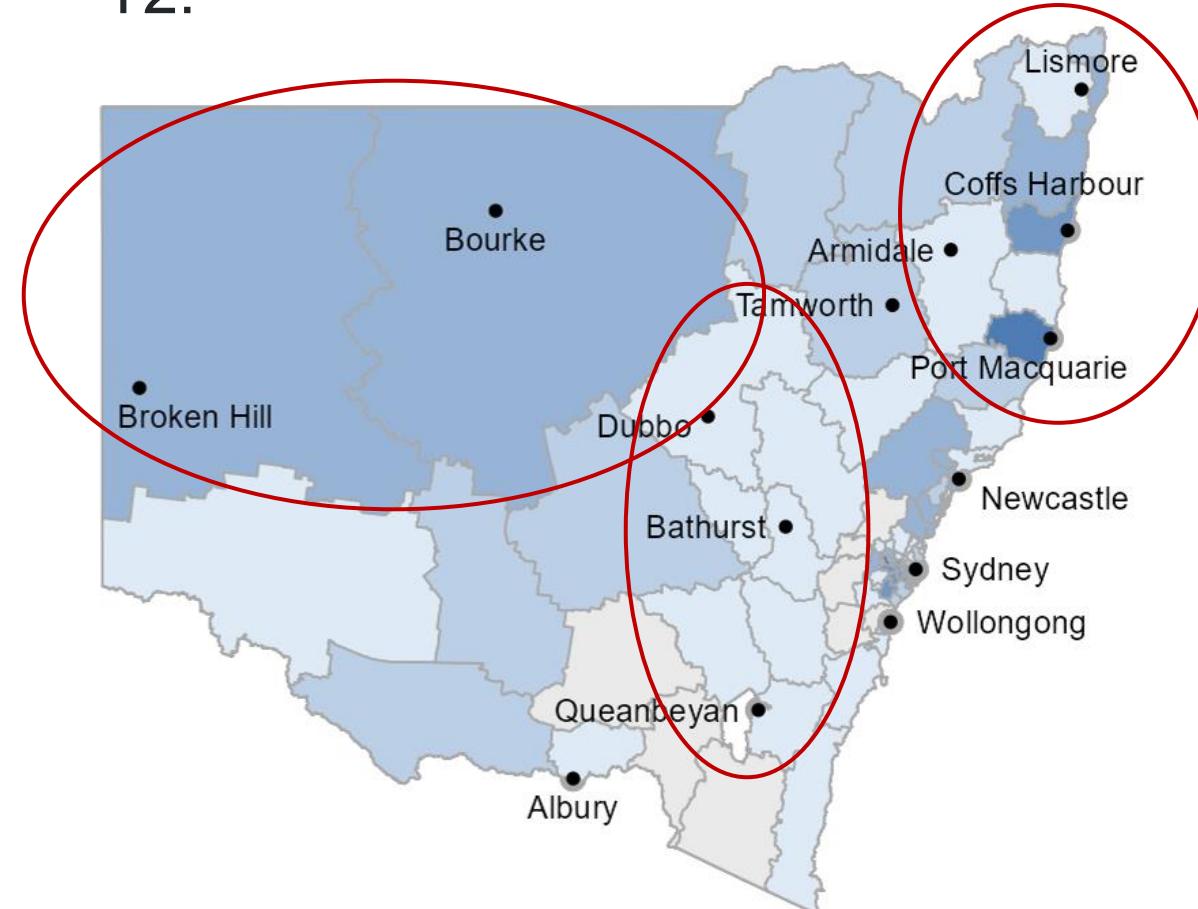
Female notifications, NSW



T1:



T2:

