Neisseria meningitidis (LTR79374)

Edit Approved By: Verity, Bob (08/02/2023) **Revision: 3.00**

Organism

Neisseria meningitidis

Clinical

This organism may colonize the nasopharynx in asymptomatic carriers. It may cause meningococcemia (acute and chronic bacteremia or fulminant septicemia), meningitis, conjunctivitis, pneumonia, septic arthritis, urethritis, cervicitis, pelvic inflammatory disease, peritonitis, pericarditis, endocarditis, and endophthalmitis.

Usual susceptibility pattern

Although most strains remain susceptible to penicillin, resistance to penicillin due to an altered penicillin binding protein and rarely plasmid-mediated beta-lactamase production, have been described. The latter is associated with elevated MIC values (0.1-1.0 μg/mL). These organisms are usually susceptible to cefotaxime and ceftriaxone, although non-susceptibility to ceftriaxone has been described. Most strains are susceptible to ciprofloxacin and rifampin (agents used for prophylaxis of contacts), although resistance has been reported to both agents. Resistance to TMP-SMX, tetracycline and chloramphenicol has also been documented. Minocycline has better activity than tetracycline or doxycycline.

Susceptibility method

N. meningitidis poses a biohazard to laboratory staff.
All susceptibility work should be performed in a biological safety cabinet.

Disc diffusion or Etest method.
Prepare 0.5 McFarland suspension in broth from chocolate agar incubated in 5% CO2 at 35°C.
Note: Suspensions obtained from sheep blood agar will contain approximately 50% fewer CFU/mL.

Disc diffusion	Mueller-Hinton with 5% sheep blood incubated in 5% CO_2 at 35° C for 20-24 hours.
Etest	Mueller-Hinton with 5% sheep blood incubated in 5% CO_2 at 35° C for 24 hours.

Neisseria meningitidis, Continued

Susceptibility reporting

	CSF/ Brain	Blood/ Sterile Body Site	Eye	Other	Comments
Cefotaxime	*	*	*	*	*Report if patient <1 month instead of ceftriaxone Etest method **See Special Considerations**
Ceftriaxone	✓	✓	✓	✓	Do not report if patient <1 month Etest method **See Special Considerations**
Ciprofloxacin	*	*	*		Etest method *Report if ciprofloxacin I/R **See Special Considerations**
Penicillin	✓	✓	✓	✓	Etest method **See Special Considerations**
Rifampin	*	*	*		*Report if rifampin I/R **See Special Considerations**

Special consideration

Cefotaxime/ Ceftriaxone:	This organism should be susceptible to these antibiotics. Consult microbiologist if not susceptible.
Ciprofloxacin/ Rifampin:	These antibiotics are used for prophylaxis of contacts of invasive meningococcal cases.
	If rifampin or ciprofloxacin results are reported add comment: "Rifampin and Ciprofloxacin appropriate ONLY for prophylaxis of meningococcal case contacts. These interpretations do NOT apply to therapy of patients with invasive meningococcal disease." **(3)**
Penicillin:	If penicillin ≥ 0.12 µg/mL – consult microbiologist.

If ciprofloxacin or rifampin:	Then:
I/R	• Report result • Notify Microbiologist to phone MOH
S	• Report only upon Microbiologist's request.

Interpretation

For Etest, report actual MIC result. For interpretation (S, I, or R) report according to the nearest higher doubling dilution **(Appendix 1)**.

Use **CLSI** interpretive document for **Neisseria meningitidis.**