

# High level azithromycin resistant (HL-AziR) gonorrhoea in Ireland

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## Introduction

*Neisseria gonorrhoeae* is the causative organism of the second most highly reported sexually transmitted infection in Ireland, and the national burden of *N. gonorrhoeae* infection is increasing annually (1). If left untreated, gonorrhoea can result in severe secondary sequelae, including pelvic inflammatory disease, ectopic pregnancy, infertility and increased risk of HIV. The threat of antimicrobial resistant *N. gonorrhoeae* is also a serious public health concern and the World Health Organisation has warned that gonorrhoea may become untreatable in the future (2). *N. gonorrhoeae* has rapidly acquired resistance to all antimicrobials used as front-line monotherapy to treat the infection, including the extended spectrum cephalosporin class, such as cefixime and ceftriaxone, which are typically considered to be the last resort for treatment (3). Current treatment guidelines for gonorrhoea infections recommend dual therapy, comprising intramuscular injection with 500 mg ceftriaxone and 1 g azithromycin taken orally (4). The use of dual antimicrobial therapy is expected to delay the development of resistance to ceftriaxone, however if azithromycin becomes ineffective against gonorrhoea there will be no further barriers to the development of ceftriaxone resistance. Resistance to azithromycin, and cases of high level azithromycin resistance (HL-AziR; MIC  $\geq$  256 mg/L), have been reported in many countries and the first two cases of HL-AziR gonorrhoea were reported in Ireland in 2015 (5). Surveillance programmes to monitor the spread of HL-AziR, both nationally and internationally, and continued antimicrobial susceptibility testing are essential to inform gonorrhoea management guidelines and public health policy. This report provides details on all reported cases of HL-AziR gonorrhoea in Ireland from 2011 to the end of the first half of 2017.

## Key Points

A total of 18 cases have been reported in Ireland since 2011, with five cases reported in the first half of 2017 (Figure 1).

There were three cases in females and fifteen in males. The median age for both genders was 20 years (range 18 years – 36 years in females and 18 years – 29 years in males).

Mode of transmission was reported as MSM for three of the cases (17%), heterosexual for fourteen cases (78%) and was missing for one case.

Site of infection was reported as urethral or genital for eight cases (44%), pharyngeal for six (33%) and rectal for two (11%). Two sites of HL-AziR gonorrhoea infection were reported for one case in a heterosexual male; pharynx and urethra. In a second (MSM) male, HL-AziR gonorrhoea was isolated

from the rectum and azithromycin intermediate (MIC 0.5 mg/L) gonorrhoea was isolated from the pharynx. Site of infection was missing for two others (11%).

Thirteen of the cases were reported from the Genito Urinary and Infectious Disease (GUIDe) clinic, three from the Midwest, one of which was reported via Public Health England, one case from the Gay Men's Health Service (GMHS), and one case from the West.

Eight enhanced surveillance forms have been completed by treating clinicians for cases notified in 2015, 2016 and 2017. Data for the remaining cases in this period was based on initial notifications to public health (n=3) or from investigation of National Reference Laboratory data (n=3). Data on cases between 2011 and 2015 were collated from Euro-GASP upload data (n=4).

Of the cases for whom enhanced surveillance information was available:

- County of residence was available for thirteen cases: eight of whom lived in Dublin, two in Limerick, one in Kildare, one in Galway and one in Clare.
- Ten cases were reported as symptomatic, two asymptomatic and unknown for six cases.
- Four cases were successfully treated and have had a negative test of cure (TOC). One case returned for TOC but outcome was unknown. Five cases were treated but have not attended for TOC despite efforts to encourage these patients to return to clinic. These data were missing for the other eight cases.
- A total of nineteen partners were reported for twelve cases. Five partners have been contacted, three of whom were treated and had a negative TOC. Data on the results of contact TOCs was missing in a further 2 cases. Partner notification is hampered by the fact that very often cases do not have contact details for their sexual contacts.

Enhanced surveillance forms are available on request from the HPSC or local public health team.