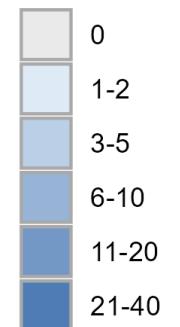


Notifications expanded across NSW

600 km



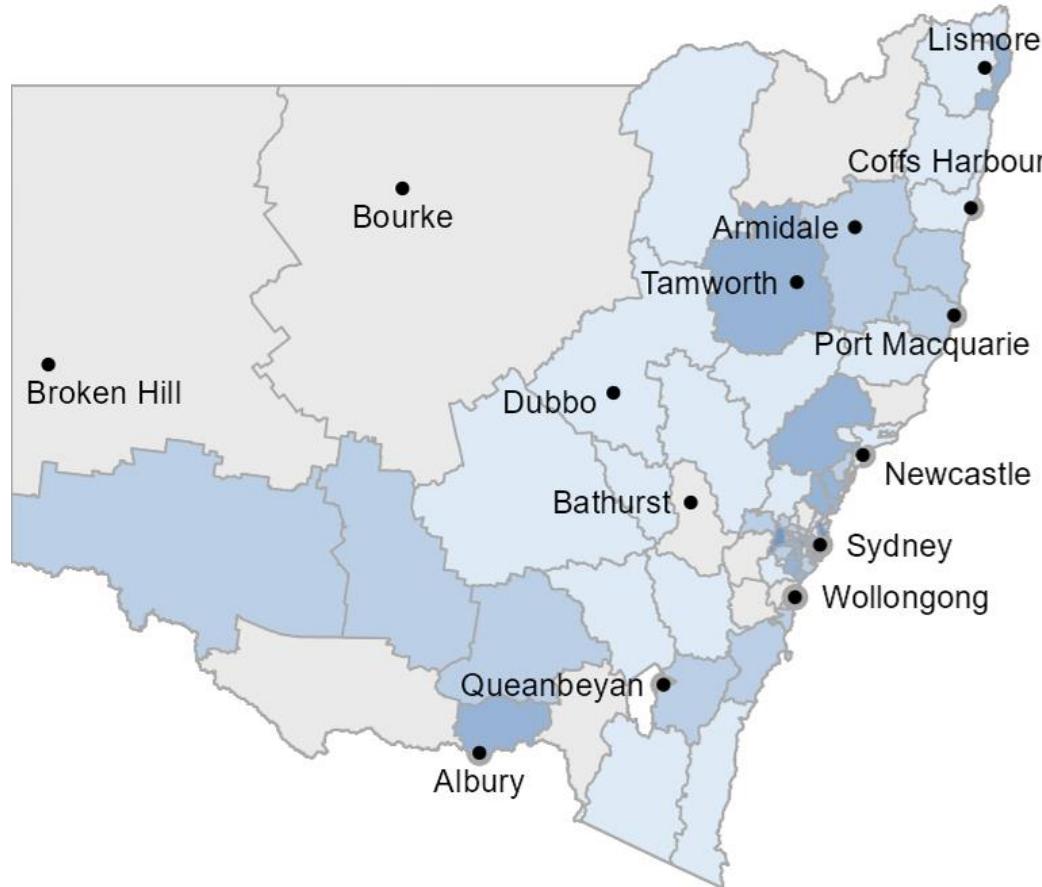
Number of notifications



