BSAC Respiratory Resistance Surveillance Update 2011/12

#64

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Background

- The BSAC Respiratory Resistance Surveillance Programme has monitored antimicrobial susceptibility in the UK and the Republic of Ireland in the major pathogens causing community-onset and hospital-onset lower respiratory tract infections (LRTIs) since 1999/2000 and 2008/09, respectively.
- In 2011/12, the Programme collected 2,379 LRTI isolates from 38 clinical laboratories across the UK and Ireland.

Methods

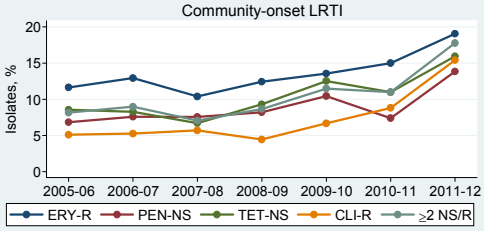
- Clinical laboratories collect up to a defined quota of isolates (excluding duplicates and isolates from cystic fibrosis patients) in each season (now Oct-Sept; was Oct-April up to 2007/08).
- MICs are measured and interpreted by BSAC methods.
- Hospital-onset isolates are those first obtained after >48 hours of hospital admission; all others are considered community-onset.
- See **www.bsacsurv.org** *or* **JAC**, 2008. **62**, suppl 2 ii15 - ii28.

1,108 COMMUNITY-ONSET lower respiratory tract isolates collected October 2011 - Sept 2012 (in community, or hospital ≤48 hours)

- In 2011/12, 53 of 383 ***S. pneumoniae*** (14%) were non-susceptible (NS) to penicillin (all intermediate with MICs ≤2 mg/L). Seventy-four (19%) were NS to erythromycin, 64 being highly resistant with MICs ≥16 mg/L, and 59 (15%) were NS to clindamycin, continuing an apparent upward trend - see graph.
- As in earlier years, 21% of 489 ***H. influenzae*** and 99% of 236 ***M. catarrhalis*** produced β-lactamase, but remained very broadly (>95%) susceptible to other established antibiotic classes.

Non-susceptibility in *S. pneumoniae*

Community-onset LRTI

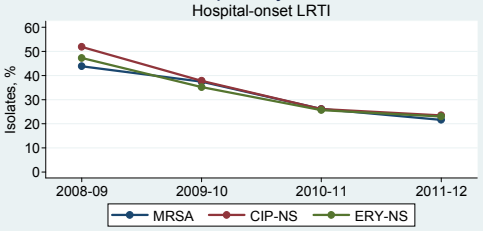


1,271 HOSPITAL-ONSET lower respiratory tract isolates collected October 2011 - Sept 2012 (>48 hours after admission to hospital)

- **MRSA** fell marginally in the last year to 22% of 209 *S. aureus* in 2011/12 after a rapid fall from 44% in 2008/09 to 26% in 2010/11.
- Non-susceptibility to ciprofloxacin and erythromycin fell with similar pattern to MRSA, reaching 23% and 23%, respectively.
- All ***S. aureus*** were susceptible to vancomycin, teicoplanin and linezolid in 2011/12.
- 38% of hospital-onset *S. aureus* LRTI were from intensive care units (ICU), similar to previous years, and MRSA was much less prevalent in ICU than other wards (10% *vs* 28%).

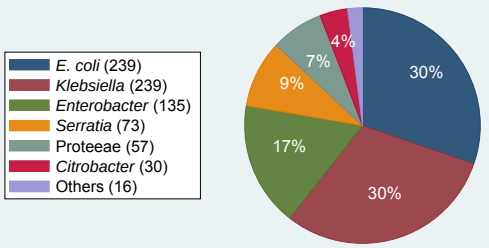
Non-susceptibility in *S. aureus*

Hospital-onset LRTI



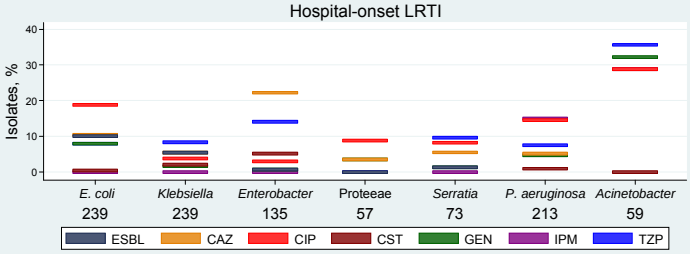
Enterobacteriaceae, 2011/12

Hospital-onset LRTI: N = 789



Non-susceptibility in Gram-negative bacteria, 2011/12

Hospital-onset LRTI



- In 2011/12, ESBLs were found in 10% of ***E. coli***, 5% of ***Klebsiella*** and <1% of ***Enterobacter*** - rates similar to or lower than 2010/11 (11%, 11% and 5% respectively).
- Ciprofloxacin NS was also no higher than in 2010/11 (*E. coli* 19% *vs* 27%, *Klebsiella* 4% *vs* 7%, and *Enterobacter* 3% *vs* 7%).
- All isolates of **Enterobacteriaceae** from LRTI in 2011/12 were susceptible to imipenem (excluding 57 Proteeae and 16 'Others').
- 5% of *Enterobacter* were **colistin**-non-susceptible, but only 2% of *Klebsiella* and <1% of *E. coli*, *Pseudomonas* and *Acinetobacter*.
- Non-susceptibility among 213 ***P. aeruginosa*** ranged up to 15% (imipenem and ciprofloxacin), similar to previous years.
- About 30% of 59 ***Acinetobacter*** were non-susceptible to imipenem, ciprofloxacin, gentamicin and piperacillin-tazobactam.

CONCLUSIONS

- *H. influenzae* and *M. catarrhalis* from community-onset LRTI remain very widely susceptible to existing antimicrobials.
- Community-onset *S. pneumoniae* also remain widely susceptible, despite a possible upward trend in resistance since about 2008.
- Non-susceptibility in isolates from hospital-onset LRTI in 2011/12 was generally similar to or lower than the three years before.

Abbreviations: NS non-susceptible (intermediate & resistant), **R** resistant. CAZ ceftazidime, CIP ciprofloxacin, CLI clindamycin, CST colistin, ERY erythromycin, GEN gentamicin, IPM imipenem, PEN penicillin, TET tetracycline, TZP piperacillin/tazobactam. ESBL extended-spectrum β-lactamase. MRSA methicillin-resistant *S. aureus*. LRTI lower respiratory tract infection.

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Organism ID and Susceptibility Testing: A. Kidney[6] and staff at Quotient BioAnalytical Sciences

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Collecting Laboratories: *See* **www.bsacsurv.org** **Sponsors 2011/12:** Basilea, Cempra, Cubist, Pfizer. **Support:** BSAC

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