Australian Gonococcal Surveillance Programme, 1 April to 30 June 2013

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Introduction

The Australian National Neisseria Network reference laboratories in each state and territory report data on sensitivity to an agreed 'core' group of antimicrobial agents quarterly for the Australian Gonococcal Surveillance Programme (AGSP). The antibiotics routinely surveyed are penicillin, 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 remove that agent from the list of recommended treatments.[1] Additional data are also provided on other antibiotics from time to time. The AGSP has a program-specific quality assurance process. Because of the substantial geographic differences in susceptibility patterns in Australia, regional as well as aggregated data are presented. These data are presented quarterly in tabulated form, below, as well as in the AGSP annual report. For more information see *Commun Dis Intell* 2013;37(1):E61.

Results

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

Azithromycin resistance is reported as a MIC to azithromycin equal to or greater than 1.0 mg/L. There were no isolates reported in Australia with high level resistance with an azithromycin (MIC value >256 mg/L) in this quarter.

Ceftriaxone MIC values in the range 0.06–0.25 mg/L are reported as having decreased susceptibility (DS). To date there has not been an isolate reported in Australia with a ceftriaxone MIC value >0.125 mgL. In the 2nd quarter 2013 there was a further increase to 10.9% in the proportion of NG isolates with DS to ceftriaxone nationally, compared with 3.4% in 2012 and 3.6% in 2011, and 5.1% during the same quarter in 2010. An increase in the proportion of NG isolates with DS was seen in all jurisdictions with the exception of the Australian Capital Territory. This increase was predominantly from New South Wales where the proportion of NG isolates with DS to ceftriaxone rose to 15% from 3.8% during the same quarter 2012; and Victoria with an increase to 12% in this quarter 2013 from 5.9% in the 2nd quarter 2012. The majority of isolates with decreased susceptibility to ceftriaxone were also multi-drug resistant,

Table: Gonococcal isolates showing decreased susceptibility to ceftriaxone and resistance to ciprofloxacin, azithromycin and penicillin, Australia, 1 April to 30 June 2013, by state or territory

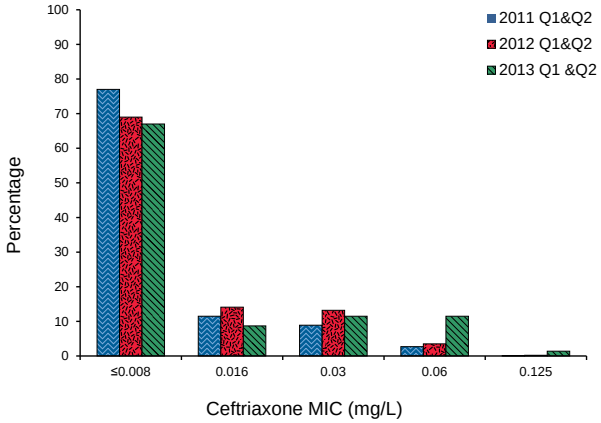
State or territory	Number of isolates tested	Decreased susceptibility		Resistance					
		Ceftriaxone		Ciprofloxacin		Azithromycin		Penicillin	
		n	%	n	%	n	%	n	%
ACT	8	0	0.0	0	0.0	0	0.0	1	12.0
NSW	412	63	15.0	168	41.0	3	0.7	156	38.0
NT	73	1	1.4	4	5.5	0	0.0	5	6.9
Qld	184	15	8.2	58	31.0	10	5.4	60	33.0
SA	63	2	3.2	16	25.0	0	0.0	11	18.0
Tas.	15	5	33.0	6	40.0	0	0.0	6	40.0
Vic.	423	49	12.0	180	43.0	16	3.8	161	38.0
WA	102	4	3.9	28	28.0	0	0.0	25	25.0
Aust	1,280	139	10.9	460	36.0	29	2.3	425	33.0

with resistance to penicillin and high level resistance to ciprofloxacin. From New South Wales, there were 63 strains with decreased susceptibility to ceftriaxone and of those, 51/63 (81%) were multi-drug resistant; 57/63 (91%) were from males; and 33/63 (58%) were isolated from extra genital sites (rectal and pharyngeal). In Victoria, there were 49 strains with decreased susceptibility to ceftriaxone. All were from males with 30/49 (61%) isolated from extra genital sites. There were recent reports of ceftriaxone 500 mg treatment failure in Victoria and New South Wales. These patients had pharyngeal infections where the gonococcal strains had ceftriaxone MIC values in the range 0.03–0.06 mg/L.[2,3] Patients with infections in extra genital sites, where the isolate has decreased susceptibility to ceftriaxone are recommended to have a test to confirm a cure.

In Queensland, there were 15 (8%) isolates reported with DS to ceftriaxone compared with 4.6% during the same quarter in 2012. Western Australia reported 4 (3.9%) isolates; an increase from 0.8%. South Australia reported 2 (3.2%) from 63 NG isolates with DS during this quarter in 2012. The Northern Territory reported 1 (1.4%) isolate in this quarter; an increase from 0%. Although numbers were low, Tasmania reported 5 of 15 (33%) isolates with decreased susceptibility, whereas there were none during the 2nd quarter of 2012. No gonococci with DS to ceftriaxone were reported from the Australian Capital Territory.

The greatest increase is in the proportion of isolates with a ceftriaxone MIC value of 0.06–0.125 mg/L (Figure).

Figure: Distribution of ceftriaxone MIC values in gonococcal isolates tested in the AGSP, 1 April to 30 June, 2011 to 2013



References

1. Management of Sexually Transmitted Diseases. World Health Organization 1997; Document WHO/GPA/TEM94.1 Rev.1 p 37.
2. Read PJ, Limnios EA, McNulty A, Whiley D, Lahra MM. One confirmed and one suspected case of pharyngeal gonorrhoea treatment failure following 500mg ceftriaxone in Sydney, Australia. *Sex Health* 2013;10(5):460–462.
3. Chen M, Stevens K, Tideman R, Zaia A, Fairley CK, Lahra MM, Hogg G. Failure of 500 mg of ceftriaxone to eradicate pharyngeal gonorrhoea, Australia. *J Antimicrob Chemother* 2013;68(6):1445–1447.