Heterosexual male notifications, NSW

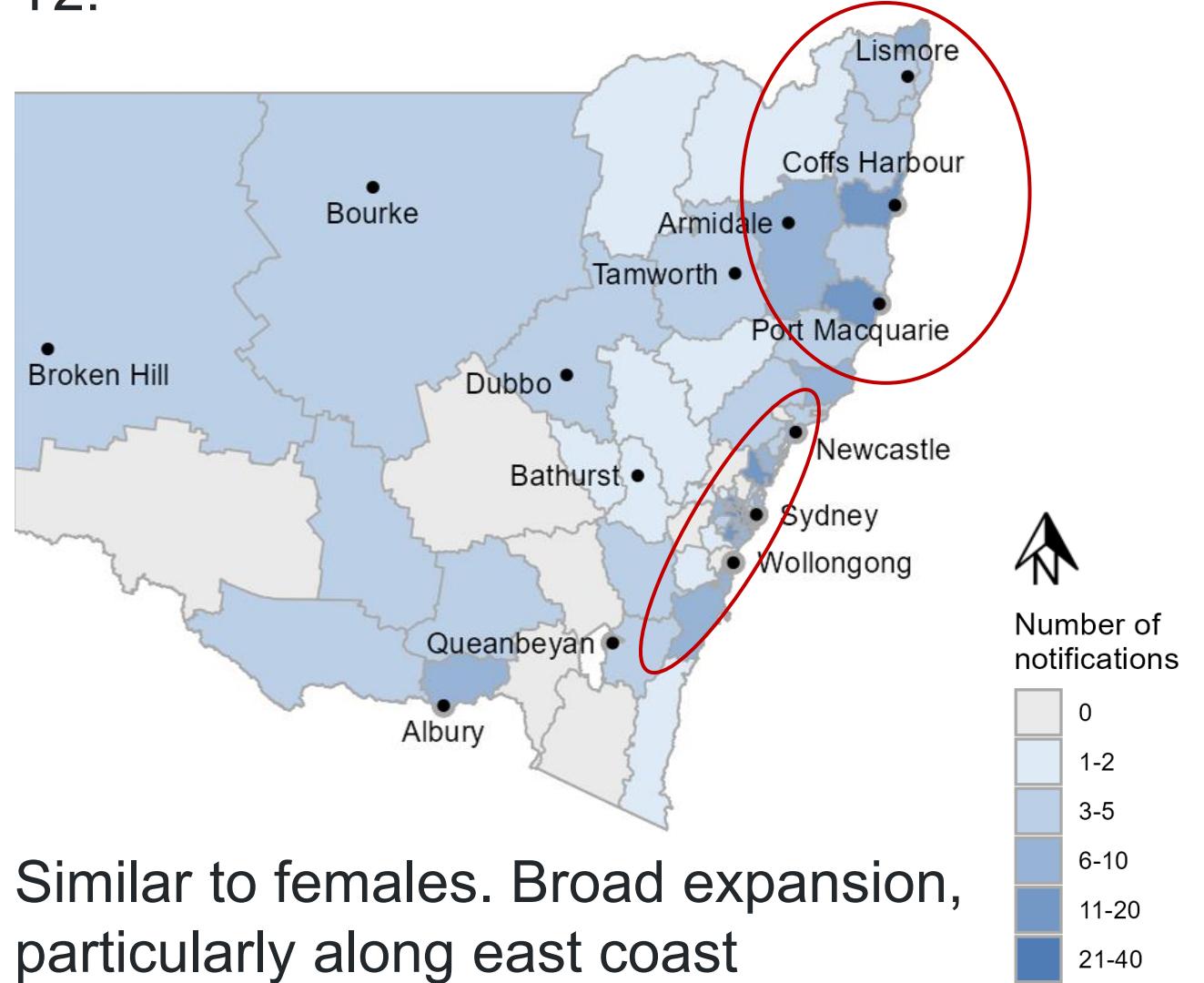


T1:



600 km

T2:



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 ($P<0.001$)

