

# The re-emerging threat of antimicrobial resistant gonorrhoea infection: a case series, New South Wales 2022–2023

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## Background:

Antimicrobial resistant (AMR) gonorrhoea is a growing concern and poses health security risks globally and nationally. COVID-19 related restrictions resulted in a substantial reduction in gonorrhoea notifications in New South Wales (NSW) and protected against imported AMR gonococcal strains. Easing of restrictions has resulted in renewed risks in NSW.

## Methods:

NSW gonorrhoea notifications with isolates at pre-defined alert levels with notification dates from March 2022–April 2023 were analysed by demographics, clinical presentation, exposure risk and resistance profile. Resistance was defined as high-level azithromycin resistance (MICs  $\geq 256$ mg/L) and/or ceftriaxone with MICs  $\geq 0.125$  mg/L and was detected by culture-based susceptibility testing at the Neisseria Reference Laboratory NSWHP. Isolates were also sent for whole genome sequencing.

## Results:

Thirty-two notifications occurred over the 14-month period: four with high-level azithromycin resistance, 28 at ceftriaxone alert level. Cases were predominantly in metropolitan Sydney (94%), aged 18–61 years (median 42), and included heterosexual males (53%) and females (22%), and men who have sex with men (22%). Most cases had symptomatic presentation (63%) with only five cases asymptotically screened. High-level azithromycin was linked to South America (75%) and to Africa (25%). Epidemiological and genomic mapping suggested most isolates at ceftriaxone alert levels (n=23) were acquired in NSW with the remaining five linked to Asia. The 23 locally acquired cases were a single strain and exposures were predominantly heterosexual (78%).

## Conclusion:

NSW AMR gonorrhoea notifications are at their highest since dual therapy's introduction in 2014. Sporadic importation of AMR gonorrhoea has re-emerged as a disease control threat and transmission of a local strain among heterosexual populations poses additional challenges. While clinicians become increasingly dependent on molecular testing for diagnosis, culture-based susceptibility testing is crucial for AMR surveillance. Additionally, sequencing provides insights into case relationships and enhances essential control activities, such as contact tracing and targeted screening.

## Disclosure of Interest Statement:

None.