

**TITLE:** Bacterial meningitis: clinical and epidemiological data in Portugal in a new vaccinal era

**AUTHORS:** Cláudia Calado<sup>1</sup>, João Franco<sup>2</sup>, Cristina Gonçalves<sup>3</sup>, Ana Fernandes<sup>4</sup>, Filipa Prata<sup>3</sup>, José Gonçalo Marques<sup>3</sup>

<sup>1</sup> Serviço de Pediatria, Hospital de Faro EPE, Faro, Portugal

<sup>2</sup> Serviço de Pediatria, Hospital Garcia de Orta, Lisboa, Portugal

<sup>3</sup> Departamento da Criança e da Família, Hospital Santa Maria, Centro Hospitalar Lisboa Norte, Lisboa, Portugal

<sup>4</sup> Serviço de Pediatria, Hospital do Espírito Santo, Évora, Portugal

### **INTRODUCTION:**

Meningitis continues to be an important cause of morbidity and mortality in children. Epidemiological changes are occurring since new vaccines reach a major part of the population. This study intended to investigate etiology and antibiotics' susceptibility in an era of high vaccination coverage against *Neisseria meningitidis* (NM), *Haemophilus influenzae* type b (Hib), and *Streptococcus pneumoniae* (PN) (seven serotypes).

### **METHODS:**

Retrospective analysis of clinical records of children with bacterial meningitis (with bacterial isolate) admitted to three hospitals in Portugal during 2003-2008. Neonates and neurosurgical patients were excluded.

### **RESULTS:**

Sixty-three children were included (median age 21,0 months). Bacterial isolates were: NM-32 (50,8%); SP- 26 (41,2%); *Haemophilus influenzae*, *Staphylococcus aureus*- two (3,2%) each and *Streptococcus pyogenes*- one (1,6%). An identifiable risk factor was found in 21 (33,3%). NM serogroups were: B (25), C (one, not vaccinated), Y (one), undefined Y/W135 (three), unclassified (two). SP serotypes were: 19A (three), 23F (two), and 14, 24F, 33F, 34 (one each); 17 strains unclassified. Considering serotypes included in heptavalent vaccine, two had no vaccine and one complete vaccination. We documented one case of Hib vaccine failure. All isolates were sensitive to penicillin and third-generation cephalosporins except one SP 19A resistant to both and one unclassified SP to penicillin.

### **CONCLUSIONS:**

NM is still the main cause of meningitis in portuguese children, with a high prevalence of serogroup B after universal vaccination against NM-C. SP strains not included in heptavalent vaccine are acquiring a relevant role. Resistance to penicillin is not a major issue in invasive strains.