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Australian Gonococcal Surveillance Programme

1 January to 31 March 2020

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Australian Gonococcal Surveillance Programme

1 January to 31 March 2020

Monica M Lahra, Masoud Shoushtari, Tiffany R Hogan

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 1 2020, 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 first quarter of 2020, the proportion of isolates with ceftriaxone DS in Australia was 1.37%, slightly higher than the annual proportion for 2019, as shown in Table 2. There were 3 isolates reported in the first quarter of 2020 in Australia with MIC of 0.125 mg/L, 2 from NSW and 1 from Victoria.

The national trend of isolates with ceftriaxone decreased susceptibility (MIC 0.06 and \geq 0.125 mg/L) since 2012 is shown in Table 2.

Azithromycin

In the first quarter of 2020, the proportion of isolates with resistance to azithromycin (MIC \geq 1.0 mg/L) in Australia was 4.0%, slightly lower than the proportion reported nationally in 2019 and continuing a downward trend seen since 2017, but remaining higher than the proportion reported in Australia for 2013–2015 (2.1–2.6%) as shown in Table 3.¹ Globally, there have been increasing reports of azithromycin resistance in *N. gonorrhoeae*.²

In quarter 1 2020, all states reported isolates with resistance to azithromycin, with the exceptions of Tasmania, and remote regions of the Northern Territory and Western Australia.

Table 1: Gonococcal isolates showing decreased susceptibility to ceftriaxone, and resistance to azithromycin, penicillin, and ciprofloxacin, Australia, 1 January to 31 March 2020, by state or territory

State or territory	Number of isolates tested	Decreased susceptibility						Resistance						
		Ceftriaxone			Azithromycin			Penicillin ^a			Ciprofloxacin			
		n	%	n	%	n	%	n	%	n	%			
	Q1, 2020													
ACT	71	0	0.0	4	5.6	9	12.7	29	40.8					
NSW	881	20	2.3	51	5.8	287	32.6	364	41.3					
Qld	474	4	0.8	14	3.0	123	25.9	120	25.3					
SA	133	0	0.0	1	0.8	15	11.3	31	23.3					
Tas	18	0	0.0	0	0	3	16.7	10	55.6					
Vic	661	9	1.4	23	3.5	167	25.3	260	39.3					
NT non-remote	12	0	0	1	8	0	0	2	16.7					
NT remote	21	0	0	0	0	0	0	0	0					
WA non-remote	248	2	0.8	7	2.8	73	29.4	80	32.3					
WA remote	35	0	0	0	0	2	6	1	2.9					
Australia	2,554	35	1.4	101	4.0	679	26.6	897	35.1					

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 2019, and 1 January to 31 March 2020

Ceftriaxone MIC mg/L	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020 Q1
0.06	4.80%	3.20%	4.10%	8.20%	4.80%	1.70%	1.65%	1.02%	1.67%	1.19%	1.25%
≥ 0.125	0.10%	0.10%	0.30%	0.60%	0.60%	0.10%	0.05%	0.04%	0.06%	0.11%	0.12%
Total	4.90%	3.30%	4.40%	8.80%	5.40%	1.80%	1.70%	1.06%	1.73	1.30%	1.37%

Table 3: Percentage of gonococcal isolates with resistance to azithromycin (MIC ≥ 1.0 mg/L), Australia, 2012 to 2019, and 1 January to 31 March 2020

Azithromycin Resistance	2012	2013	2014	2015	2016	2017	2018	2019	2020 Q1
MIC ≥ 1 mg/L	1.3%	2.1%	2.5%	2.6%	5.0%	9.3%	6.2%	4.6%	4.2%

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

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References

1. Lahra MM, Hogan TR. Australian Gonococcal Surveillance Programme. Annual Report 2019. *Commun Dis Intell* (2018). 2020; 44. doi: <https://doi.org/10.33321/cdi.2020.44.57>.
2. Unemo M. Current and future antimicrobial treatment of gonorrhoea – the rapidly evolving *Neisseria gonorrhoeae* continues to challenge. *BMC Infect Dis*. 2015;15:364.