

Evaluation of Gonococcal Resistance in Austria Update 2011

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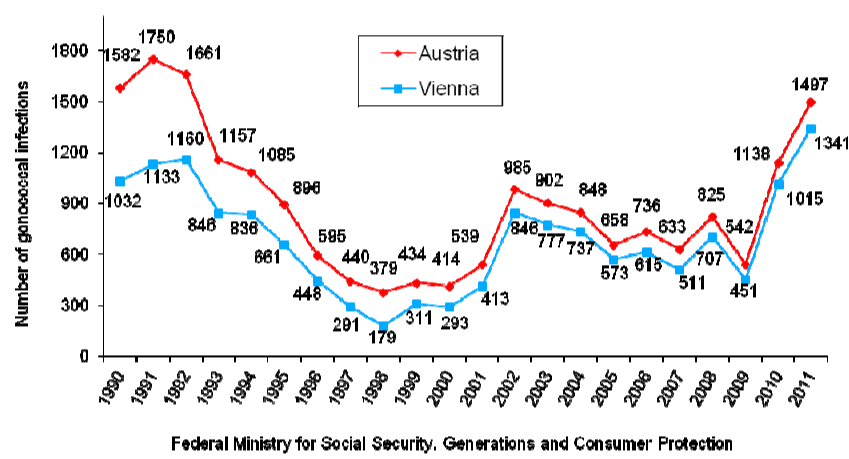
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Background

- Increasing number of gonococcal infections
- High level of QRNG
- Increasing number of cases of treatment failure with cefixime
- International appearance of GC-isolates resistant to cephalosporines and azithromycin

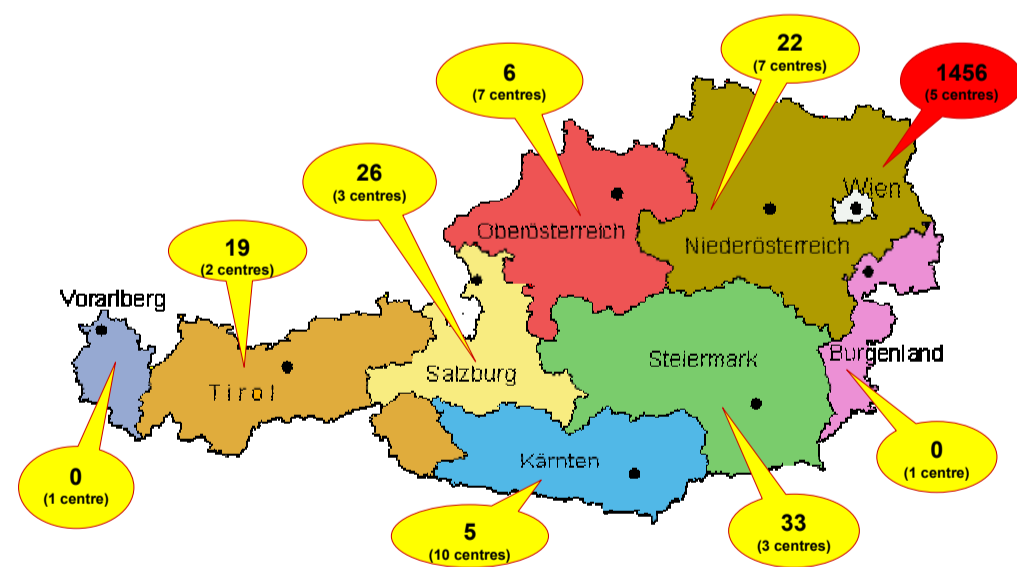
Reported Cases of Gonorrhoea in Austria 1990 – 2011



Objectives

- Constitution of a national network
- Collection of gonococcal isolates and corresponding anamnestic data
- Evaluation of resistance patterns of *Neisseria gonorrhoeae* using different methods

Origin of GC-samples 2010 – 2011 (n = 1567)



