

N. gonorrhoeae's antimicrobial resistance in northeastern Italy

L. Clemente¹, G. M. Moise², M. Drabeni², S. Suergiu¹, F. Fontana¹

¹Analysis Laboratory, A.A.S.2 "Bassa Friulana-Isontina", Monfalcone, Italy

² Sexually Transmitted Infections Center, A.A.S.2 "Bassa Friulana-Isontina", Gorizia, Italy

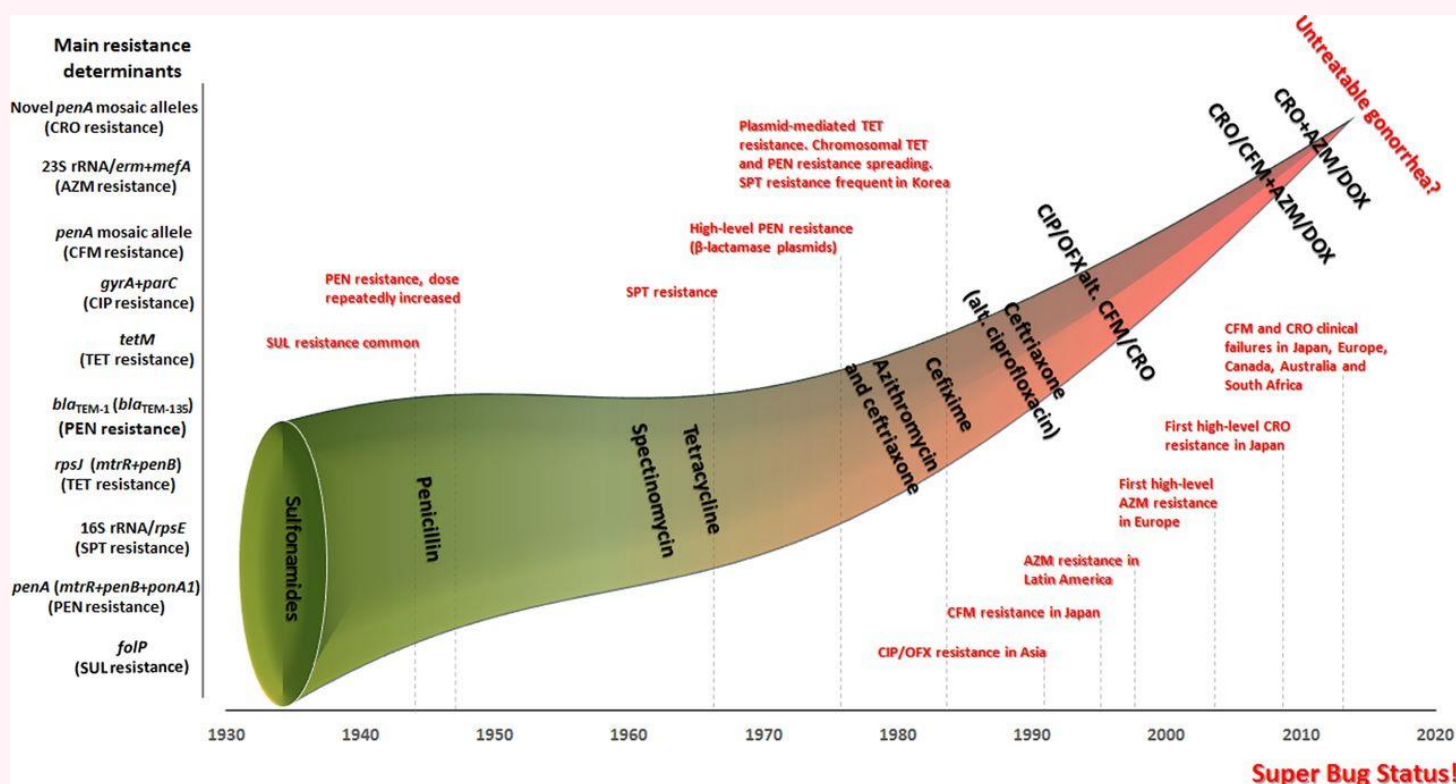
INTRODUCTION AND PURPOSE

N. gonorrhoeae is the agent of gonorrhea, the second bacterial Sexually Transmitted Infection (STI) worldwide, that remains a significant global public health concern. More than 800.000 new infections occur each year in United States but because many people don't have symptoms fewer than half are detected and reported to CDC.