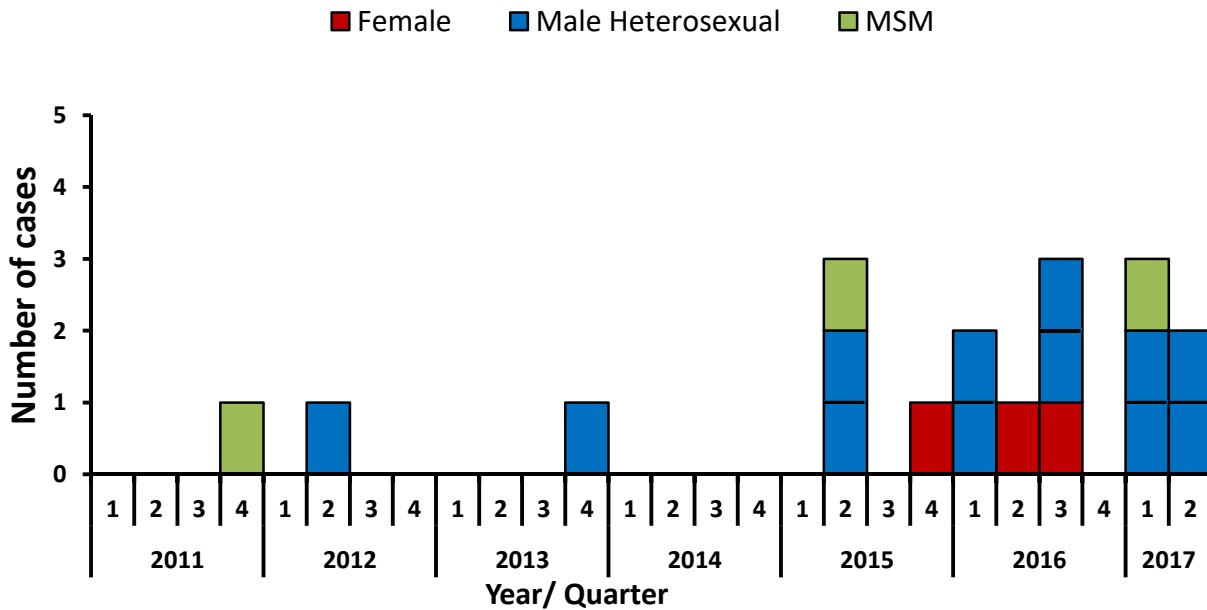


Figure 1. Epidemiological curve of HL-AziR gonorrhoea in Ireland by gender and mode of transmission, 2011-2017.

### Euro-GASP

Since 2010 Ireland has participated in the European Gonococcal Antimicrobial Surveillance Programme (Euro-GASP). Samples submitted to the Clinical Microbiology Laboratory in St. James' Hospital (SJH) are tested for antimicrobial susceptibility and epidemiological data are collated. The data are then uploaded by HPSC to The European Surveillance System (TESSy), a surveillance system used by the European Centre for Disease Prevention and Control. More information is available at:

<http://ecdc.europa.eu/en/healthtopics/gonorrhoea/response-plan/Pages/response-plan.aspx>.

During the period 2010-2016, details of seven Irish isolates with HL-AziR were reported to Euro-GASP. One isolate was reported each year for the period 2011-2013, three isolates were reported in 2015 and one isolate was reported in 2016. No isolates were reported in 2014. Isolate collection for submission to Euro-GASP 2017 is currently underway in SJH, which has been designated the Interim National Gonococcal Reference Laboratory for 2017.

## Conclusions

In line with a global increase in azithromycin resistant gonorrhoea, 18 cases of HL-AziR gonorrhoea have been detected in Ireland from 2011 until the end of the first half of 2017, with an increase in isolates detected from 2015 onwards. The majority of these isolates have been reported in heterosexual males. The current data may be an under-representation of the actual number of HL-AziR isolates in circulation in the country as information on partner notification and treatment has been limited and gonorrhoea infections can often be asymptomatic, particularly in females (3). These limitations highlight the importance of collating enhanced surveillance information, contact tracing and TOC in all cases of HL-AziR gonorrhoea infection.

## Acknowledgements

In order to understand and accurately monitor antimicrobial resistance in gonococcal isolates in Ireland it is essential to have good quality surveillance data. This report is the result of work carried out by many people in collecting and collating the data.

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- Health Advisors, Consultants in Infectious Disease/Genitourinary Medicine and other staff in STI Clinics.



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## Suggested citation

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