Methods

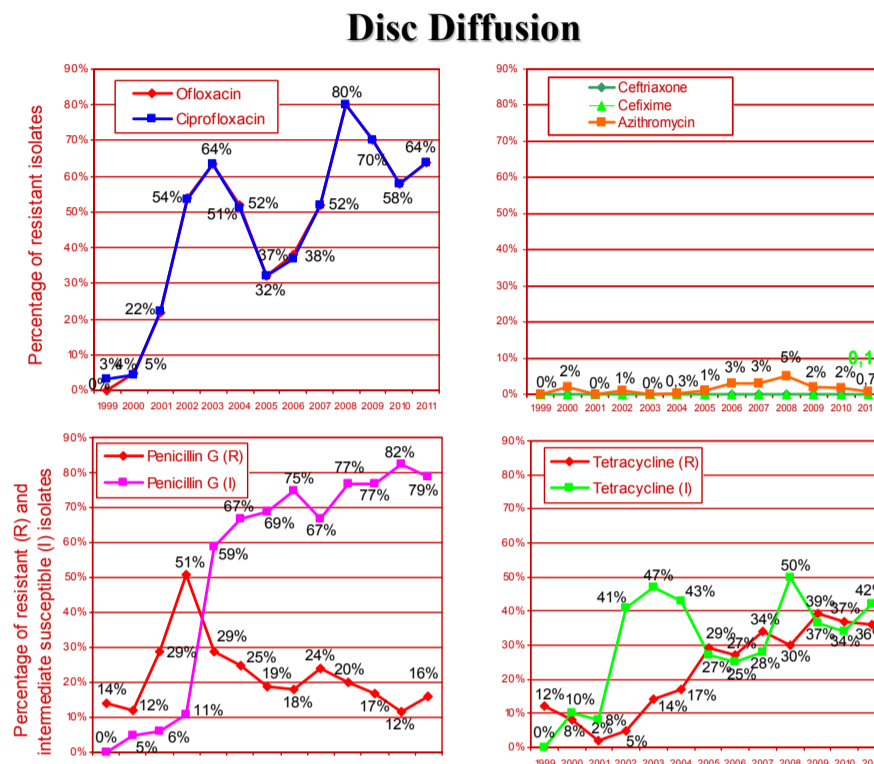
Culture – Transport - Storage

- Material from various swabs taken in each centre
- Original culture on different media, 24 – 48 h, 37°C, CO₂-atmosphere, in each institute
- Packing and shipping according to EU-guidelines
- Storage of all isolates at -70°C in the Outpatient's Centre, Vienna

Results

- 2011: > 50 % of GC-isolates are resistant to penicillin (agardilution)
- 2011: about 60 % of *N. gonorrhoeae* strains are resistant to tetracycline, 8 % TRNG (MIC > 8 µg/ml)
- Spectinomycin: almost 100 % of the strains are susceptible
- MIC values for gentamicin range from 2 – 8 µg/ml with a peak at 4 µg/ml (≈ 75 %)
- Increasing MIC for both, cefixime and ceftriaxone (Fig.)
- Azithromycin resistance: 2010: 1 %, 2011: 1.5 % (Fig.)

Actual Trends in GC-Resistance 1999 – 2011



Methods

Resistance Testing

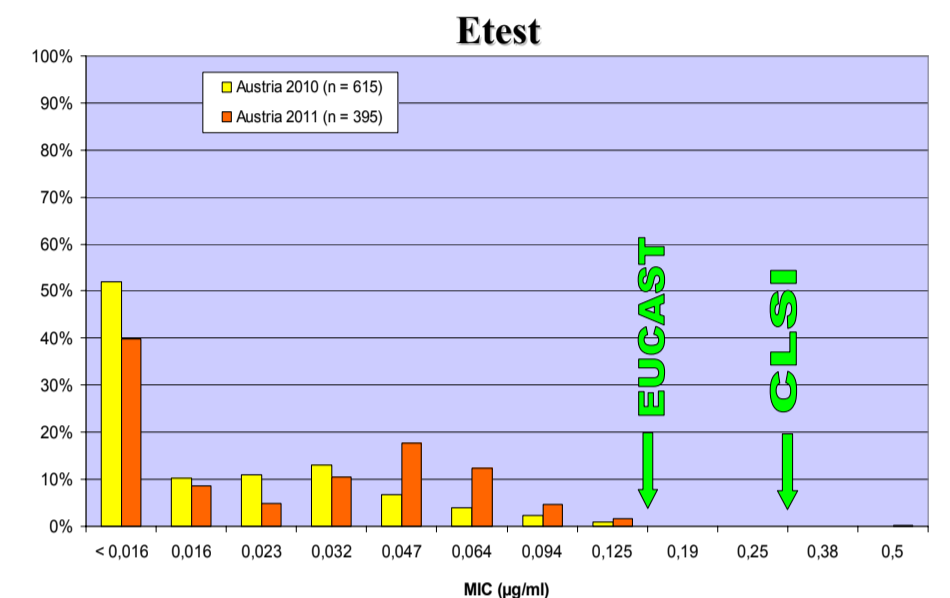
- Disc Diffusion Method
- Agardilution Breakpoint Technique
- Agardilution
- Etest
- Media: GC-agar + 1% IsoVitalex
- Tested antibiotics:
 - cephalosporines (cefixime, ceftriaxone)
 - quinolones (ofloxacin, ciprofloxacin)
 - penicillin G, amoxicillin/clavulanic acid
 - azithromycin
 - tetracycline
 - spectinomycin
 - gentamicin (potential future therapeutic)
- Interpretation: CLSI and EUCAST guidelines

