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 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 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.

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

# References

1. Lahra MM, Enriquez RP. Australian Gonococcal Surveillance Programme Annual Report, 2016. Commun Dis Intell (2018). 2018;42. pii: S2209-6051(18)00013-1.
2. Unemo M. Current and future antimicrobial treatment of gonorrhoea – the rapidly evolving Neisseria gonorrhoeae continues to challenge. BMC Infect Dis. 2015;15:364.

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 | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Q3, 2017 | Ceftriaxone  MIC ≥0.06 mg/L | | Azithromycin  MIC ≥1.0 mg/L | | Penicillina  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 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 Q1 | 2017 Q2 | 2017 Q3 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| MIC mg/L |  |  |  |  |  |  |  |  |  |
| 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.

| Strains with ceftriaxone decreased susceptibility (CRO DS) | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| State or Territory | Total | | Pen R + Cip R | | Males | | Females | | Extragenital sites | |
| n | % | n | % | n | % | n | % |
| Australian Capital Territory | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| New South Wales | 2 | 2 | | 100 | 2 | 100 | 0 | 0 | 1 | 50 |
| Queensland | 2 | 1 | | 50 | 1 | 50 | 1 | 50 | 0 | 0 |
| South Australia | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tasmania | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Victoria | 23 | 18 | | 78 | 19 | 83 | 4 | 17 | 9 | 39 |
| Northern Territory urban & rural | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Northern Territory remote | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Western Australia urban & rural | 1 | 1 | | 100 | 1 | 100 | 0 | 0 | 0 | 0 |
| Western Australia remote | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Australia** | **28** | **22** | | **78.6** | **23** | **82.1** | **5** | **17.9** | **10** | **35.7** |

**Communicable Diseases Intelligence**

ISSN: 2209-6051 Online

**Communicable Diseases Intelligence (CDI) is a peer-reviewed scientific journal published by the Office of Health Protection, Department of Health. The journal aims to disseminate information on the epidemiology, surveillance, prevention and control of communicable diseases of relevance to Australia.**

**Editor:** Cindy Toms

**Deputy Editor:** Simon Petrie

**Design and Production:** Kasra Yousefi

**Editorial Advisory Board:** David Durrheim, Mark Ferson, John Kaldor, Martyn Kirk and Linda Selvey

**Website**: <http://www.health.gov.au/cdi>

**Contacts**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:** [cdi.editor@health.gov.au](mailto:cdi.editor@health.gov.au)

**Submit an Article**You are invited to submit your next communicable disease related article to the Communicable Diseases Intelligence (CDI) for consideration. More information regarding CDI can be found at: <http://health.gov.au/cdi>.

Further enquiries should be directed to: [cdi.editor@health.gov.au](mailto:cdi.editor@health.gov.au).

This journal is indexed by Index Medicus and Medline.

Creative Commons Licence - Attribution-NonCommercial-NoDerivatives CC BY-NC-ND

© 2019 Commonwealth of Australia as represented by the Department of Health

This publication is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International Licence from <https://creativecommons.org/licenses/by-nc-nd/4.0/legalcode> (Licence). You must read and understand the Licence before using any material from this publication.

**Restrictions**The Licence does not cover, and there is no permission given for, use of any of the following material found in this publication (if any):

* the Commonwealth Coat of Arms (by way of information, the terms under which the Coat of Arms may be used can be found at [www.itsanhonour.gov.au](http://www.itsanhonour.gov.au/));
* any logos (including the Department of Health’s logo) and trademarks;
* any photographs and images;
* any signatures; and
* any material belonging to third parties.

**Disclaimer**Opinions expressed in Communicable Diseases Intelligence are those of the authors and not necessarily those of the Australian Government Department of Health or the Communicable Diseases Network Australia. Data may be subject to revision.

**Enquiries**Enquiries regarding any other use of this publication should be addressed to the Communication Branch, Department of Health, GPO Box 9848, Canberra ACT 2601, or via e-mail to: [copyright@health.gov.au](mailto:copyright@health.gov.au)

**Communicable Diseases Network Australia**Communicable Diseases Intelligence contributes to the work of the Communicable Diseases Network Australia.  
<http://www.health.gov.au/cdna>