

Gonococcal Surveillance Australia: Quarter 3, 2012

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Introduction

The Australian Gonococcal Surveillance Programme (AGSP) reference laboratories in the various states and territories report data on sensitivity to an agreed 'core' group of antimicrobial agents quarterly. The antibiotics routinely surveyed are the penicillins, ceftriaxone, ciprofloxacin and spectinomycin which are current or potential agents used for the treatment of gonorrhoea. Azithromycin testing is now performed by all states and territories as it has a role as part of a dual therapy regimen in the treatment of gonorrhoea. When in *vitro* resistance to a recommended agent is demonstrated in 5% or more of isolates from a general population, it is usual to consider the removal of that agent from the list of recommended treatments.¹ Additional data are also provided on other antibiotics from time to time. At present all laboratories also test isolates for the presence of high level (plasmid-mediated) resistance to the tetracyclines, known as tetracycline-resistant *Neisseria gonorrhoeae* (TRNG). Tetracyclines are however not a recommended therapy for gonorrhoea in Australia. These data are reported in the AGSP Annual Report. Comparability of data is achieved by means of a standardised system of testing and a programme-specific quality assurance process. Due to the substantial geographic differences in susceptibility patterns in Australia, regional as well as aggregated data are presented. Since quarter 2, 2012 these data have been presented quarterly in tabulated

form, as well as in the AGSP Annual Report. Tables for quarters 1, 2 and 3 2012 have been included in this report to complete presentation of the AGSP quarterly data in this format for 2012.

Comments and Notes

Penicillin resistant *N. gonorrhoeae* are defined as those isolates with an minimum inhibitory concentration (MIC) to penicillin equal to or greater than 1.0 mg/L. Total penicillin resistance includes penicillinase producing *N. gonorrhoeae* (PPNG) and chromosomally mediated resistance to penicillin (CMRP).

Quinolone resistant *N. gonorrhoeae* are defined as those isolates with an MIC to ciprofloxacin equal to or greater than 0.06 mg/L, and azithromycin resistance as those isolates with an MIC to azithromycin equal to or greater than 1.0 mg/L. In the Northern Territory, the number of isolates for which results were available in the 3rd quarter 2012 was lower than in the previous two quarters as data from Alice Springs was not available. Penicillin and ciprofloxacin resistance increased to 8.5% in this quarter in the 47 *N. gonorrhoeae* isolates tested in the Northern Territory.

Regarding ceftriaxone, isolates with MIC values in the range 0.06-0.125 mg/L are reported as having decreased susceptibility. There has not been an isolate reported in Australia with an MIC >0.125mg/L. In Figure 1 the AGSP data for 2011 Quarters 1, 2 and 3, and for the same period in 2012 is presented by ceftriaxone MIC value to enable monitoring of the shift in MIC values in *N. gonorrhoeae* isolates over time, in addition to reporting the proportion in the category of decreased susceptibility. A decrease in proportion of isolates with a ceftriaxone MIC value of ≤ 0.008 mg/L is evident in 2012 compared

Table 1: Gonococcal isolates showing decreased susceptibility to ceftriaxone and resistance to ciprofloxacin, azithromycin and penicillin, Australia, 1 January to 31 March 2012, by state or territory

