

**TITLE:** Evaluation of a Real-time PCR Assay Performance for the Diagnosis of Meningococcal Meningitis.

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**ABSTRACT:**

*Neisseria meningitidis* is one of the most frequent etiological agents in bacterial meningitis being associated with high morbidity and mortality and is considered a serious public health problem worldwide. This study aimed at evaluating the performance of real-time PCR assay to detect *N. meningitidis* *ctrA* and *sodC*, and serogroup-specific genes in the cap locus for serogroups A, B, C, W, X, and Y. A total of 1007 cerebrospinal fluid (CSF) samples from patients with suspected meningitis from Salvador, Brazil were tested. DNA were directly extracted from CSF samples by using QIAamp® DNA Mini Kit and the assays were carried out TaqMan Universal Master Mix kit. Results of routine diagnostic testing were obtained from the hospital laboratory. A total of 337 (33.5%) CSF tested were positive for one of the two genes (*ctrA* or *sodC*). Of these, 172 (51%) were detected only by the rt-PCR reaction. The performance of the classical microbiological tests was better for the latex agglutination test (73%), followed by bacterioscopy (63%), and culture (25%). Genogrouping assays classified 68.85% (232/337) of these isolates to a group, being the most prevalent MenC (55.8%), followed by MenB (7.7%), MenW (2.1%) and MenA (2.1%). 31% of the samples were categorized as nongenogroupable (NGG). The real time PCR assay were highly accurate in diagnosing meningitis caused by *N. meningitidis* and it shows a potential to improve the bacterial genogroup determination.

**Keywords:** Bacterial meningitis, Real-time PCR, *Neisseria meningitidis*.

**Development Agency:** Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brasil (CAPES). Secretaria de Vigilância em Saúde - Ministério da Saúde.