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Australian Gonococcal Surveillance Programme

1 April to 30 June 2021

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CDI is produced by the Office of Health Protection and Response, Australian Government Department of Health, GPO Box 9848, (MDP 6) CANBERRA ACT 2601

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Introduction

The National Neisseria Network (NNN), Australia, comprises reference laboratories in each state and territory that report data on susceptibility profiles for clinical *Neisseria gonorrhoeae* isolates from each jurisdiction for an agreed group of antimicrobial agents for the Australian Gonococcal Surveillance Programme (AGSP). The antibiotics—ceftriaxone, azithromycin, ciprofloxacin, and penicillin—represent current or potential agents used for the treatment of gonorrhoea. Ceftriaxone, combined with azithromycin, is the recommended treatment regimen for gonorrhoea in the majority of Australia. However, there are substantial geographic differences in susceptibility patterns in Australia with certain remote regions of the Northern Territory and Western Australia having low gonococcal antimicrobial resistance rates. In these regions, an oral treatment regimen comprising amoxicillin, probenecid, and azithromycin is recommended for the treatment of gonorrhoea. Additional data on other antibiotics are reported in the AGSP Annual Report. The AGSP has a programme-specific quality assurance process.

Results

A summary of the proportion of isolates with decreased susceptibility to ceftriaxone (minimum inhibitory concentration, MIC \geq 0.06 mg/L); and the proportion resistant to azithromycin (MIC \geq 1.0 mg/L), penicillin (MIC \geq 1.0 mg/L), and ciprofloxacin (MIC \geq 1.0 mg/L) for Quarter 2 2021 is shown in Table 1.

Ceftriaxone

For the AGSP, monitoring of ceftriaxone decreased susceptibility (DS) includes the MIC values \geq 0.06 mg/L and is further differentiated by those isolates with MIC value 0.06 mg/L, and those isolates with MIC values \geq 0.125 mg/L. In the second quarter of 2021, the proportion of isolates with ceftriaxone DS in Australia was 0.9%, lower than the proportion reported annually in 2020, as shown in Table 2.

The national trend of isolates with ceftriaxone decreased susceptibility (MIC 0.06 and \geq 0.125 mg/L) since 2010 is shown in Table 2.

Azithromycin

In the second quarter of 2021, the proportion of isolates with resistance to azithromycin (MIC \geq 1.0 mg/L) in Australia was 4.2%, slightly higher than the proportion reported nationally in 2020 (3.9%). Azithromycin resistance peaked in Australia in 2017 and has declined since as shown in Table 3.¹ This will continue to be monitored over the quarters of 2021. Globally there have been reports of increasing azithromycin resistance in *N. gonorrhoeae*.² In the second quarter of 2021, all states reported isolates with resistance to azithromycin, with the exception of the Australian Capital Territory, Tasmania, the Northern Territory and remote regions of Western Australia.

Dual therapy using ceftriaxone plus azithromycin is the recommended treatment for gonorrhoea as a strategy to temper development of more widespread ceftriaxone resistance. Patients with infections in extragenital sites, where the isolate has decreased susceptibility to ceftriaxone, should have test of cure cultures collected. Continued surveillance to monitor

Table 1: Gonococcal isolates showing decreased susceptibility to ceftriaxone, and resistance to azithromycin, penicillin and ciprofloxacin, Australia, 1 April to 30 June 2021, by state or territory

State or territory	Number of isolates tested	Decreased susceptibility		Resistance					
		Ceftriaxone		Azithromycin		Penicillin ^a		Ciprofloxacin	
		n	%	n	%	n	%	n	%
Australian Capital Territory	60	0	0.0	0	0.0	19	31.7	19	31.7
New South Wales	599	2	0.3	62	10.4	274	45.7	401	66.9
Queensland	287	1	0.3	1	0.3	109	38.0	132	46.0
South Australia	80	2	2.5	2	2.5	22	27.5	34	42.5
Tasmania	11	1	9.1	0	0.0	3	27.3	6	54.5
Victoria	557	10	1.8	4	0.7	234	42.0	320	57.5
Northern Territory non-remote	14	0	0.0	0	0.0	0	0.0	1	7.1
Northern Territory remote	33	0	0.0	0	0.0	0	0.0	0	0.0
Western Australia non-remote	124	0	0.0	6	4.8	49	39.5	54	43.5
Western Australia remote	22	0	0.0	0	0.0	1	4.5	2	9.1
Australia	1,787	16	0.9	75	4.2	711	39.8	969	54.2

^a Penicillin resistance includes a MIC value of ≥ 1.0 mg/L or penicillinase production

Table 2: Percentage of gonococcal isolates with decreased susceptibility to ceftriaxone (MIC 0.06 and ≥ 0.125 mg/L), Australia, 2010 to 2020, 1 January to 31 March 2021 and 1 April to 30 June 2021

Ceftriaxone MIC mg/L	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021 Q1	2021 Q2
0.06	4.80%	3.20%	4.10%	8.20%	4.80%	1.70%	1.65%	1.02%	1.67%	1.19%	0.87%	0.86%	0.90%
≥ 0.125	0.10%	0.10%	0.30%	0.60%	0.60%	0.10%	0.05%	0.04%	0.06%	0.11%	0.07%	0.00%	0.00%
Total	4.90%	3.30%	4.40%	8.80%	5.40%	1.80%	1.70%	1.06%	1.73%	1.30%	0.94%	0.86%	0.90%

Table 3: Percentage of gonococcal isolates with resistance to azithromycin (MIC \geq 1.0 mg/L), Australia, 2012 to 2020, 1 January to 31 March 2021 and 1 April to 30 June 2021.

Azithromycin Resistance	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021 Q1	2021 Q2
MIC \geq 1 mg/L	1.3%	2.1%	2.5%	2.6%	5.0%	9.3%	6.2%	4.6%	3.9%	4.8%	4.2%

N. gonorrhoeae with elevated MIC values, coupled with sentinel site surveillance in high-risk populations, remains essential to inform therapeutic strategies, to identify incursion of resistant strains, and to detect instances of treatment failure.

Author details

Monica M Lahra^{1,2}

Masoud Shoushtari¹

Tiffany R Hogan¹

1. The World Health Organisation Collaborating Centre for STI and AMR and Neisseria Reference Laboratory, NSW Health Pathology, Microbiology, The Prince of Wales Hospital, Randwick, NSW, 2031

2. School of Medical Sciences, Faculty of Medicine, the University of New South Wales, Kensington, NSW, 2052

Corresponding author

Professor Monica M Lahra,

The World Health Organization Collaborating Centre for STI and AMR, Sydney, and Neisseria Reference Laboratory, NSW Health Pathology, Microbiology, The Prince of Wales Hospital, Randwick, NSW, 2031.

Telephone: +61 2 9382 9054

Facsimile: +61 2 9382 9098

Email: monica.lahra@health.nsw.gov.au

References

1. Lahra MM, Shoushtari M, George CRR, Armstrong BH, Hogan TR. Australian Gonococcal Surveillance Programme Annual Report 2020. *Commun Dis Intell* (2018). 2021;45. doi: <https://doi.org/10.33321/cdi.2021.45.58>.
2. Unemo M. Current and future antimicrobial treatment of gonorrhoea – the rapidly evolving *Neisseria gonorrhoeae* continues to challenge. *BMC Infect Dis*. 2015;15:364.