

BACKGROUND

- The BSAC Bacteraemia Resistance Surveillance Programme has been monitoring antimicrobial susceptibility in the major organisms causing bacteraemia in the UK and Ireland since 2001.
- In 2012, the BSAC Bacteraemia Resistance Surveillance Programme collected 3,205 blood isolates from 39 laboratories in the UK and Ireland.

RESULTS

GRAM POSITIVE BACTERIA

Staphylococci

- MRSA continued to decline to 12% of 515 *S. aureus* in 2012 from 45% in 2006 and 5-year average 2007-11 of 24%.
- Non-susceptibility (NS) of *S. aureus* to ciprofloxacin (16%) and erythromycin (17%) was also lower in 2012; mupirocin NS (2%) and gentamicin NS (3%) were little changed.
- NS rates in 203 isolates of coagulase-negative staphylococci were similar to previous years, with 77% methicillin-resistant.

Streptococci and enterococci

- Penicillin NS in 229 *S. pneumoniae* in 2012 was stable at 6%, all intermediate with MIC ≤ 2 mg/L. Rates of clindamycin resistance (7%, all high-level, MIC >128 mg/L) and dual or multiple-agent NS (9%) were similar to 2011 but higher than in the previous 5 years.
- 190 other α -haemolytic streptococci showed similar rates of non-susceptibility as in previous years with 15% penicillin NS, 10% amoxicillin NS and 37% erythromycin NS.
- All of 244 β -haemolytic streptococci were penicillin susceptible in 2012, as usual.
- There was little change in NS among enterococci. All were susceptible to tigecycline and linezolid. All of 128 *E. faecalis* were susceptible to ampicillin and imipenem, and only 2% were NS to vancomycin; 30% of 115 *E. faecium* were vancomycin NS.

METHODS

- Clinical laboratories collect up to a defined quota of isolates from January to December in each surveillance year.
- MICs are measured and interpreted by BSAC methods.
- 2012 results were compared primarily with data for the five preceding years (2007-2011).
- See www.bsacsurv.org or *JAC*, 2008, **62**, suppl 2 ii15 - ii28

RESULTS

GRAM-NEGATIVE BACTERIA

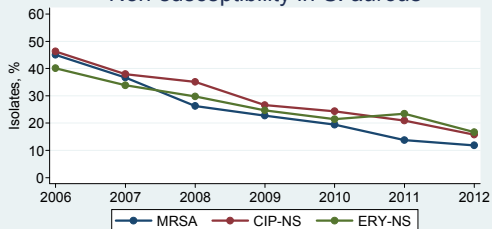
Pseudomonas aeruginosa

- Non-susceptibility (NS) in *P. aeruginosa* has changed little over 12 years' surveillance. Of 218 isolates in 2012, 23 were imipenem NS, one being a VIM metallo- β -lactamase producer. All were susceptible to colistin.

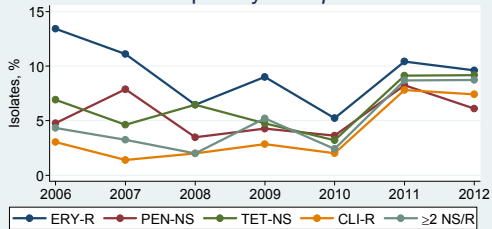
Enterobacteriaceae

- Rates of **ESBL production** (11%) and **ciprofloxacin NS** (24%) noted in 520 *E. coli* in 2012 have clearly risen from their 2009-10 troughs of 6% and 15%, respectively. Little or no such increase was seen by 2012 in 251 *Klebsiella* (11% ESBL, 11% CIP-NS) or 203 *Enterobacter* (7% ESBL, 6% CIP-NS).
- AmpC** hyper-production was found in 12% of *Enterobacter* and 13% of 150 *Serratia*.
- Gentamicin NS** changed little in any Gram-negative group.
- Carbapenems** All *E. coli*, *Enterobacter* and *Serratia* and 250/251 *Klebsiella* were susceptible to imipenem, the exception being a single VIM-producing isolate of *K. pneumoniae*.
- Colistin** non-susceptibility was seen in 6% of *Enterobacter* isolates compared with $<2\%$ among *E. coli* and *Klebsiella*.

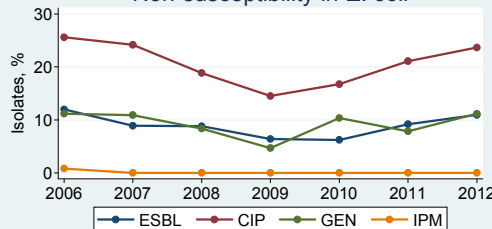
Non-susceptibility in *S. aureus*



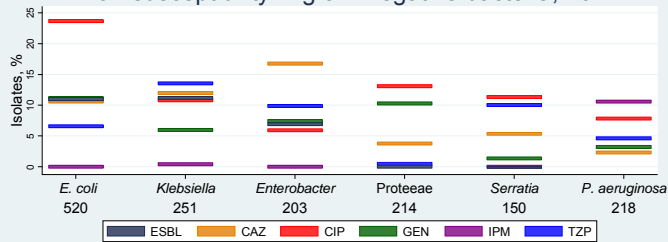
Non-susceptibility in *S. pneumoniae*



Non-susceptibility in *E. coli*



Non-susceptibility in gram-negative bacteria, 2012



CONCLUSION

- Methicillin resistance in *S. aureus* has continued to fall since 2009 but not as steeply as between 2006 and 2008.
- ESBLs and ciprofloxacin resistance in *E. coli* have risen again, from a trough around 2009-2010.
- Resistance rates are still low in *S. pneumoniae*; changing patterns may reflect selective pressure from vaccines.

Abbreviations: ESBL extended-spectrum β -lactamase, MRSA methicillin-resistant *S. aureus*. CAZ ceftazidime, CIP ciprofloxacin, CLI clindamycin, ERY erythromycin, FUS fusidic acid, GEN gentamicin, IPM imipenem, PEN penicillin, TET tetracycline, TGC tigecycline, TZP piperacillin-tazobactam. R resistant, NS non-susceptible.

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Collecting Laboratories: See www.bsacsurv.org **Sponsors 2012:** Basilea, Cempra, Cubist, Pfizer. **Support:** BSAC