# Epidemiology of Gonorrhoea in Western Sydney & Nepean Blue Mountains

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## Introduction:

Gonorrhoea presents a growing public health challenge due to increasing incidence. Localised enhanced surveillance can be used to better understand case behaviour at the district level. We aimed to understand the behaviours and characteristics of gonorrhoea cases in Western Sydney (WS) and Nepean Blue Mountain (NBM) local health districts to inform localised service delivery, case management, and future health promotion activities.

## Methods:

Referring doctors and health professionals of laboratory confirmed cases of gonorrhoea in WS and NBM local health districts were sent an enhanced surveillance form between 1 August 2013 and 31 March 2016. A chi-square (X2) test was used to compare categorical counts between person groups: Men who have sex with men (MSM), heterosexual males, and females; and place: WS and NBM. *P* values below 0.05 were considered statistically significant. Missing or unknown values were excluded from the analysis.

## Results:

During the study period 1836 laboratory-confirmed cases of gonorrhoea were notified to WS and NBM and proxies were sent enhanced surveillance questionnaires. The average return rate was 76.8% (n=1410), however this differed significantly between districts: 1084 (73.9%) from WS and 326 (88.1%) from NBM. (X2=33.27; df=1; P<0.001). 78.3% of all laboratory-confirmed notifications were male (n=1438). Amongst males, 32.3% identified as MSM (n=465). MSM constituted 25.3% of all laboratory-confirmed notifications, and females accounted for 21.4%. Males constituted the majority of notifications in both health districts. The median age for all laboratory-confirmed cases was 28 years (IQR:23-36). In WS, the median age was slightly higher compared to NBM: 29 (IQR:24-36) and 27 years (IQR:22-34). Female cases tended to be younger (27 years; IQR:21-35) compared to both MSM and heterosexual males (29 years; IQR:23-38) (Figure 1).

**Table 1: Behaviours of gonorrhoea cases by person group in Western Sydney and Nepean Blue Mountain between August 2013 and March 2016**

| | Total | | MSM | | ExMSM | | Female | |
|---|---|---|---|---|---|---|---|---|
| Behaviours | (n) | (%) | (n) | % | (n) | % | (n) | % |
| Total[b] | 1336 | 100.0 | 465 | 100.00 | 478 | 100.0 | 393 | 100.00 |
| Place of diagnosis[c] | | | | | | | | |
| General practice | 690 | 61.7 | 94 | 20.9 | 397 | 84.8 | 199 | 70.8 |
| Sexual health clinic | 482 | 43.1 | 350 | 77.8 | 63 | 13.5 | 69 | 24.6 |
| Hospital | 27 | 2.4 | 6 | 1.3 | 8 | 1.7 | 13 | 4.6 |
| Total[a] | 1199 | 100.0 | 450 | 100.0 | 468 | 100.0 | 281 | 100.0 |
| Source of infection[d] | | | | | | | | |
| Casual partner | 700 | 70.6 | 280 | 81.2 | 326 | 79.7 | 94 | 39.7 |
| Regular partner | 263 | 26.5 | 63 | 18.3 | 64 | 15.6 | 136 | 57.4 |
| Overseas partner[e] | 28 | 2.8 | 2 | 0.6 | 19 | 4.6 | 7 | 3.0 |
| Total[a] | 991 | 100.0 | 345 | 100.0 | 409 | 100.0 | 237 | 100.0 |
| Reason for presentation[f] | | | | | | | | |
| Symptomatic | 702 | 60.4 | 163 | 37.1 | 429 | 91.5 | 110 | 43.3 |
| Screening | 326 | 28.1 | 212 | 48.3 | 24 | 5.1 | 90 | 35.4 |
| Contact tracing | 134 | 11.5 | 64 | 14.6 | 16 | 3.4 | 54 | 21.3 |
| Total[a] | 1162 | 100.0 | 439 | 100.0 | 469 | 100.0 | 254 | 100.0 |

[a] P value < 0.0001 for difference between person group.[b]500 cases missing or unknown from 1836 notifications. (5 missing gender, 495 cases missing or unknown MSM status among males only) [c]757 missing or unknown place of diagnosis. [d]807 missing or unknown source of infection status.[e]Calculated using Fisher exact test. [f]576 missing or unknown presentation information.

