Australian Gonococcal Surveillance Programme, 1 July to 30 September 2016

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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 amoxycillin, 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 program-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 the 3rd quarter of 2016 are shown in Table 1.

Ceftriaxone MIC values in the range 0.06–0.125 mg/L have been reported by the AGSP in the category decreased susceptibility since 2005. There was no isolate with a ceftriaxone MIC value greater than 0.125 mg/L in this quarter. A summary of the proportion of isolates with decreased susceptibility to ceftriaxone for 2011 to 2015, and the first 3 quarters of 2016 is shown in Table 2.

Table 1: Gonococcal isolates showing decreased susceptibility to ceftriaxone and resistance to azithromycin, penicillin, and ciprofloxacin, Australia, 1 July to 30 September 2016, by state or territory

State or territory	Number of isolates tested	Decreased susceptibility		Resistance					
		Ceftriaxone MIC ≥0.06–0.125 mg/L		Azithromycin MIC ≥1.0 mg/L		Penicillin* MIC ≥1.0 mg/L		Ciprofloxacin MIC ≥1.0 mg/L	
		n	%	n	%	n	%	n	%
Australian Capital Territory	32	0	0.0	1	3.1	4	12.5	3	9.4
New South Wales	532	23	4.3	32	6.0	272	51.1	172	32.3
Queensland	235	8	3.4	4	1.7	59	25.1	36	55.4
South Australia	65	0	0.0	5	7.7	28	43.1	36	55.4
Tasmania	5	0	0.0	1	20.0	2	40.0	2	40.0
Victoria	441	5	1.1	29	6.6	204	46.3	175	39.7
Northern Territory Urban & Rural	22	0	0.0	0	0.0	1	4.5	5	22.7
Northern Territory Remote	34	0	0.0	0	0.0	0	0.0	0	0.0
Western Australia Urban & Rural	168	3	1.8	19	11.3	26	15.5	38	22.6
Western Australia Remote	39	0	0.0	0	0.0	3	7.7	3	7.7
Australia	1,573	39	2.5	91	5.8	599	38.1	491	31.2

* 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 0.06-0.125 mg/L, Australia, 2011 to 30 September 2016

Ceftriaxone MIC mg/L	2011	2012	2013	2014	2015	2016 Q1	2016 Q2	2016 Q3
0.06	3.2%	4.1%	8.2%	4.8%	1.7%	1.5%	3.4%	2.2%
0.125	0.1%	0.3%	0.6%	0.6%	0.1%	0.0%	0.1%	0.3%

Ceftriaxone

In the 3rd quarter of 2016, the jurisdictions that reported isolates with decreased susceptibility to ceftriaxone were New South Wales, Queensland, Victoria, and urban/rural Western Australia.

Those *Neisseria gonorrhoeae* isolates that have decreased susceptibility to ceftriaxone and are penicillin and ciprofloxacin resistant are referred to as multidrug-resistant (MDR) for the purposes of the AGSP. From New South Wales there were 23/532 strains with decreased susceptibility to ceftriaxone and of those 10 (44%) were MDR, 17/23 (74%) were from males and 8 (35%) were isolated from extragenital sites (rectal and pharyngeal). From Queensland, there were 8/235 strains with decreased susceptibility to ceftriaxone and of those 8 (100%) were MDR, 7 (88%) were from males and 2 (25%) were from extragenital sites. From Victoria, there were 5/441 strains with decreased susceptibility to ceftriaxone and of those all were MDR, all were from males and none were isolated from extragenital sites. From urban/rural Western Australia there were 3/168 strains with decreased susceptibility to ceftriaxone and of those 2 (67%) were MDR, all were from males and 2 (67%) were isolated from an extragenital site.

Azithromycin

In the 3rd quarter of 2016, all states, with the exception of the Northern Territory and remote Western Australia, reported isolates with resistance to azithromycin. Notably, the reported proportion of *N. gonorrhoeae* isolates with resistance to azithromycin in South Australia for the 3rd quarter 2016 was 5/65 (7.7%). This was lower than that reported in the first 2 quarters of 2016: 26/88 (29.5%) and 25/110 (22.7%) respectively; and compares with 7/251 (2.8%) for 2015. None of the South Australian strains had high level azithromycin resistance (MIC ≥ 256 mg/L). Also of note, there was an increase in azithromycin resistance reported from urban/rural Western Australia, (11.3%) with 1 isolate being of high level resistance (MIC ≥ 256 mg/L).

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