

# Quality Management Review Seminar

## *Neisseria gonorrhoeae* Susceptibility Testing (NGST)

Dr Angus Lo  
NGST Panel Head

# Objectives

- ◆ To assess the technical performance and susceptibility interpretation of participants in *Neisseria gonorrhoeae* antimicrobial susceptibility testing.
- ◆ To provide educational comments to participants and promote quality improvement.

# Nature of tests

- ◆ Participants are requested to perform tests and provide qualitative results of *Neisseria gonorrhoeae* Susceptibility Testing to a panel of antimicrobial agents.
- ◆ Frequency of dispatch of the Programme : Two survey exercises are held per year.
- ◆ Two ampoules of *Neisseria gonorrhoeae* strains of each dispatch of survey materials

# Collaboration

- ◆ The collaboration between Microbiology Division, Public Health Laboratory Services Branch of the Centre for Health Protection, HKSAR and the Hong Kong Institute of Medical Laboratory Sciences Quality Assurance Programme Ltd. (HKIMLSQAP).

# Issuing Preliminary Survey Report

- ◆ The preliminary results are posted on-line on the homepage of HKIMLSQAP at <http://www.hkimlsqap.org> four weeks after the deadline for submission of survey results.
- ◆ Preliminary report can be accessed on-line by means of the assigned confidentiality codes and password for the participant.

# Issuing Survey Reports

- ◆ Survey reports, individual participant assessment report and an overall survey report, are expected to be issued within two months after the deadline of data submission in each survey exercise.
- ◆ Comments, suggestions and advice will be made in the survey reports as appropriate for continuous quality improvement of participants.

# NGST 2013 Survey Reports

# Dispatch 1

- ◆ Altogether 26 participants returned results in this dispatch, including three late survey results received after the submission deadline.
- ◆ One participant indicated no growth from NGST 13N.
- ◆ One participant reported susceptibility results without indicating the corresponding sample ID and was excluded from any further analysis in this report.



# Dispatch 1

- Susceptibilities to various antimicrobials reported from participants are shown in the table below (intended susceptibility categories are shaded).

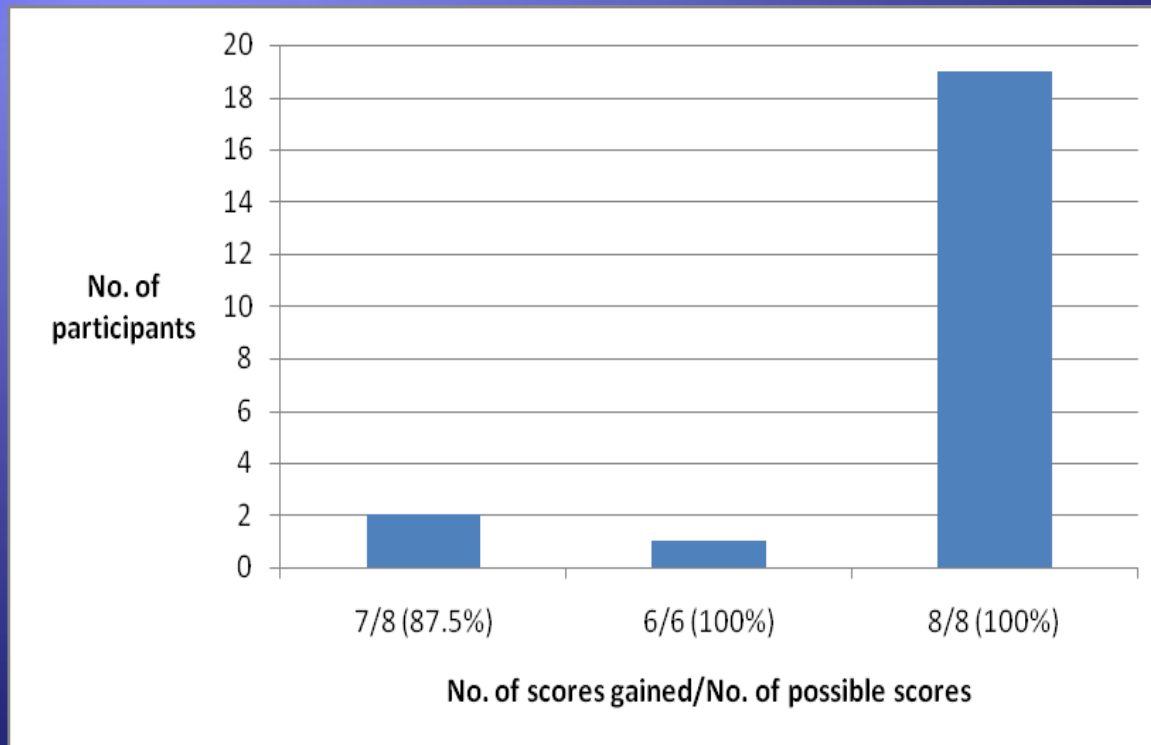
Antimicrobial agent	NGST 13N		NGST 18D	
	Category	Number of participants	Category	Number of participants
Penicillin	S	0	S	1
	I	0	I	23
	R	24	R	1
Ceftriaxone	S	23	S	25
	I	1	I	0
	R	0	R	0
Ciprofloxacin	S	0	S	25
	I	0	I	0
	R	24	R	0
Tetracycline	S	0	S	0
	I	0	I	0
	R	23	R	23

