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Australian Gonococcal Surveillance Programme, 1 July to 30 September 2017

Monica M Lahra and Rodney P Enriquez on behalf of
The National Neisseria Network, Australia

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Communicable Diseases Intelligence is produced by:
Health Protection Policy Branch
Office of Health Protection
Australian Government
Department of Health
GPO Box 9848, (MDP 6)
CANBERRA ACT 2601

Email:

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Australian Gonococcal Surveillance Programme

1 July to 30 September 2017

Monica M Lahra and Rodney P Enriquez on behalf of The National Neisseria Network, Australia

Introduction

The National Neisseria Network (NNN), Australia, comprises reference laboratories in each state and territory that report data on sensitivity to an agreed group of antimicrobial agents for the Australian Gonococcal Surveillance Programme (AGSP). The antibiotics are penicillin, ceftriaxone, azithromycin and ciprofloxacin. These are current or potential agents used for the treatment of gonorrhoea. Azithromycin combined with ceftriaxone is the recommended treatment regimen for gonorrhoea in the majority of Australia. However, there are substantial geographic differences in susceptibility patterns in Australia and in certain remote regions of the Northern Territory and Western Australia gonococcal antimicrobial resistance rates are low, and 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, and the proportion resistant to azithromycin, penicillin, and ciprofloxacin for Quarter 3 2017 are shown in Table 1.

In the third quarter of 2017 the proportion of isolates with ceftriaxone decreased susceptibility (DS) in Australia was 1.5%, slightly higher than the second quarter of 2017, but slightly lower than the annual proportion for 2016 (1.7%).¹ There was one isolate, from New South Wales, with an MIC of 0.50 mg/L, the highest MIC determined since 2013.

The category of ceftriaxone DS as reported by the AGSP includes the MIC values 0.06 and ≥ 0.125 mg/L, and the national trend since 2011 is shown in Table 2.

A summary of ceftriaxone DS strains that were also penicillin and ciprofloxacin resistant, or

isolated from extragenital sites (rectal and pharyngeal) for Quarter 3, 2017 by state or territory, and by sex (male/female) is shown in Table 3.

Azithromycin

In the third quarter of 2017, the proportion of isolates with resistance to azithromycin in Australia was 8.0%, lower than in quarter 1 (10.3%) and quarter 2 (11.0%), but more than the proportion reported nationally for 2016 (5.0%), and almost four times the level reported in Australia for 2013–2015 (2.1–2.6%).¹ Globally there have been increasing reports of azithromycin resistance in *N. gonorrhoeae*.²

In quarter 3 2017, most states reported isolates with resistance to azithromycin, with the exception of the Australian Capital Territory, Northern Territory and remote Western Australia. While a decrease, compared with quarters 1 and 2 2017, was seen in Victoria, New South Wales, South Australia, and Western Australia, the proportion of resistant isolates in those states remains high. Ongoing investigations including typing studies are underway in the jurisdictions.

Table 1: Gonococcal isolates showing decreased susceptibility to ceftriaxone and resistance to azithromycin, penicillin, and ciprofloxacin, Australia, 1 July to 30 September 2017, by State or Territory

State or Territory	Number of isolates tested	Decreased Susceptibility		Resistance					
		Ceftriaxone MIC ≥ 0.06 mg/L		Azithromycin MIC ≥ 1.0 mg/L		Penicillin ^a MIC ≥ 1.0 mg/L		Ciprofloxacin MIC ≥ 1.0 mg/L	
		n	%	n	%	n	%	n	%
Australian Capital Territory	30	0	0	0	0	3	10.0	7	23.3
New South Wales	669	2	0.3	55	8.2	143	21.4	215	32.1
Queensland	303	2	0.7	8	2.6	95	31.4	61	20.1
South Australia	91	0	0	5	5.5	42	46.2	43	47.3
Tasmania	12	0	0	1	8.3	6	50.0	10	83.3
Victoria	559	23	4.1	73	13.1	152	27.2	166	29.7
Northern Territory Urban & Rural	7	0	0	0	0	0	0	0	0
Northern Territory Remote	43	0	0	0	0	1	2.3	2	4.7
Western Australia Urban & Rural	147	1	0.7	9	6.1	27	18.4	29	19.7
Western Australia Remote	25	0	0	0	0	3	12.0	4	16.0
AUSTRALIA	1886	28	1.5	151	8.0	472	25.0	537	28.5

a Penicillin resistance includes 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, 2011 to 2016, and 1 July to 30 September 2017.

Ceftriaxone MIC mg/L	2011	2012	2013	2014	2015	2016	2017 Q1	2017 Q2	2017 Q3
0.06	3.20%	4.10%	8.20%	4.80%	1.70%	1.65%	1.20%	1.20%	1.50%
≥ 0.125	0.10%	0.30%	0.60%	0.60%	0.10%	0.05%	0	0.10%	0.05%

Table 3: Percentage of gonococcal isolates with decreased susceptibility to ceftriaxone (MIC ≥ 0.06 mg/L) and that were penicillin (Pen) and ciprofloxacin (Cip) resistant (R), isolated from extragenital sites, and by sex, Australia, 1 July to 30 September 2017, by State or Territory.

State or Territory	Strains with ceftriaxone decreased susceptibility (CRO DS)									
	Total		Pen R + Cip R		Males		Females		Extragenital sites	
	n	%	n	%	n	%	n	%	n	%
Australian Capital Territory	0	0	0	0	0	0	0	0	0	0
New South Wales	2	100	2	100	0	0	0	0	1	50
Queensland	2	50	1	50	1	50	0	0	0	0
South Australia	0	0	0	0	0	0	0	0	0	0
Tasmania	0	0	0	0	0	0	0	0	0	0
Victoria	23	78	19	83	4	17	0	0	9	39
Northern Territory Urban & Rural	0	0	0	0	0	0	0	0	0	0
Northern Territory Remote	0	0	0	0	0	0	0	0	0	0
Western Australia Urban & Rural	1	100	1	100	0	0	0	0	0	0
Western Australia Remote	0	0	0	0	0	0	0	0	0	0
AUSTRALIA	28	78.6	23	82.1	5	17.9	10	35.7		

Dual therapy of ceftriaxone plus azithromycin is the recommended treatment for gonorrhoea as a strategy to temper development of more widespread resistance. Patients with infections in extragenital sites, where the isolate has decreased susceptibility to ceftriaxone, are recommended to have 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 important to inform therapeutic strategies, to identify incursion of resistant strains, and to detect instances of treatment failure.

Author details

Monica M Lahra¹

Rodney P Enriquez¹

1. The World Health Organisation Collaborating Centre for STD and Neisseria Reference Laboratory, New South Wales Health Pathology; Prince of Wales Hospital, Randwick, NSW, 2031

Corresponding author

Professor Monica M Lahra

World Health Organization Collaborating Centre for STI and AMR, Sydney, and Neisseria Reference Laboratory, Microbiology Department, SEALS, The Prince of Wales Hospital, Randwick, NSW, 2031. School of Medical Sciences, Faculty of Medicine, the University of New South Wales, NSW 2050 Australia.

Telephone: +61 2 9382 9050.

Facsimile: +61 2 9382 9210.

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

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