

Antimicrobial susceptibility of invasive *Neisseria meningitidis*, 2010

The antimicrobial susceptibility of all 62 viable meningococcal isolates received at ESR from cases of invasive disease in 2010 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.¹

29.0% (18/62) of isolates had reduced penicillin susceptibility (MIC \geq 0.12 mg/L): 66.7% (4/6) of group W135 isolates, 33.3% (10/30) of all group B isolates, 21.4% (3/14) of isolates of the NZ epidemic strain (group B, subtype P1.4), 10.5% (2/19) of group C isolates, and two isolates that could not be grouped. One (1.6%) isolate was ciprofloxacin resistant. All isolates were susceptible to ceftriaxone and rifampicin (see table below).

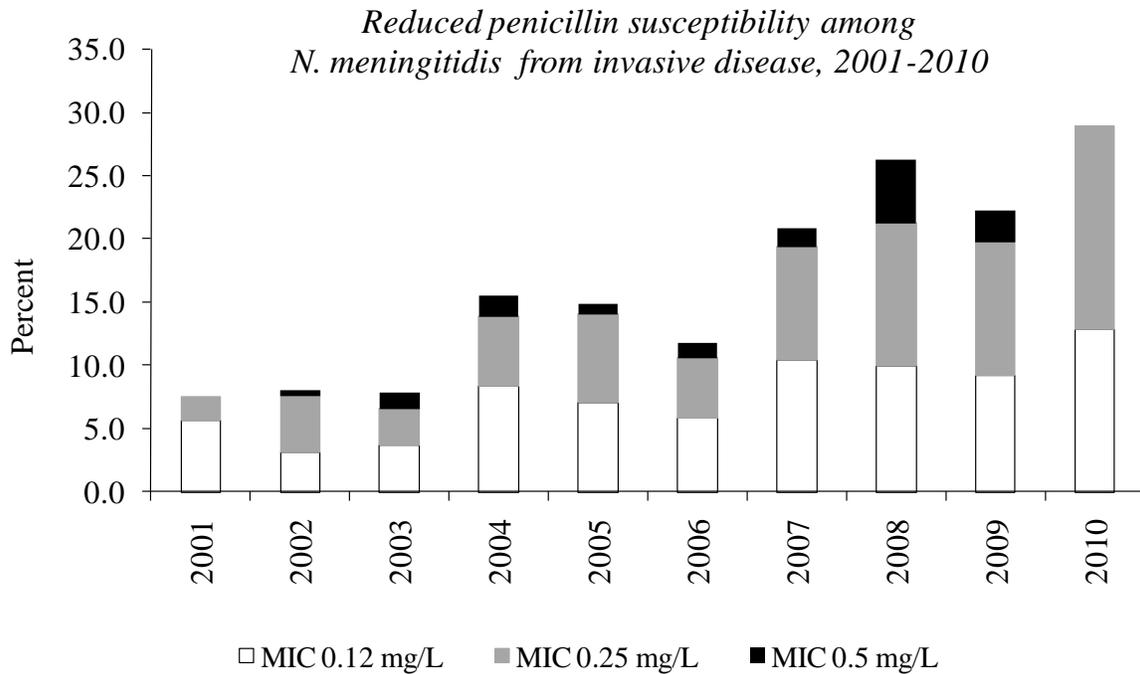
MIC range, MIC₉₀ and resistance among N. meningitidis isolates from invasive disease cases, 2010

Antimicrobial	MIC range (mg/L)	MIC ₉₀ (mg/L)	Percent reduced susceptibility	Percent resistance
penicillin	0.016-0.25	0.25	29.0 ¹	0
ceftriaxone	0.002-0.004	0.002	0	0
rifampicin	0.002-0.25	0.06	0	0
ciprofloxacin	0.002-0.12	0.004	0	1.6

¹ 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.

¹ Clinical and Laboratory Standards Institute. Performance standards for antimicrobial susceptibility testing; twentieth informational supplement. Wayne, USA: CLSI, 2010 CLSI document M100-S20.



The ciprofloxacin-resistant isolate identified in 2010 represents the first ciprofloxacin resistance identified among invasive meningococci in New Zealand. It was a Group C meningococcus (C:ns:P1.20,23-7).

Rifampicin resistance remains rare among meningococci from invasive disease in New Zealand, with only six isolates identified since the first isolate in 1986.

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