Untreated gonorrhea can cause serious health problems, like ectopic pregnancy and infertility. It can also increase a person's risk of getting or giving HIV.

MSM (Men who have Sex with Men) are at high risk for gonorrhea infection and should be screened at sites of exposure.

N. gonorrhoeae is evolving into a superbug, because it's becoming resistant to most available antimicrobials for treatment.



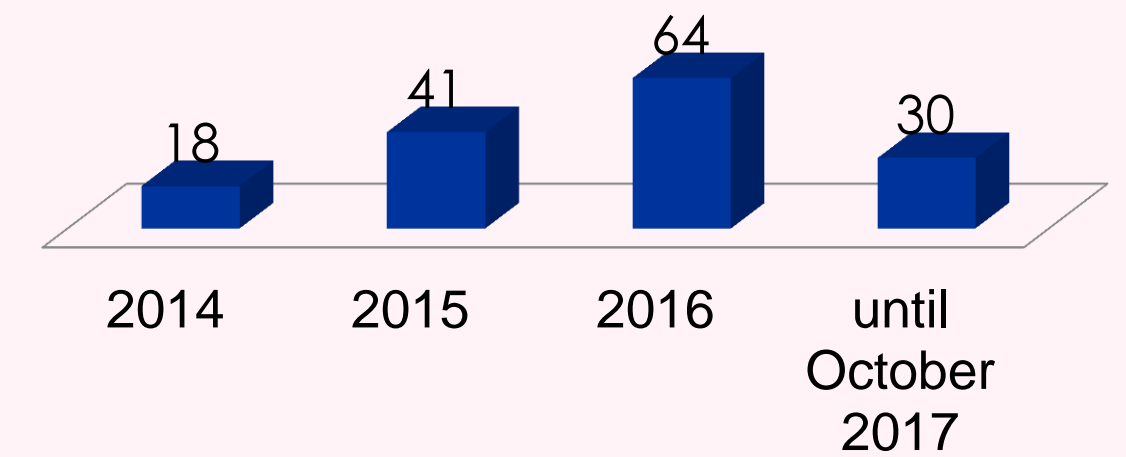
Today we are down to one less recommended treatment option: injection of ceftriaxone and oral dose of azithromycin.

This work evaluated the *N. gonorrhoeae*'s antimicrobial resistance profile in clinical specimens collected from Analysis Laboratory of A.A.S.2 Bassa "Friulana-Isontina", Monfalcone (Italy).

METHODS

From January 2014 to October 2017 170 *N. gonorrhoeae* were identified by Real Time PCR Detection AnyplexTM II STI-7 (Seegene) from rectal, urethral, oral swabs and urine samples of MSM patients. Susceptibility tests were performed on 153 of these strains using E-test (gold standard method) to determine the MICs, interpreted according to EUCAST breakpoints.

N. gonorrhoeae isolates



RESULTS

The histogram shows the number of *N. gonorrhoeae* isolates per year. Antimicrobial susceptibility test's results are shown in table (S: susceptibility; I: Intermediate; R: resistance).

	S		I		R	
	N°	%	N°	%	N°	%
Azithromycin	128/153	83.7			25/153	16.3
Cefotaxime	151/153	98.7			2/153	1.3
Ceftriaxone	153/153	100			0/153	0
Ciprofloxacin	80/153	52.3			73/153	47.7
Tetracycline	129/153	84.3	4/153	2.6	20/153	13.1

Third generation Cephalosporins remained an effective therapy for gonorrhea infection (susceptibility 98.7%-100%), instead there was a high percentage of resistance to Ciprofloxacin (47.7%).

CONCLUSIONS

Fortunately in our region, the resistance of *N. gonorrhoeae* isolates to third generation Cephalosporin and Azithromycin is very low, so the dual-antimicrobial regimens might be effective long-term solutions.

Given the particularities of the disease, which is community based, we emphasize the need of an epidemiological surveillance of gonorrhea cases (that have been increasing in recent years) associated to the improving of early prevention, diagnosis contact tracing and treatment, especially in high-risk population like MSM group.

- ✓ MSMs with gonorrhoea are usually infected with the same strain of *N. gonorrhoeae* as their partner, including those with multisite infection.
- ✓ Partner isolates have identical antibiotic resistance determinants, and thus when a man is diagnosed with antibiotic-resistant strain, his partner should also be treated for resistant gonorrhoea.