

## Antimicrobial susceptibility of invasive *Neisseria meningitidis*, 2009

The antimicrobial susceptibility of all 76 viable meningococcal isolates received at ESR from cases of invasive disease in 2009 was tested. Ceftriaxone, ciprofloxacin, penicillin and rifampicin minimum inhibitory concentrations (MICs) were determined by Etest on Mueller-Hinton agar + 5% sheep blood. MICs were interpreted according to the Clinical and Laboratory Standards Institute's criteria.<sup>1</sup>

22.4% (17/76) of isolates had reduced penicillin susceptibility (MIC  $\geq$ 0.12 mg/L): 34.8% (8/23) of group C isolates, 33.3% (1/3) of group Y isolates, 16.7% (8/48) of all group B isolates and 19.2% (5/26) of isolates of the NZ epidemic strain (group B, subtype P1.4). 2.6% (2/76) of isolates were rifampicin resistant. All isolates were susceptible to ceftriaxone and ciprofloxacin (see table below).

*MIC range, MIC<sub>90</sub> and resistance among N. meningitidis isolates from invasive disease cases, 2009*

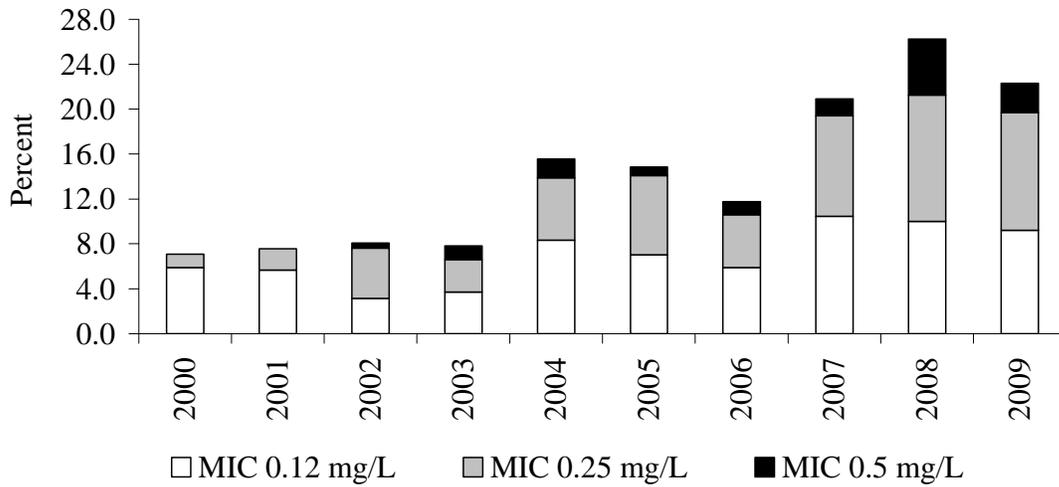
Antimicrobial	MIC range (mg/L)	MIC <sub>90</sub> (mg/L)	Percent reduced susceptibility	Percent resistance
penicillin	0.016-0.5	0.25	22.4 <sup>1</sup>	0
ceftriaxone	0.002-0.004	0.002	0	0
rifampicin	0.004-32	0.12	0	2.6
ciprofloxacin	0.002-0.008	0.004	0	0

<sup>1</sup> penicillin MIC  $\geq$ 0.12 mg/L

Over the last 10 years there has been a general trend of an increasing proportion of isolates with reduced penicillin susceptibility. There has also been a shift to higher penicillin MICs. Until 2002, the majority of isolates with reduced penicillin susceptibility had MICs of 0.12 mg/L. Since then, isolates with penicillin MICs of 0.25 mg/L have formed a larger proportion of the isolates with reduced susceptibility, and isolates with penicillin MICs of 0.5 mg/L have emerged (see figure below). Infections due to isolates with reduced susceptibility are still treatable with penicillin.

<sup>1</sup> Clinical and Laboratory Standards Institute. Performance standards for antimicrobial susceptibility testing; nineteenth informational supplement. Villanova, PA, USA: CLSI, 2009 CLSI document M100-S19

*Reduced penicillin susceptibility among  
N. meningitidis from invasive disease, 2000-2009*



Rifampicin resistance is rare among meningococci from invasive disease in New Zealand. Until 2009, only four rifampicin-resistant isolates had been identified: one group B (B:4:P1.4) isolate in 2003, one group C (C:2b:P1.2) isolate in 1997, one group B (B:15:P1.7,16) isolate in 1992, and one group A isolate in 1986. The two rifampicin-resistant meningococci identified in 2009 came from the same geographic area. However, they were different types: one was group B (strain B:4:P1.19,15) and the other was group C (C:2a:P1.5-1,10-8).

No resistance to ceftriaxone or ciprofloxacin has been identified among meningococci isolated from cases of invasive disease in New Zealand.