BSAC Respiratory Resistance Surveillance Update 2007-08

R. Reynolds[1] , I. Morrissey[2] , K. Maher[2] and The BSAC Extended Working Party on Resistance Surveillance[1]

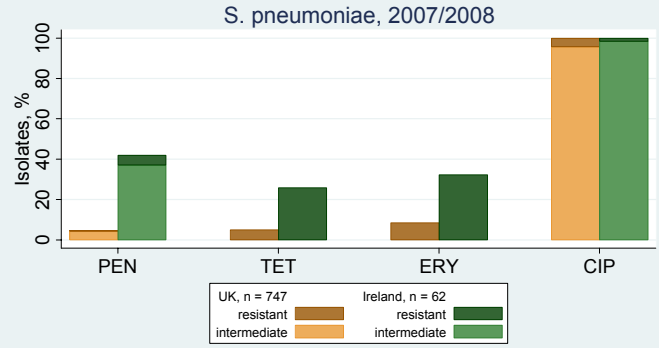
[1]British Society for Antimicrobial Chemotherapy, Birmingham, B1 2JS [2] Quotient Bioresearch Ltd., Microbiology, London, NW1 3ER

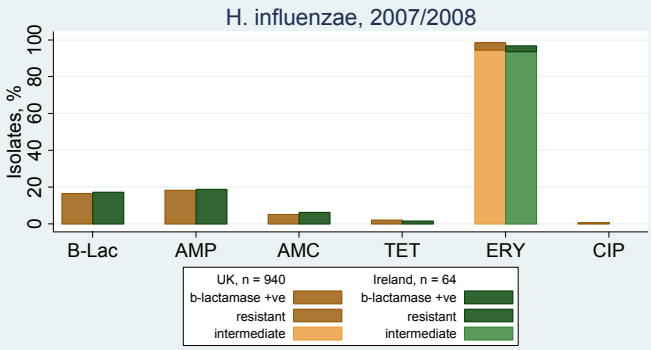
Background

- The BSAC Respiratory Resistance Surveillance Programme monitors antimicrobial susceptibility in the major organisms causing community-acquired lower respiratory tract infection.

Methods

- Each winter (October-April), 20-25 laboratories each submit up to 50 lower respiratory isolates of *Streptococcus pneumoniae* and *Haemophilus influenzae* and up to 25 *Moraxella catarrhalis*, excluding duplicates, cystic fibrosis and hospital-acquired infections (>48 hours after hospitalisation).
- MICs are measured and interpreted by BSAC methods.
- Detail: www.bsacsurv.org *or* JAC, 2008. **62**, suppl 2 ii15 - ii28



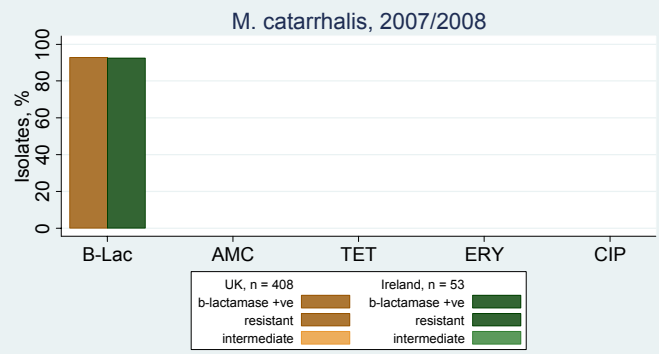


In the UK, 4.3% of *S. pneumoniae* were intermediate and 0.4% resistant to penicillin, compared to 37% and 5% in Ireland. (The BSAC programme has few centres in Ireland, but this difference is also seen consistently in the much larger EARSS dataset.)

Similar differences exist for TET- and ERY-resistance, which are associated with PEN-non-susceptibility. CIP is not active against *S. pneumoniae*, but CIP MICs >8 mg/L (a good proxy for resistance to 'respiratory' fluoroquinolones) were seen in only 0.5% of isolates.

β-lactamase production in *H. influenzae* was similar to previous years at 16.5%; AMP resistance was slightly higher at 18%, and 5% appeared AMC-resistant. 12 of 18 β-lactamase-negative AMP-R isolates and 42 of 52 AMC-R isolates had MICs of 2 mg/L, just above the breakpoint for clinical resistance and (for AMC) within the EUCAST-defined wild-type range.

H. influenzae has inherent borderline resistance to ERY, with over 90% appearing intermediate. In the three most recent seasons, however, eight isolates have been detected with surprisingly high MICs for ERY (>128 mg/L) and nine similarly for CIP (>4 mg/L). All were β-lactamase-negative and TET-susceptible. They were geographically spread across nine centres and all five countries of the UK and Ireland.



Similarly to previous years, 93% of *M. catarrhalis* produced β-lactamase. Over nine seasons of study, <0.2% of isolates have been resistant to AMC, TET, ERY or CIP, and none in 2007/08.

Agent	MIC mg/L	*1999 / 2004*	2004 / 2005	2005 / 2006	2006 / 2007	2007 / 2008	Total
ERY	<=8	*3544*	850	843	837	964	7,890
	16-128	*239*	38	99	62	39	477
	>128	***0***	**0**	**0**	**7**	**1**	**8**
CIP	<=0.5	*4630*	887	940	901	999	8,357
	1-4	*5*	1	0	1	2	9
	>4	***0***	**0**	**2**	**4**	**3**	**9**
Total		*4635*	888	942	906	1,004	8,375

Conclusions

- The prevalence of antimicrobial resistance in the major pathogens of community-acquired lower respiratory infection in the UK and Ireland has changed little in recent years and remains quite low.
- A small number of *H. influenzae* requiring unusually high MICs of erythromycin and ciprofloxacin have been noted since 2005-06, meriting further study and surveillance.

Abbreviations: B-Lac β-lactamase, R resistant, EARSS European Antimicrobial Resistance Surveillance System. AMC amoxicillin-clavulanate, AMP ampicillin, CIP ciprofloxacin, ERY eythromycin, PEN penicillin, TET tetracycline.

BSAC Respiratory Resistance Surveillance Programme *1999/2000-2006/07*, 2007/08. **Sponsors:** *Abbott, Aventis, Bayer, GlaxoSmithKline, GeneSoft, MSD*, Wyeth. **Support:** BSAC. **Collecting laboratories:** please see **www.bsacsurv.org** **Central Laboratory:** Quotient Bioresearch Ltd., Microbiology, London. **Organism ID and Susceptibility Testing:** L. Williams, K. Maher, *J. Shackcloth*, staff at Quotient Bioresearch.

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Dr. R. Reynolds, BSAC Resistance Surveillance Co-ordinator
Department of Medical Microbiology, Southmead Hospital, Bristol, BS10 5NB

rreynolds@bsac.org.uk