

Antimicrobial Susceptibilities of Persons with Gonorrhoea at Multiple Sites are Accurately Reflected By Urogenital Specimens

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Introduction

- The gonococcal (GC) antimicrobial resistance surveillance in the U.S, is carried out using urogenital GC isolates.
- There are concerns that isolates from extragenital (throat and rectal) sites may tend to be more resistant than urogenital isolates

Methods

- Samples were confirmed to be GC positive by the Remel Rapid ID NH System.
- As part of the study protocol pharyngeal culture specimens were collected from all participants. Rectal specimens were collected from women and men who acknowledged rectal intercourse.
- We compared agar dilution antimicrobial susceptibilities of GC collected from participants with extragenital infections collected as part of a large, multicenter study to simultaneously collected urogenital infections from the same participants.
- All isolates were confirmed as *Neisseria gonorrhoeae* were confirmed to be GC positive using the Remel Rapid ID NH System
- Agar dilution MICs were determined for all isolates using the CLSI M07-A10 guidelines for ceftriaxone, cefixime (data not shown), ciprofloxacin and azithromycin.
- MICs found to differ by >2 dilutions were considered discordant

Results

- Extragenital infections were detected in 57 (14%) of 405 participants
- 23 (19%) of men who acknowledged sex with other men (MSM)
- 13 (8%) of 160 men who reported sex only with female partners (MSW)
- 21 (18%) of females participants
- Pharyngeal isolates comprised about half of extragenital infections from MSM (12 [52%] of 23) and women (14[67%] of 21) and all of the extragenital infections in MSW were pharyngeal
- Relatively few (9 [16%] participants, 23 of 360 MIC determinations) extragenital isolate MICs differed meaningfully from those of genital isolated from the same participant (Tables 1A-C)
- There was no consistent pattern to the MIC differences noted in 5 of 9 participants extragenital MICs were greater than for genital isolates while in the remaining 4 participants, MICs for genital isolates were greater than for those from extragenital sites in the same participant.
- MIC values for isolates for MSM were consistently higher than for isolates for MSW or women.

Table 1a. Individual Results from Participants with Infections at Multiple Sites - MSM

Ceftriaxone			Ciprofloxacin			Azithromycin		
Urogenital	Pharyngeal	Rectal	Urogenital	Pharyngeal	Rectal	Urogenital	Pharyngeal	Rectal
0.008		0.008	0.015		0.015	0.250		0.500
0.008		0.015	0.015		0.015	0.500		0.500
0.015	0.015	0.015	4	4	4	0.500	0.500	0.500
0.008		0.008	0.015		0.015	0.250		0.250
0.060	0.008		16	0.015		0.500	0.030	
0.015	0.015		0.015	0.015		1	1	
0.008		0.008	0.015		0.015	0.500		0.500
0.015		0.008	0.015		0.015	1		0.250
0.015	0.008		0.015	0.015		0.250	0.125	
0.008	0.008		0.015	0.015		0.125	0.125	
0.015	0.015		0.015	0.015		0.250	0.250	
0.008	0.008	0.008	0.015	0.015	0.015	0.500	0.250	0.500
0.060	0.125		4	4		0.250	0.500	
0.015		0.008	0.015		0.015	2		4
0.008		0.008	0.015		0.015	0.500		0.500
0.060	0.060		32	16		0.500	0.500	
0.0080	0.008		0.015	0.015		0.125	0.125	
0.030	0.060	0.030	8	8	1	0.250	0.250	0.125
0.008		0.015	4		4	0.500		0.250
0.030	0.030		8	16		0.250	0.250	
0.008		0.008	0.015		0.015	0.250		0.250
0.008		0.015	16		16	0.125		0.500
0.030		0.015	0.015		0.015	1		2

Table 1b. Individual Results from Participants with Infections at Multiple Sites - MSW

