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.

**984 COMMUNITY-ONSET lower respiratory tract isolates**

- Collected October 2012 - Sept 2013 (in community, or hospital 548 hours)

- 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-clavulinate, tetracycline and ciprofloxacin. *M. catarrhalis* are also susceptible to erythromycin.

**1,193 HOSPITAL-ONSET lower respiratory tract isolates**

- Collected October 2012 - Sept 2013 (>48 hours after admission to hospital)

- 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 (52%).

**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 previous 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.

**Enterobacteriaceae**

**Pseudomonas Acinetobacter**

**Extended Standing Committee Members (Nov 2013):**

A. MacGowan¹ (Chair), J. Alder², M. Allen³, D. Brown⁴, J. Chesham⁵, A. Johnso⁶, D. Livermore⁷, C. Longshaw⁸, V. Martin⁹, T. Mepham¹⁰, S. Mustag¹¹, S. Peacock¹², R. Reynolds¹, A. Santerre-Henriksen¹¹, J. Steenbergen¹², Organism ID and Susceptibility Testing: J. Murray¹² and staff at LGC.

**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).

Cephalothin, CIP = ciprofloxacin, CIST = colistin, CTX = cefotaxime, EVR = erythromycin, FQ = fluoroquinolone, GEN = gentamicin, IPM = imipenem, PEN = piperacillin, TET = tetracycline, TZP = tazobactam.

**Extended Standing Committee Meetings (Nov 2013):** A. MacGowan¹ (Chair), J. Alder², M. Allen³, D. Brown⁴, J. Chesham⁵, A. Johnso⁶, D. Livermore⁷, C. Longshaw⁸, V. Martin⁹, T. Mepham¹⁰, S. Mustag¹¹, S. Peacock¹², R. Reynolds¹, A. Santerre-Henriksen¹¹, J. Steenbergen¹², Organism ID and Susceptibility Testing: J. Murray¹² and staff at LGC.

**Collecting Laboratories:** See www.bsacsurv.org. Support: BSAC.

**Sponsors:** 2008/09-2012/13 (2012/13 in bold):

- Astellas, AstraZeneca, Basilea, Centura, Cerexa, Cubist, J&J, Janssen-Cilag, Melinta (associate), Novartis, Pfizer.

- North Bristol NHS Trust; ² Bayer; ³ Novartis; ⁴ EUCAS Scientific Secretary; ⁵ Pfizer; ⁶ Public Health England, London; ⁷ University of East Anglia, Norwich; ⁸ Astellas; ⁹ AstraZeneca; ¹⁰ University of Cambridge; ¹¹ Basilea; ¹² Cubist; ¹³ LGC, Fardham.