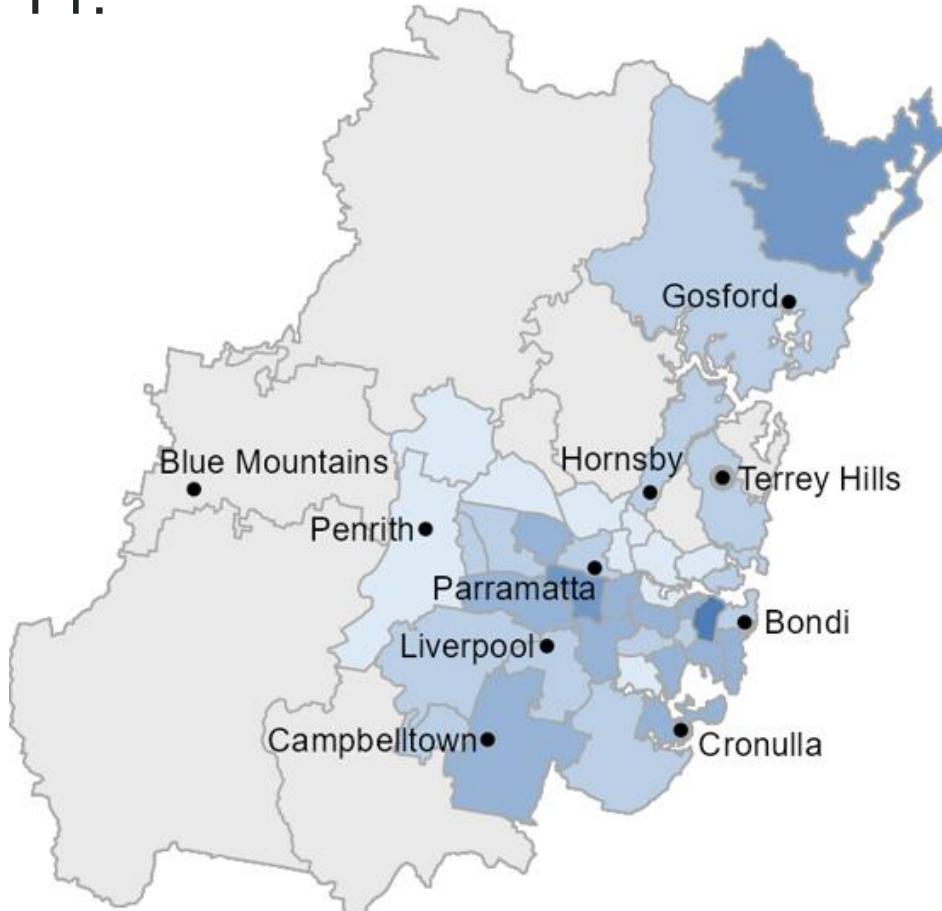
Characteristic	Female		Heterosexual male	
	T1 n = 327	T2 n = 628	T1 n = 562	T2 n = 765
RA	<0.001		0.3	
Major cities	229 85.8%	401 73.3%	385 82.6%	524 80.2%
Regional & remote	38 14.2%	146 26.7%	81 17.4%	129 19.8%
Missing	60	81	96	112