Ceftriaxone		Ciprofloxacin		Azithromycin	
Urogenital	Pharyngeal	Urogenital	Pharyngeal	Urogenital	Pharyngeal
0.015	0.015	0.015	0.015	0.500	0.500
0.015	0.015	0.015	0.015	0.500	0.500
0.015	0.015	0.015	0.015	0.250	0.250
0.015	0.015	0.015	0.015	0.250	0.250
0.008	0.008	0.015	0.015	0.125	0.500
0.015	0.015	0.015	0.015	0.500	0.500
0.008	0.015	0.015	0.015	0.500	0.500
0.008	0.008	0.015	0.015	0.125	0.125
0.008	0.008	0.015	0.015	0.060	0.060
0.008	0.008	0.015	0.015	0.250	0.250
0.008	0.015	0.015	0.015	0.030	0.500
0.008	0.008	0.015	0.015	0.125	0.125
0.008	0.008	0.015	0.015	0.125	0.250

Table 1c. Individual Results from Participants with Infections at Multiple Sites - Women

Ceftriaxone			Ciprofloxacin			Azithromycin		
Urogenital	Pharyngeal	Rectal	Urogenital	Pharyngeal	Rectal	Urogenital	Pharyngeal	Rectal
0.008		0.008	0.015		0.015	0.125		0.125
0.008	0.008		0.015	0.015		0.500	0.250	
0.008		0.008	0.015		0.015	0.125		0.125
0.008		0.008	0.015		0.015	0.060		0.060
0.015	0.015	0.015	0.015	0.015	0.015	0.500	0.500	0.500
0.008	0.008	0.008	0.015	0.015	0.015	0.250	0.125	0.125
0.008	0.008		0.015	0.015		0.125	0.250	
0.015		0.015	4		1	0.250		0.030
0.008	0.008	0.008	0.015	0.015	0.015	0.250	0.250	0.250
0.015	0.015		0.015	0.015		0.125	0.060	
0.015	0.015		0.015	0.015		0.125	0.125	
0.015		0.015	0.015		0.015	0.125		0.125
0.015	0.015		0.015	0.015		0.250	0.500	
0.008		0.008	0.015		0.015	0.250		0.125
0.008	0.008		0.015	0.015		0.250	0.250	
0.008	0.008		0.015	0.015		4.000	4.000	
0.008	0.008		0.015	0.015		0.125	0.125	
0.030	0.030		8.000	8.000		0.125	0.125	
0.008		0.008	4.000		2	0.250		0.030
0.030	0.030		0.015	0.015		0.125	0.125	

	Ceftriaxone	Ciprofloxacin	Azithromycin
Urogenital	MIC50	0.008	0.015
	MIC90	0.033	8.8
	Geometric mean	0.037	0.132
Pharyngeal	MIC50	0.015	0.015
	MIC90	0.06	16
	Geometric mean	0.02	0.221
Rectal	MIC50	0.012	0.015
	MIC90	0.03	10.4
	Geometric mean	0.013	0.073

	Ceftriaxone	Ciprofloxacin	Azithromycin
Urogenital	MIC50	0.008	0.015
	MIC90	0.015	0.5
	Geometric mean	0.01	0.026
Pharyngeal	MIC50	0.012	0.015
	MIC90	0.015	0.5
	Geometric mean	0.011	0.015

	Ceftriaxone	Ciprofloxacin	Azithromycin
Urogenital	MIC50	0.008	0.015
	MIC90	0.018	4
	Geometric mean	0.01	0.03
Pharyngeal	MIC50	0.012	0.015
	MIC90	0.03	10.4
	Geometric mean	0.012	0.047
Rectal	MIC50	0.008	0.015
	MIC90	0.15	1.9
	Geometric mean	0.01	0.037

Conclusion

- In persons with multiple site infection, MICs for *Neisseria gonorrhoeae* collected from extragenital sites do not differ consistently from MICs collected at the same time from urogenital sites.
- These data support the continued use of specimens collected from male genital sites for purposes of antimicrobial surveillance.