Antimicrobial susceptibility of invasive *Neisseria meningitidis,* 2011

The antimicrobial susceptibility of all 77 viable meningococcal isolates received at ESR from cases of invasive disease in 2011 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]

19.5% (15/77) of isolates had reduced penicillin susceptibility (MIC ≥0.12 mg/L): 100% (2/2) of group W135 isolates, 17.9% (5/28) of group C isolates, 17.8% (8/45) of all group B isolates, and 3.5% (1/29) of the isolates belonging to the NZ B:P1.4 epidemic strain. One (1.3%) isolate was rifampicin resistant. All isolates were susceptible to ceftriaxone and ciprofloxacin (see table below).

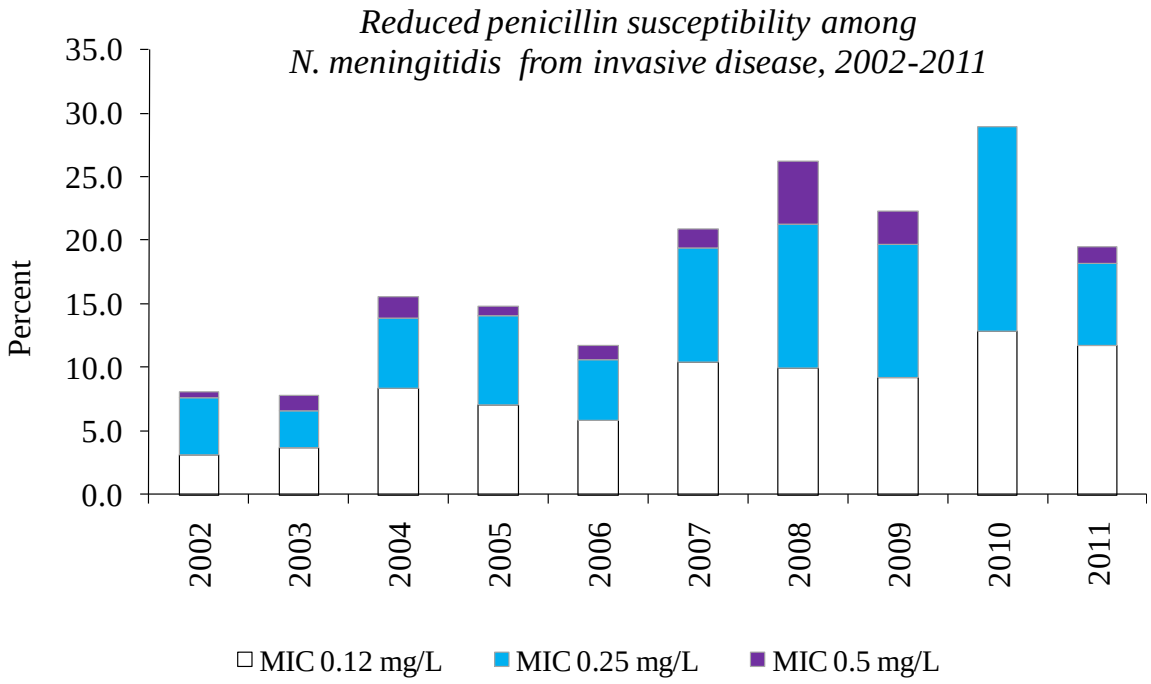
MIC range, MIC_{90} and resistance among N. meningitidis isolates from invasive disease cases, 2011

Antimicrobial	MIC range (mg/L)	MIC_{90} (mg/L)	Percent reduced susceptibility	Percent resistance
penicillin	0.03-0.5	0.12	19.5[1]	0
ceftriaxone	0.002-0.004	0.002	0	0
rifampicin	0.002-32	0.12	0	1.3
ciprofloxacin	0.002-0.008	0.008	0	0

[1] penicillin MIC ≥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 (see figure below). However in 2011, the proportion of invasive meningococcal isolates with reduced susceptibility to penicillin dropped from 29.0% in 2010 to 19.5%. 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, 2011 CLSI document M100-S21.



Rifampicin resistance is rare among meningococci from invasive disease in New Zealand. Prior to 2011, only six rifampicin-resistant isolates had been identified: one group B (B:4:P1.19,15) isolate and one group C (C:2a:P1.5-1,10-8) isolate in 2009, 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 rifampicin-resistant meningococcus identified in 2011 was a group C (C:2a:P1.5-1,10-1) isolate.

Ciprofloxacin resistance is also rare among meningococci from invasive disease in New Zealand, with just one ciprofloxacin-resistant isolate having been identified in 2010.

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