Pearson's Chi-squared test

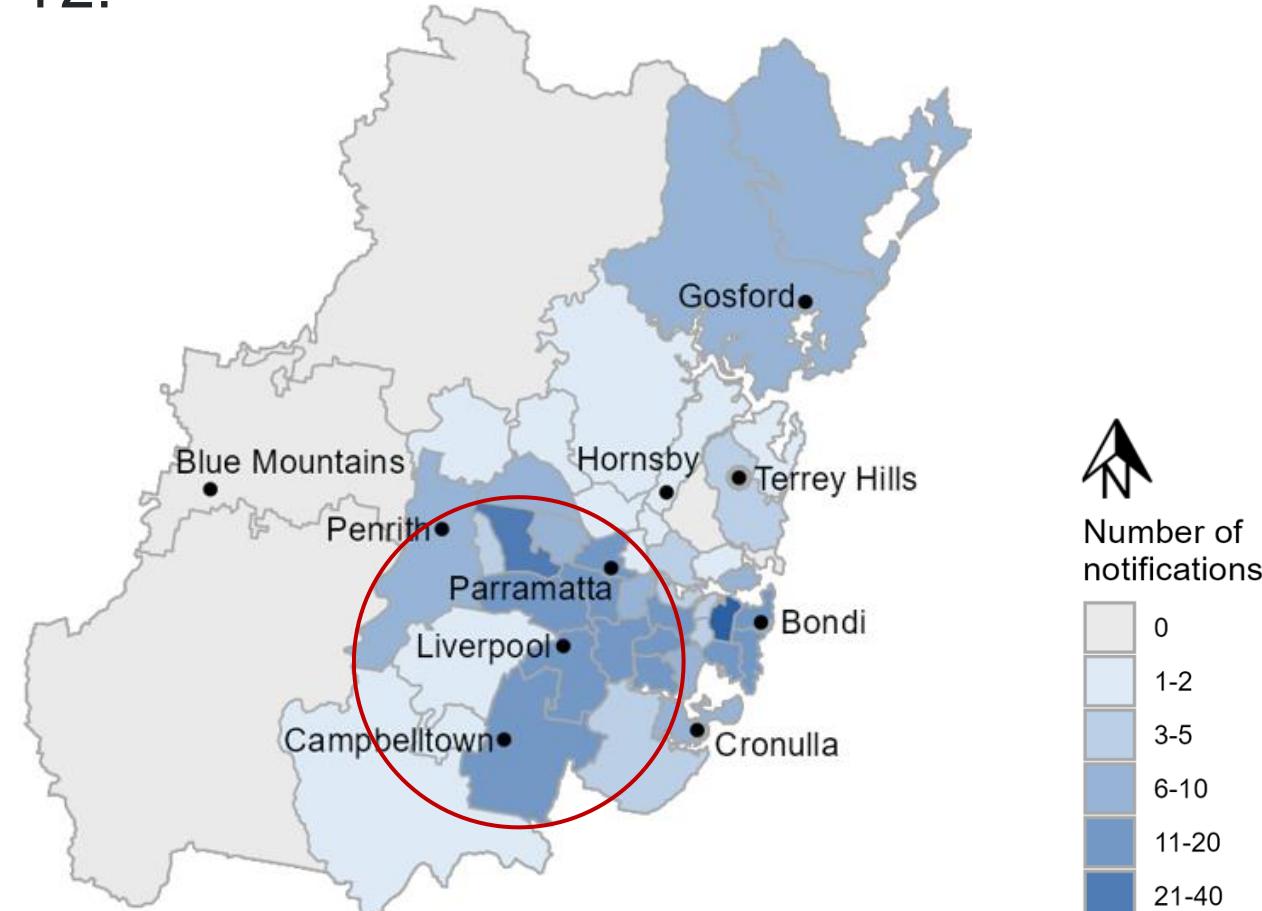
Female notifications, Greater Sydney



T1:



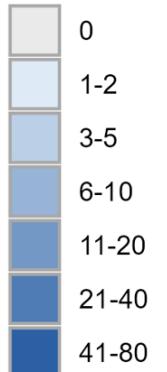
T2:



