Drug-resistance of gonorrhea in the EU: persistent but stable

August 30 2018

Table 8. Resistance to cefixime, azithromycin, ciprofloxacin and penicillin G (only plasmid-mediated high-level resistance; PPNG) by country, Euro-GASP, 2016

Country	Number of isolates tested	Resistance								Method of testing
		Cefixime		Azithromycin		Ciprofloxacin		PPNG		
		No.	%	No.	%	No.	%	No.	%	
Austria	192	8	4.2	9	4.7	126	65.6	36*	23.1	Decentralised – Etest
Belgium	99	8	8.1	9	9.1	44	44.4	16	16.2	Decentralised – MIC
Croatia	9	1	11.1	0	0	6	66.7	1	11.1	Centralised – BKP/Etest
Czech Republic	90	1	1.1	9	10	47	52.2	19	21.1	Centralised – Etest
Denmark	111	0	0	2	1.8	21	18.9	8	7.2	Decentralised – Etest
Estonia	2	0	0	0^	0	0	0	N/T		Decentralised – Etest
France	99	1	1	7	7.1	37	37.4	N/T		Decentralised – Etest
Germany	109	7	6.4	1	0.9	64	58.7	9	8.3	Centralised – BKP/Etest
Greece	100	0	0	14	14	60	60	20	20	Decentralised – Etest
Hungary	94	8	8.5	15	16	38	40.4	8	8.5	Centralised - Etest
Iceland	35	0	0	5	14.3	27	77.1	0^	0	Decentralised – Etest
Ireland	100	0	0	15	15	42	42	11	11	Decentralised – Etest
Italy	100	2	2	11	11	53	53	8	8	Decentralised – Etest
Latvia	8	0	0	0	0	2	25	1	12.5	Centralised – Etest
Luxembourg	20	2	10	0	0	14	70	2	10	Centralised – Etest
Malta	25	0	0	2	8	11	44	5	20	Decentralised – Etest
Netherlands	255	0	0	5	2	75	29.4	N/T		Decentralised – MIC
Norway	111	2	1.8	18	16.2	51	46	18	16.2	Decentralised – MIC
Poland	77	4	5.2	2	2.6	44	57.1	14	18.2	Centralised – Etest
Portugal	110	0	0	38	34.5	51	46.4	13	11.8	Decentralised – Etest
Slovakia	110	4	3.6	1	0.9	62	56.4	19	17.3	Centralised – BKP/Etest
Slovenia	106	0	0	9	8.5	35	33	15	14.2	Decentralised – Etest
Spain	365	6	1.6	15	4.1	210	57.5	59	16.2	Decentralised – Etest
Sweden	100	0	0	5	5	47	47	24	24	Decentralised – Etest
United Kingdom	233	2	0.9	7	3	69	29.6	27	11.6	Decentralised – MIC/BKP/Etest
Total										
Cefixime	2660	56	2.1							
Ciprofloxacin	2660					1236	46.5			
Azithromycin	2659			199	7.5					
PPNG	2228							333	14.9	
95% CI			1.6-2.7		6.5-8.5		44.6-48.4		13.5-16.4	

** 150 isolates tested*

^ 1 isolate tested

N/T: not tested

BKP: Breakpoint

PPNG: Penicillinase-producing Neisseria gonorrhoeae

Resistance to cefixime, azithromycin, ciprofloxacin and penicillin G (only plasmid-mediated high-level resistance; PPNG) by country. Credit: European Centre for Disease Prevention and Control/ECDC

Neisseria gonorrhoea continues to show high levels of resistance to azithromycin across the European Union and European Economic Area, according to the 2016 results of the European Gonococcal Antimicrobial Surveillance Programme (Euro-GASP). This threatens the effectiveness of the currently recommended dual therapy regimen for gonorrhoea. Overall, the rates of resistance to cefixime, ceftriaxone and azithromycin have remained stable when compared to recent years.

The main antibiotics currently recommended for gonorrhoea treatment in Europe, so-called third generation cephalosporins, are the last remaining options for effective first-line antimicrobial single therapy. As susceptibility of *Neisseria gonorrhoea* to these antimicrobials had decreased in the past, the European treatment guidelines suggest the addition of azithromycin to the basic course of the cephalosporins ceftriaxone or cefixime.

In order to monitor the continued effectiveness of this treatment regimen, countries of the European Union and European Economic Area (EU/EEA) participate in Euro-GASP sentinel surveillance programme. Each year they submit isolates to test susceptibility of *Neisseria gonorrhoeae* to the antibiotics commonly used to treat gonorrhoea.

In 2016, 25 EU/EEA countries collected and tested 2 660 gonococcal isolates showing stable rates of resistance against cefixime (2.1%), ciprofloxacin and azithromycin (7.5%) compared with 2015. No isolates with resistance to ceftriaxone were detected compared with one in 2015, five in 2014 and seven in 2013.

While the absence of ceftriaxone resistance among the tested isolates in 2016 is encouraging, the persistent level of resistance to azithromycin is of concern as it threatens to reduce the effectiveness of the recommended dual therapy with ceftriaxone and azithromycin.

Among those patients for whom information on their treatment course was reported in 2016, 86% were administered ceftriaxone and more than half received combined treatment with azithromycin. The use of two antimicrobials for gonorrhoea treatment has likely contributed to increased susceptibility to ceftriaxone. However, Euro-GASP data completeness for the variable 'treatment used' has still some way to go overall with just 37% in 2016.

Minimising the threat of untreatable gonorrhoea

With more than 75 000 reported cases in 2016, gonorrhoea is the second most commonly notified sexually transmitted infection (STI) in the EU/EEA countries. Apart from these reports, many more asymptomatic infections are know to occur.

Successful gonorrhoea treatment with antibiotics not only reduces the risk of complications such as pelvic inflammatory disease, ectopic pregnancies, infertility or increased HIV transmission in some settings. Combined with regular testing to diagnose and treat infections at an early stage, it also serves as one of the main public health strategies in order to reduce further transmission.

In light of limited alternatives to the current combination therapy introduced in 2012, ECDC launched a regional response plan to control multidrug-resistant gonorrhoea to minimise the threat of drug-resistant gonorrhoea in Europe. ECDC is currently revising the plan, also following recent reports of extensively drug resistant gonorrhoea strains that reached Europe.

More information:
ecdc.europa.eu/sites/portal/files/documents/EURO%20GASP-report-for-2016.pdf

Provided by European Centre for Disease Prevention and Control (ECDC)