# Dispatch 1

- ◆ The overall performance of participants was satisfactory. Excluding the three participants whose scoring was not provided due to late return (after the closing date of 11 March 2013),
- ◆ 90.9% (20/22) participants obtained full scores from their submitted susceptibility results.
- ◆ Participants are reminded to observe the deadline requirement for submission of results.
- ◆ One participant reported no growth of NGST 13N. Early notification to HKIMLSQAP would enable timely dispatch of replacement ampoules
- ◆ One score was granted to each susceptibility result which matched with the intended susceptibility category.

# Dispatch 1

- ◆ The figure for possible scores represents the number of susceptibility results submitted by individual participants.



# Dispatch 1

- ◆ **Penicillin susceptibility:**
- ◆ For NGST 18D, one participant reported susceptible result with a zone diameter of 48 mm, which was against the intended result of intermediate resistance according to CLSI interpretive criteria (zone diameter 27 - 46 mm).
- ◆ Another participant returning result after the closing date reported resistance based on a zone diameter of 32 mm, which should be categorized as intermediate resistant according to CLSI interpretive criteria.
- ◆ **Ceftriaxone susceptibility:**
- ◆ For NGST 13N, one participant reported intermediate resistant result for ceftriaxone based on a zone diameter of 30 mm.
- ◆ As resistance to injectable third generation cephalosporin, such as ceftriaxone, is rarely reported, it is recommended to be cautious about unusual antimicrobial susceptibility results and seek verification before reporting.

# Dispatch 2

- ◆ Twenty six participants returned results in this dispatch before the submission deadline.
- ◆ One participant indicated no growth from NGST 23A.
- ◆ Another two participants each reported sample IDs that did not match with the intended ID for one of the QAP samples dispatched; the associated susceptibility results were excluded from any scoring and any further analysis in this report.

# Dispatch 2

- Susceptibilities to various antimicrobials reported from participants are shown in the table below (intended susceptibility categories are shaded).