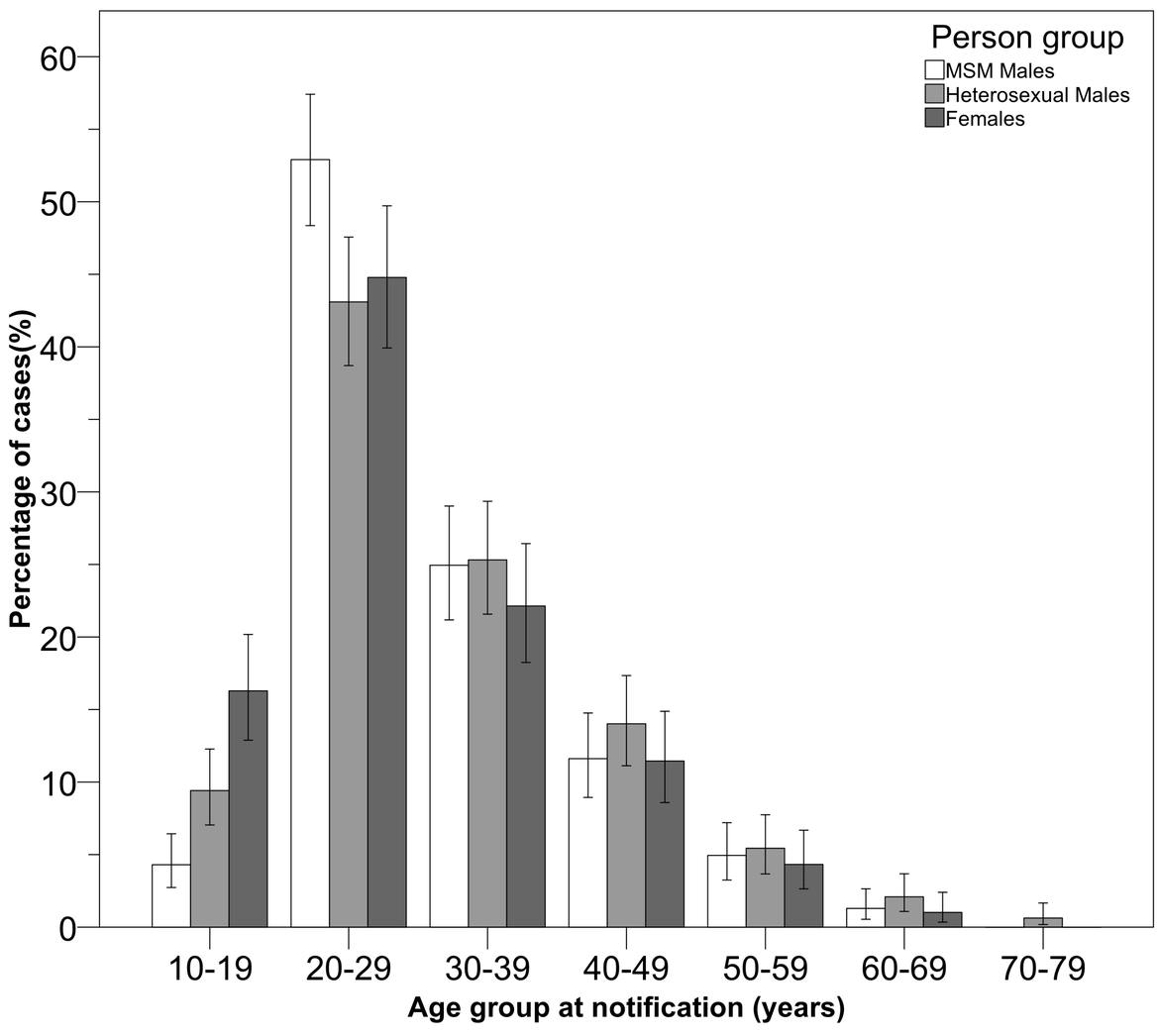


**Figure 1: Percentage of gonorrhoea cases by person group and age in Western Sydney (n=1021) and Nepean Blue Mountain (n=315) between August 2013 and March 2016.**

There was no evidence of an association between district and place of diagnosis (X2=0.08; df=2; P=0.959). Heterosexual males and females were most commonly diagnosed at the GP compared to MSM who were diagnosed more at sexual health clinics (Table 1) (X2=441.95; df=4; P<0.001) Casual partners were more commonly reported in WS (X2=10.73; df=2; P=0.005). Regular partners was the most likely source of infection among females; casual partners among MSM males and heterosexual (Table 1) (X2=195.21; df=4; P<0.001). There was no evidence of an association between district and reason for presentation (X2=3.93, df=2; P=0.14) (Table 1). Symptoms were the most commonly reported for both heterosexual males and females whereas screening was most commonly among MSM. Contact tracing was also more common among MSM and females compared to heterosexual males(X2=334.74; df=4; P<0.001).

## Conclusion:

Our report has identified varying characteristics and testing behaviours of gonorrhoea cases between MSM, heterosexual males and females within the WS and NBM districts, and will assist in targeting localised health promotion and health service delivery towards this population accordingly. Future studies and intermittent enhanced STI surveillance are required to understand the changing characteristics and behaviours at the district level and to evaluate the impact of future interventions and health policies overtime.

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