Antimicrobial susceptibility among invasive Gram-negative bacteria in the UK and Ireland: The BSAC Bacteraemia Resistance Surveillance Programme 2003

R. Reynolds1, R. Hope2, D. Livermore2, The BSAC Extended Working Party on Bacteraemia Resistance Surveillance1
1British Society for Antimicrobial Chemotherapy, Birmingham, B1 2JS 2Health Protection Agency, London, NW9 9HT

Introduction and Methods
- 25 laboratories in the UK and Ireland contributed non-duplicate bacterial isolates from blood to the BSAC Bacteraemia Resistance Surveillance Programme1 in 2003.
- MICs were determined centrally by the BSAC agar dilution method and interpreted by BSAC criteria.
- Isolates with MICs on or above the susceptibility breakpoint for cefazidime or cefotaxime were tested for ESBLs by clavulanate synergy tests (potentiation of ≥ 8-fold) for cefazidime, cefotaxime and cefepime.

Results
- 59% of E. coli were resistant to amoxicillin, almost all with MIC > 512 mg/L; MICs for the rest were mostly 4-8 mg/L.
- 33% of Enterobacter spp. isolates were inferred to be AmpC hyperproducers, being CAZ/CTX-resistant without ESBLs.
- The one imipenem-resistant Enterobacter (MIC >16 mg/L) produced a novel KPC enzyme, KPC-4. (See poster P427.)
- Multi-resistant isolates with CTX-M ESBLs were found among Klebsiella, Enterobacter, Citrobacter and, notably, E. coli; all were susceptible to imipenem and ertapenem, and inhibited by tigecycline at ≤2 mg/L.
- No statistically significant trends in resistance were detected over three years of similar surveillance (2001 – 2003).

Conclusion
- ESBLs are now established in the UK, albeit at low frequency, with CTX-M types increasingly observed.
- Imipenem, ertapenem and tigecycline retained good activity against ESBL-producers.

Working Party Members (Feb 2005): A. MacGowan1 (Chair), S. Barriere2, M. Allen3, D. Brown4, N. Deane5, I. Harding6, R. Hope7, D. Lewis8, D. Livermore9, V. Reed8, R. Reynolds1, C. Thomson9, A. White10, R. Wiltshire11.

Organism ID and Susceptibility Testing: M. Colman7, R. Hope8, N. Potz12.
1North Bristol NHS Trust; 2Theravance; 3Wyeth; 4Addenbrookes Hospital, Cambridge; 5Merck; 6Sharp & Dohme; 7Micron Research Limited; 8Health Protection Agency, London; 9HPA South West; 10Bayer Pharmaceuticals; 11GlasgowSmithKline; 12Pfizer.