Activity of aminoglycosides in *Pseudomonas* and Enterobacteriaceae in the UK and Ireland

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**BACKGROUND**

There is renewed interest in aminoglycosides, given:
- the growing resistance to β-lactams,
- the non-selectivity for *Clostridium difficile*,
- the development of nebulised formulations.

Despite this interest, aminoglycoside resistance is less surveyed than resistance to β-lactams.

The BSAC Antimicrobial Resistance Surveillance Project has tested amikacin (AMK), gentamicin (GEN), and tobramycin (TOB) for all bacteraemia and hospital-onset lower respiratory tract infection (LRTI) isolates collected in the UK and Ireland since 2013/14.

**METHODS**

- Forty clinical laboratories.
- Isolates were re-identified centrally by MALDI-TOF.
- MICs were determined by BSAC agar dilution and interpreted using EUCAST breakpoints.

**RESULTS**

Aminoglycoside non-susceptibility rates did not differ between bloodstream and respiratory isolates.

**EUCAST expert rules**

- For Enterobacteriaceae, EUCAST’s rule 12.7 (TOB-NS GEN-S AMK-I)* affected non-susceptibility rates for AMK; other rules had no impact.

**Pseudomonas isolates**

- For *Pseudomonas* isolates, non-susceptibility rates were similar for all three agents.
- 23/24 GEN-non-susceptible *Pseudomonas* isolates were non-susceptible to >1 other aminoglycoside and 3 were non-susceptible to all 3 compounds.

**CONCLUSIONS**

- For *Pseudomonas* isolates, non-susceptibility rates were similar for the three agents.
- For Enterobacteriaceae (except *Serratia* spp.) AMK retained wider activity than GEN or TOB.

**Standing Committee Members (March 2016):**

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**Organism ID and Susceptibility Testing:**

- S. Mushtaq† and staff at Public Health England, Colindale.

**Collecting Laboratories:**

- See [www.bsacsurv.org](http://www.bsacsurv.org) or White 2008, JAC 62 (Suppl 2) i3–i14.

- 1North Bristol NHS Trust; 2Bayer; 3MSD; 4EUCAST Scientific Secretary; 5Pfizer; 6Public Health England, London; 7Astellas; 8Astellas; 9Astellas; 10Astellas

- *Expert rule 12.7: If non-susceptible to TOB and susceptible to GEN and AMK, then report AMK MIC as intermediate for Enterobacteriaceae or resistant for *Pseudomonas* spp. and Acinetobacter spp.*

- AMK: amikacin; GEN: gentamicin; I: intermediate; NS: non-susceptible; S: susceptible; TOB: tobramycin.

**Support:**

- BSAC: [www.bsac.org.uk](http://www.bsac.org.uk)

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