

AUSTRALIAN GONOCOCCAL SURVEILLANCE PROGRAMME, 1 JULY TO 30 SEPTEMBER 2013

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Introduction

The Australian National Neisseria Network reference laboratories in each State and Territory report data quarterly on sensitivity to an agreed group of antimicrobial agents, for the Australian Gonococcal Surveillance Programme (AGSP). The antibiotics routinely tested and reported 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. These data are reported in the AGSP annual report. 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. The AGSP data are presented quarterly in tabulated form, as well as in the AGSP annual report.

Results

Penicillin resistant *Neisseria gonorrhoeae* (NG) is defined as those isolates with a minimum inhibi-

tory concentration (MIC) to penicillin equal to or greater than 1.0 mg/L. Total penicillin resistance includes penicillinase producing NG (PPNG) and NG that have chromosomally mediated resistance to penicillin (CMRP).

Quinolone resistant NG is defined as those isolates with a MIC to ciprofloxacin equal to or greater than 0.06 mg/L.

Azithromycin resistance is defined 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 (HLR) with an azithromycin (MIC value >256 mg/L) in this quarter.

Ceftriaxone MIC values in the range 0.06–0.250 mg/L have been reported in the category decreased susceptibility (DS) since 2005. To date there has not been an isolate reported in Australia with a ceftriaxone MIC value >0.125 mg/L.

Over the 1st half of 2013, a sustained increase was reported in the proportion of NG isolates with DS to ceftriaxone, predominantly from New South Wales and Victoria, when compared with the same period in 2012. This increase was again evident in the 3rd quarter of 2013, compared with the same quarter in 2012. When compared with the 2nd quarter of 2013, there was a decrease from 10.9% to 8.8% in the proportion of NG isolates with DS to

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

State or territory	Number of isolates tested	Decreased susceptibility		Resistance					
		Ceftriaxone		Ciprofloxacin		Azithromycin		Penicillin	
		n	%	n	%	n	%	n	%
ACT	9	0	0.0	3	33.0	0	0.0	2	22.0
NSW	408	45	11.0	139	34.0	1	0.3	177	43.0
NT	78	0	0.0	3	3.9	0	0.0	3	3.9
Qld	165	9	5.5	49	30.0	16	10.0	47	28.5
SA	73	0	0.0	7	9.6	1	1.4	6	8.2
Tas.	10	4	40.0	5	50.0	0	0.0	6	60.0
Vic.	344	47	14.0	133	39.0	6	1.8	118	34.0
WA	111	0	0.0	30	27.0	4	3.6	33	30.0
Aust.	1,198	105	8.8	369	30.8	28	2.3	392	33.0

ceftriaxone nationally, but this is more than double that reported in the 3rd quarter of 2011 and 2012 (3.4% and 3.6%, respectively).

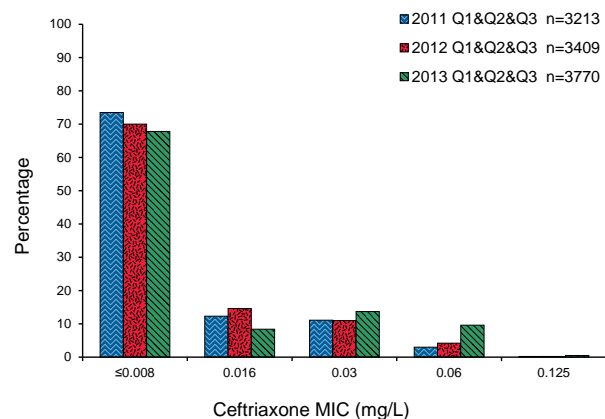
The highest proportions of isolates with decreased susceptibility to ceftriaxone were reported from the eastern states: Victoria, New South Wales and Queensland. In Victoria there were 47 strains with DS to ceftriaxone and of those, 42/47 (89%) were multiple drug resistant; 38/47 (81%) were from males; and 22/47 (46%) were isolated from extra genital sites (rectal and pharyngeal). In New South Wales there were 45 strains with decreased susceptibility to ceftriaxone and of those, 31/45 (69%) were multiple drug resistant; 40/45 (89%) were from males; and 23/45 (51%) were isolated from extra genital sites (rectal and pharyngeal). In contrast there were no gonococci with DS to ceftriaxone reported from the Northern Territory, the Australian Capital Territory, South Australia or Western Australia.

There are recent reports of ceftriaxone 500 mg treatment failure from Victoria and New South Wales. These patients had pharyngeal infections where the gonococcal strains with ceftriaxone MIC values in the range 0.03–0.06 mg/L.^{2,3} In addition, in 2013 the first reports of strains with azithromycin HLR were reported from Victoria and Queensland. These are the first reports of HLR to azithromycin reported in Australia.

In response to concerns over the increasing proportions of NG strains with DS to ceftriaxone, dual therapy (ceftriaxone plus azithromycin) is recommended as a strategy to temper development of more widespread resistance.⁴ Patients with infections in extra genital sites, where the isolate has decreased susceptibility to ceftriaxone, are recommended to have a test of cure.⁴

The proportion of NG strains at each ceftriaxone MIC value is shown in the Figure, where it can be seen that the greatest increase is in the proportion of isolates with a ceftriaxone MIC value of 0.06–0.25 mg/L.

Figure: Distribution of ceftriaxone MIC values in gonococcal isolates tested by the Australian Gonococcal Surveillance Programme, 1 January to 30 September 2011 to 2013



Reference

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 500 mg 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.
4. Australasian Sexual Health Alliance. *Australian Sexually Transmitted Infection Treatment Guidelines*. [online] Available from: www.sti.guidelines.org.au