Notifications increased in western & southwestern Sydney



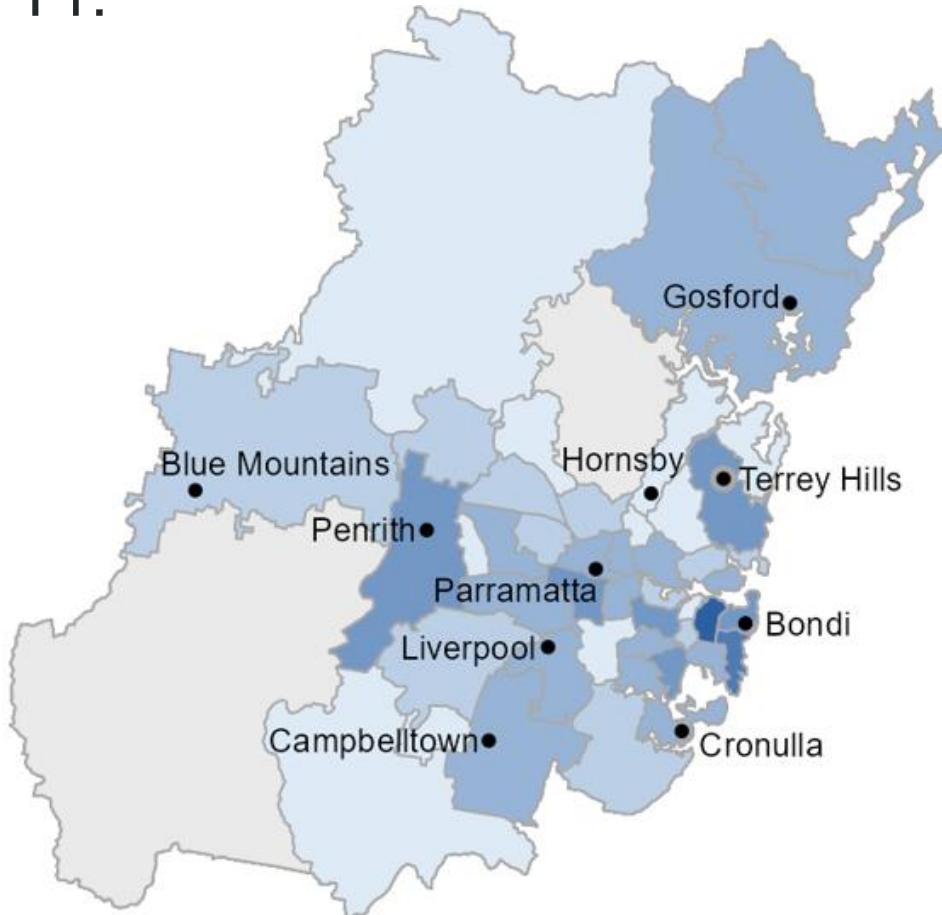
Number of notifications



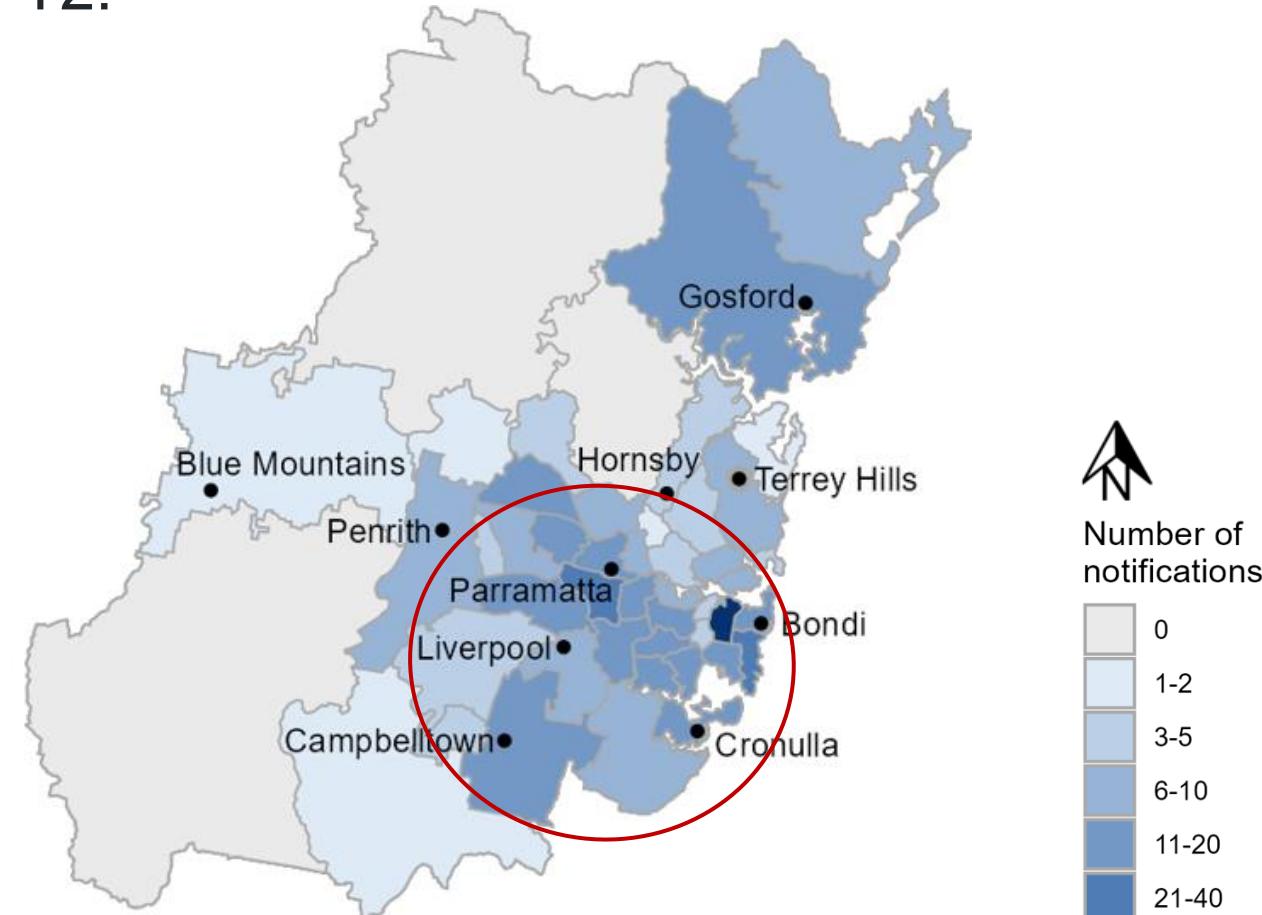
Heterosexual male notifications, Greater Sydney