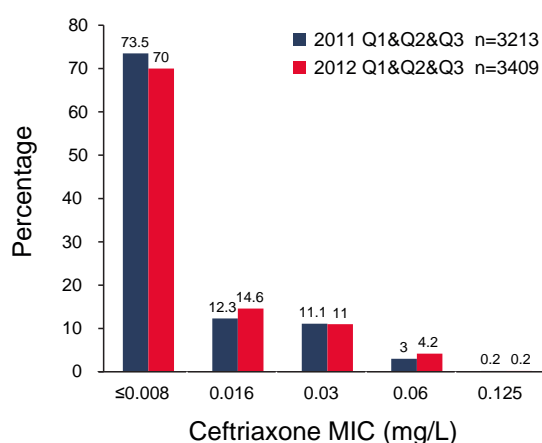
State or Territory	Number of isolates tested	Decreased Susceptibility		Resistance					
		Ceftriaxone		Ciprofloxacin		Azithromycin		Penicillin	
		No.	%	No.	%	No.	%	No.	%
Australian Capital Territory	13	0	0.0	8	61.5	0	0.0	3	23.1
New South Wales	447	17	3.8	121	27.1	4	0.9	119	26.6
Northern Territory	77	0	0.0	1	1.3	1	1.3	1	1.3
Queensland	205	3	1.5	35	17.1	2	1.0	44	21.5
South Australia	27	0	0.0	8	29.6	8	29.6	12	44.4
Tasmania	1	1	100.0	1	100.0	0	0.0	0	0.0
Victoria	312	21	6.7	166	53.2	14	4.5	178	57.1
Western Australia	130	2	1.5	29	22.3	1	0.8	21	16.2
Australia	1,212	44	3.6	369	30.4	30	2.5	378	31.2

Table 2: Gonococcal isolates showing decreased susceptibility to ceftriaxone and resistance to ciprofloxacin, azithromycin and penicillin, Australia, 1 April to 30 June 2012, by state or territory

State or Territory	Number of isolates tested	Decreased Susceptibility		Resistance					
		Ceftriaxone		Ciprofloxacin		Azithromycin		Penicillin	
		No.	%	No.	%	No.	%	No.	%
Australian Capital Territory	9	0	0.0	4	44.4	0	0.0	3	33.3
New South Wales	421	16	3.8	115	27.3	0	0.0	105	24.9
Northern Territory	82	0	0.0	0	0.0	0	0.0	1	1.2
Queensland	174	8	4.6	26	14.9	2	1.1	48	27.6
South Australia	44	0	0.0	7	15.9	0	0.0	7	15.9
Tasmania	4	0	0.0	1	25.0	0	0.0	3	75.0
Victoria	355	21	5.9	149	42.0	108	30.4	202	56.9
Western Australia	119	1	0.8	30	25.2	1	0.8	26	21.8
Australia	1208	46	3.8	332	27.5	111	9.2	395	32.7

Table 3: Gonococcal isolates showing decreased susceptibility to ceftriaxone and resistance to ciprofloxacin, azithromycin and penicillin, Australia, 1 July to 30 September 2012, by state or territory

State or Territory	Number of isolates tested	Decreased Susceptibility		Resistance					
		Ceftriaxone		Ciprofloxacin		Azithromycin		Penicillin	
		No.	%	No.	%	No.	%	No.	%
Australian Capital Territory	15	1	6.7	1	6.7	0	0.0	0	0.0
New South Wales	442	20	4.5	146	33.0	3	0.7	126	28.5
Northern Territory	47	0	0.0	4	8.5	0	0.0	4	8.5
Queensland	159	2	1.3	25	15.7	3	1.9	42	26.4
South Australia	41	1	2.4	16	39.0	0	0.0	19	46.3
Tasmania	4	0	0.0	2	50.0	0	0.0	2	50.0
Victoria	279	36	12.9	120	43.0	7	2.5	146	52.3
Western Australia	136	3	2.2	34	25.0	0	0.0	37	27.2
Australia	1123	63	5.6	348	31.0	13	1.2	376	33.5

Figure 1: Distribution of ceftriaxone MIC values in gonococcal isolates tested in the AGSP Quarters 1, 2 and 3: January to September, 2011 and 2012

with 2011, with increases in the higher MIC values demonstrating a right shift over these periods which will continue to be monitored.

Reference

1. Management of sexually transmitted diseases. World Health Organization [Internet] 1997. [Revised 1997:p.37]. Available from: http://whqlibdoc.who.int/hq/1997/WHO_GPA_TEM_94.1_Rev.1.pdf