BACKGROUND

- *Pseudomonas aeruginosa* is an important opportunistic pathogen. The BSAC Resistance Surveillance Project monitors its antimicrobial susceptibility.

- Ceftolozane is a broad-spectrum bactericidal cephalosporin particularly active against *P. aeruginosa*. Its combination with tazobactam is in phase 3 development.

- Interest in colistin (available since 1959) has increased with the recent rise of multi-resistance in Gram-negative pathogens.

METHODS

- Forty-five centres in the UK and Ireland supplied *P. aeruginosa* from blood (Jan 2009 - Dec 2011) and hospital-onset (>48 hours) lower respiratory tract infection (LRTI, Oct 2008 - Sept 2011).

- MICs were measured centrally by BSAC agar dilution and interpreted by BSAC/EUCAST breakpoints.

- Colistin and ceftolozane tazobactam were tested only for 2011 (blood) and 2010/11 (LRTI).

RESULTS

- 50% of bacteraemias were of hospital onset. 19% of hospital-onset bacteraemias, 4% of community-onset bacteraemias, and 46% of hospital-onset LRTI were from ITU.

- Non-susceptibility was significantly more likely in ITU than non-ITU patients for CAZ, IPM, TZP and multi-NS, but not for GEN or CIP.

- Overall, 3% of blood and 7% of LRTI isolates were multi-NS and, in ITU, 4% and 12% respectively.

- In ITU, IPM had the highest rate of non-susceptibility (23-25%, of which about 1/3 intermediate). Outside ITU, CIP had the highest rate of non-susceptibility (13-19%, of which about 1/3 intermediate).

CONCLUSION

- Non-susceptibility among *P. aeruginosa* is occasionally problematic in the UK and Ireland, especially in ITU.

- Both older (colistin) and developmental (ceftolozane/tazobactam) agents extend coverage against some otherwise difficult-to-treat isolates.

Abbreviations and susceptible breakpoints (mg/L):

- CAZ ceftazidime (≤8)
- CIP ciprofloxacin (≤0.5)
- GEN gentamicin (≤4)
- IPM imipenem (≤4)
- TZP piperacillin/tazobactam (≤16)

- S = susceptible
- NS = non-susceptible
- Multi-NS = NS to ≥3 of agents listed above.

- Colistin MICs were narrowly distributed between 0.06 and 2 mg/L, with mode and MIC₉₀ at 1 mg/L.

- All isolates were susceptible (≤4 mg/L) and the distribution was similar for 23 multi-NS isolates.
