BSAC Respiratory Resistance Surveillance Update 2012/13

#0114

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Background

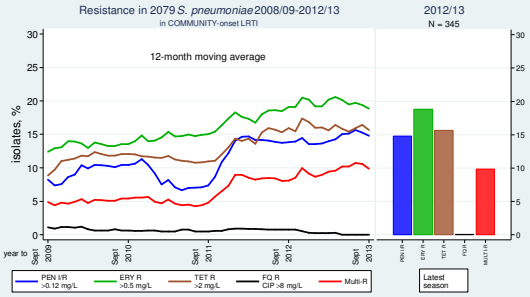
- The BSAC Respiratory Resistance Surveillance Programme is a long-term project to monitor antimicrobial susceptibility of the major pathogens causing lower respiratory tract infections (LRTIs) in the UK and the Republic of Ireland.
- In 2012/13, the Programme collected 2,177 LRTI isolates from 34 clinical laboratories across the UK and Ireland.

Methods

- Clinical laboratories collect up to a defined quota of isolates each season, Oct-Sept (excluding duplicates and cystic fibrosis).
- 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.

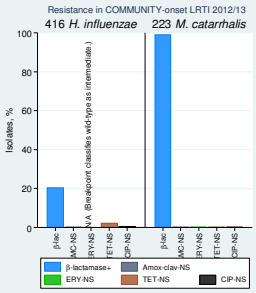
984 COMMUNITY-ONSET lower respiratory tract isolates collected October 2012 - Sept 2013 (in community, or hospital ≤48 hours)

S. pneumoniae



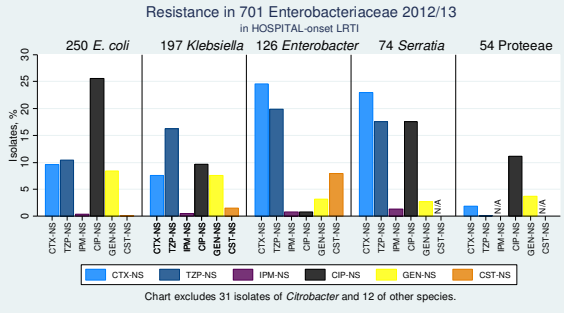
- After 10 years' stability, rates of resistance in *S. pneumoniae* have risen markedly over the last four seasons. 15% are now non-susceptible to penicillin (49/345 intermediate, 2 resistant), 19% resistant to erythromycin and 16% to tetracycline. 10% are non-susceptible to all three of these antibiotics.
- 20% of *H. influenzae* and 99% of *M. catarrhalis* produce beta-lactamase, but 97-100% are susceptible to amoxicillin-clavulanate, tetracycline and ciprofloxacin. *M. catarrhalis* are also susceptible to erythromycin.

H. influenzae, M. catarrhalis



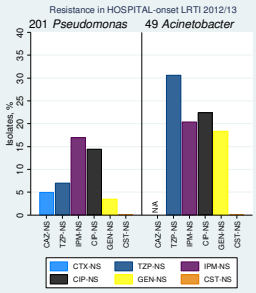
1,193 HOSPITAL-ONSET lower respiratory tract isolates collected October 2012 - Sept 2013 (>48 hours after admission to hospital)

Enterobacteriaceae



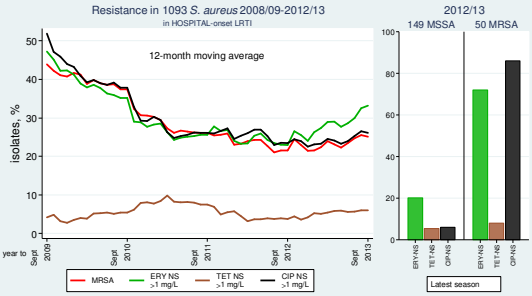
- ESBLs were found in 9% of *E. coli* and *Klebsiella*, and 3% of *Enterobacter* isolates in 2012/13.
- One isolate each of *E. coli*, *K. pneumoniae*, *E. aerogenes and Serratia marcescens* was resistant to imipenem.
- Ciprofloxacin non-susceptibility ranged from 1% among *Enterobacter* (down from 14% in 2008/09) to 26% among *E. coli*.
- Colistin resistance was more common in *Enterobacter* (8%) than in other genera of Enterobacteriaceae, or in *Pseudomonas* or *Acinetobacter* (≤2%).

Pseudomonas
Acinetobacter



S. aureus

- MRSA has stabilised at close to 25% of *S. aureus* over the last three seasons, after a rapid fall from 44% in 2008/09 and 37% in 2009/10.
- MRSA remained generally resistant to ciprofloxacin (86%) and erythromycin (72%) in 2012/13, while 20% of MSSA were non-susceptible to erythromycin.
- MRSA and MSSA were mostly susceptible to other agents, and all were susceptible to vancomycin, linezolid and ceftobiprole.
- As noted in other years, MRSA were less prevalent in *S. aureus* from ICU (11/60=18%) than other specialities (39/136=29%).



CONCLUSIONS - community onset-LRTI

- Resistance in *S. pneumoniae* has increased substantially over the last 4 years, with 10% now multi-resistant.
- *H. influenzae* and *M. catarrhalis* remain very widely susceptible to existing antimicrobials.

CONCLUSIONS - hospital-onset LRTI

- MRSA has levelled off at 25% of *S. aureus,* after earlier falls.
- Resistance to colistin among *Enterobacter* (8%) is striking but not associated with other resistances.
- Carbapenem resistance is scattered in Enterobacteriaceae.

Abbreviations: NS non-susceptible = intermediate **(I)** + resistant **(R)**; **multi-R** = NS to ≥3 classes of antibiotic. **N/A** not applicable (e.g. no breakpoint, inherent resistance). CAZ ceftazidime, CIP ciprofloxacin, CST colistin, CTX cefotaxime, ERY erythromycin, FQ fluoroquinolone, 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. **ICU** intensive care unit.

Extended Standing Committee Members (Nov 2013): A. MacGowan[1] (Chair), J. Alder[2], M. Allen[3], D. Brown[4], J. Chesham[5], A. Johnson[6], D. Livermore[7], C. Longshaw[8], V. Martin[1], T. Mepham[9], S. Mushtaq[6], S. Peacock[10], R. Reynolds[1], A. Santerre-Henriksen[11], J. Steenbergen[12].
Organism ID and Susceptibility Testing: J. Murray[13] and staff at LGC.
Collecting Laboratories: *See* **www.bsacsurv.org. Support:** BSAC

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FIS, Harrogate, 24-26 Nov 2014
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