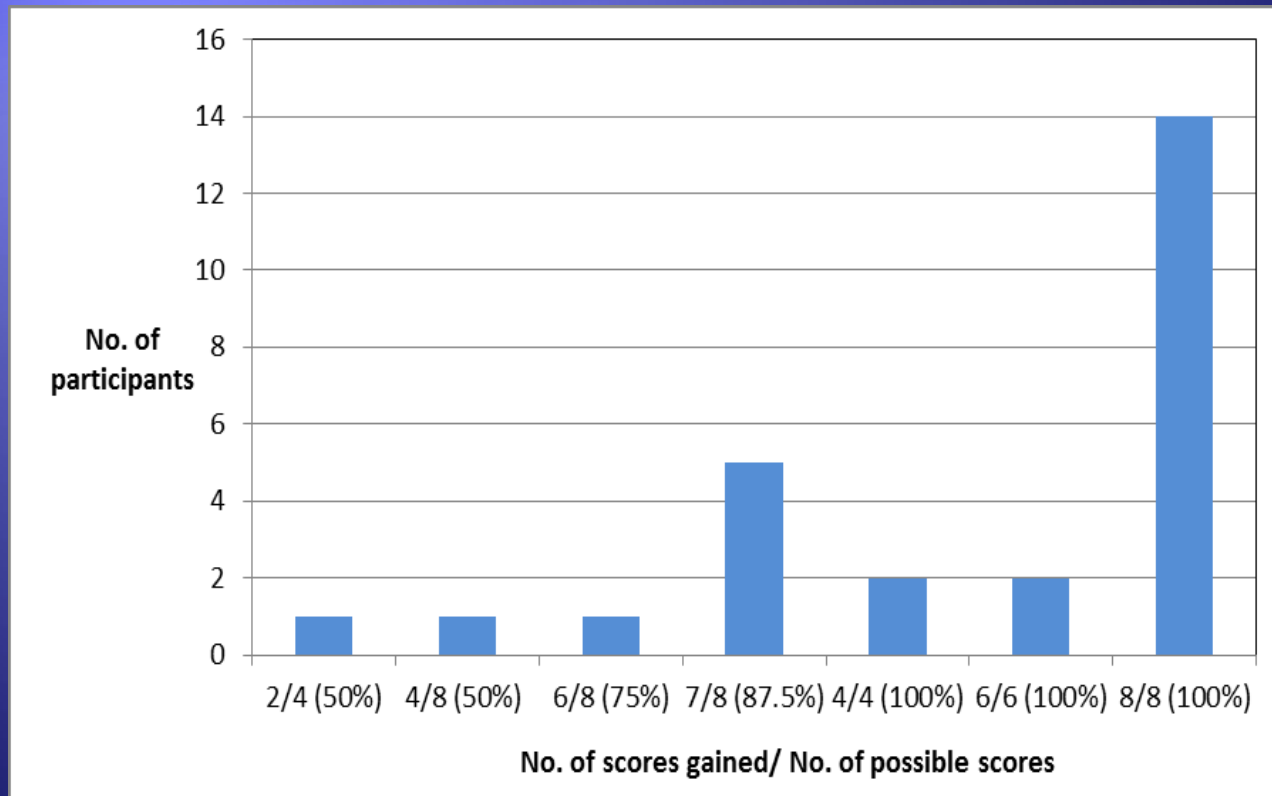
Antimicrobial agent	NGST 23A		NGST 29M	
	Category	Number of participants	Category	Number of participants
Penicillin	S	0	S	0
	I	20	I	0
	R	4	R	25
Ceftriaxone	S	22	S	24
	I	0	I	1
	R	2	R	0
Ciprofloxacin	S	2	S	0
	I	18	I	0
	R	4	R	25
Tetracycline	S	0	S	0
	I	0	I	0
	R	22	R	23

# Dispatch 2

- ◆ The overall performance of participants was satisfactory in this dispatch. 69.2% (18/26) participants obtained full scores from their submitted susceptibility results.
- ◆ One participant reported no growth of NGST 23A. Early notification to HKIMLSQAP would enable timely dispatch of replacement ampoules.
- ◆ One score was granted to each susceptibility result which matched with the intended susceptibility category.

# Dispatch 2

- ◆ The figure for possible scores represents the number of susceptibility results submitted by individual participants.





# Dispatch 2

- ◆ **Penicillin susceptibility:**

- ◆ For NGST 23A, four participants reported resistant results.
- ◆ One of them reported resistance based on a zone diameter of 30 mm, which should be categorized as intermediate resistant, according to the CLSI interpretative criteria (zone diameter 27 – 46 mm).
- ◆ Three participants reported resistance based on zone diameters of 6 mm, 20 mm and 25 mm, respectively.

- ◆ **Ciprofloxacin susceptibility:**

- ◆ For NGST 23A, two participants reported susceptible results, both based on a zone diameter of 31 mm, which should be categorized as intermediate resistant according to CLSI interpretive criteria (zone diameter 28 - 40 mm).
- ◆ One participant reported resistance based on a zone diameter of 6 mm.
- ◆ Another three participants reported resistant results based on zone diameters ranging from 25 mm to 27 mm.

# Dispatch 2

- ◆ **Ceftriaxone susceptibility:**
- ◆ Two participants reported resistant results for NGST 23A, both based on a zone diameter of 30 mm.
- ◆ One of them also reported intermediate resistant result for NGST 29M with a zone diameter of 38 mm, which should be categorized as susceptible according to CLSI interpretive criteria.
- ◆ As resistance to injectable third generation cephalosporins, such as ceftriaxone, is rarely reported, unusual antimicrobial susceptibility results need to be verified before reporting.

# Comments

- ◆ Both dispatches, CLSI guideline for susceptibility interpretation was used.
- ◆ In Dispatch 2, one participant did not indicate use of any interpretive guideline other than “NCCLS 2001 M100-S11”. This participant is recommended to adhere to the latest guideline for antimicrobial susceptibility testing and interpretation.
- ◆ Participants who reported discrepant susceptibility categories are suggested to review their testing methods, quality control data and possible transcription errors.
- ◆ Participants who reported susceptibility categories incongruent with the reported zone diameters are recommended to review application of interpretive criteria and possible transcription errors.

**Thank You**