T1:



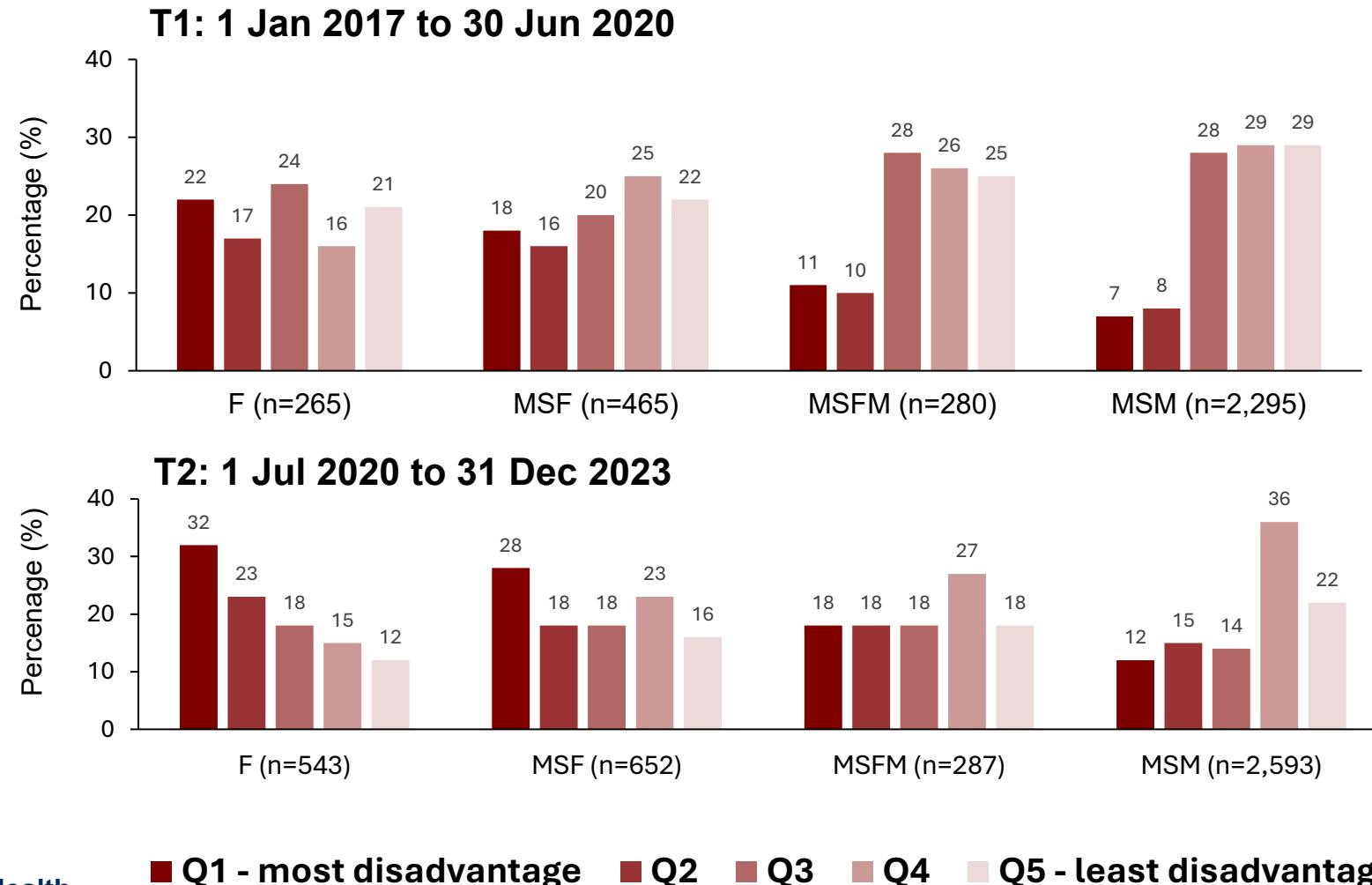
T2:



Notifications increased in inner northwest and southwestern Sydney



Sexual exposure group and associated IRSD



- 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?