Results

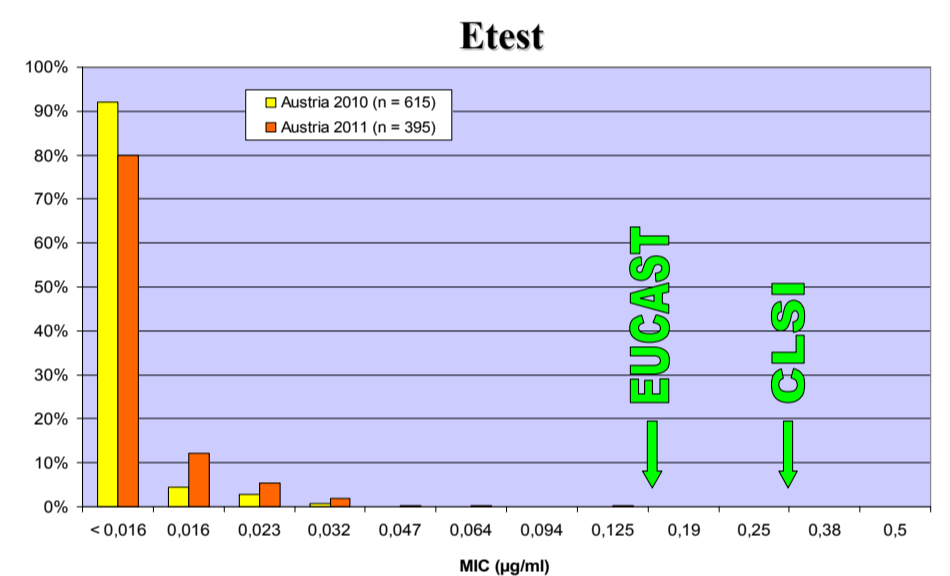
Anamnestic Data		n = 1569
Sex	male	56.3 %
	female	43.7 %
Age	≤ 20 years	18.1 %
	21 - 30 years	43.6 %
	31 - 40 years	20.3 %
	41 - 50 years	11.9 %
	> 50 years	6.1 %
Sexual Orientation	heterosexual	78.3 %
	MSM	5.7 %
	bisexual	0.6 %
	transsexual	0.1 %
	unknown	15.3 %
Site of Infection	Urethra	67.5 %
	Cervix	19.6 %
	Pharynx	5.4 %
	Rectum	6.5 %
	Others	1.0 %
Coinfections	Chlamydia	15.1 %
	Syphilis	0.5 %
	HIV	1.0 %
	none	70.9 %
	unknown	10.6 %

Results

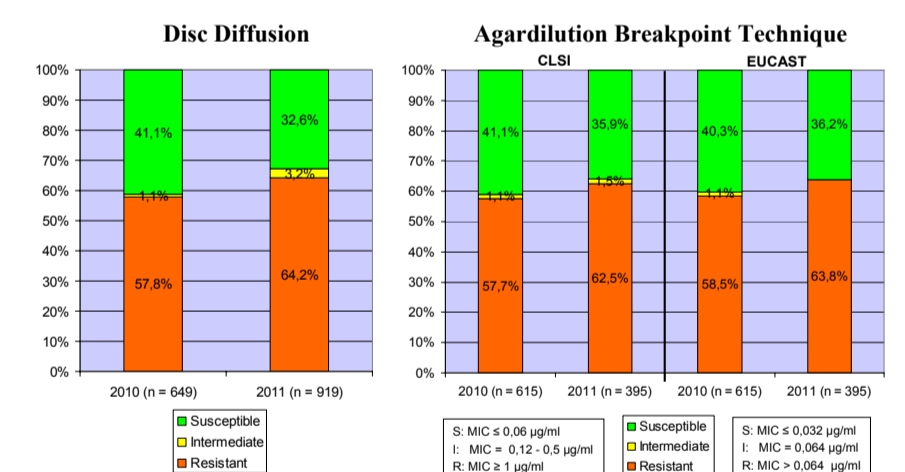
MIC-Distribution for Cefixime 2010 – 2011



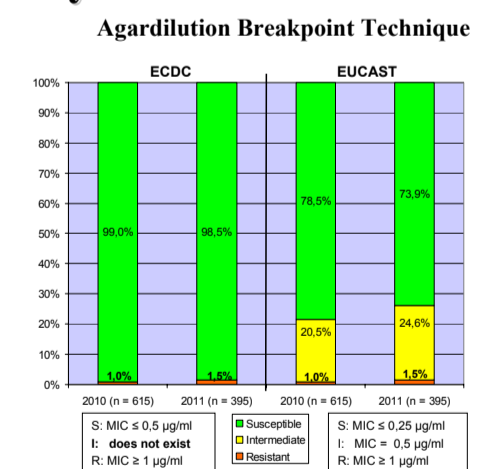
MIC-Distribution for Ceftriaxone 2010 – 2011



Ciprofloxacin Resistance 2010 – 2011



Azithromycin Resistance 2010 – 2011



CLSI – Clinical and Laboratory Standards Institute. EUCAST – European Committee on Antimicrobial Susceptibility Testing
ECDC – European Centre for Disease Prevention and Control

Conclusion

- Microbiological diagnosis including culture and resistance pattern is essential for successful therapy
- Cephalosporines – most appropriate drug CAVE: international increase of MIC
- Alternative therapy: azithromycin resistance in Austria still low (< 2%)
- Change to multiple drug therapy ?
- Continous monitoring of resistance patterns of *N. gonorrhoeae* is important for successful therapy!