Resistance Rising in *Streptococcus pneumoniae* from Community-Onset Lower Respiratory Infections, Less So in Bacteremia, in the UK and Ireland

R. Reynolds & S. Mushtaq & J. Murray & The BSAC Extended Standing Committee on Resistance Surveillance

Southmead Hospital, Bristol, BS10 5NB, Southmead Hospital, Bristol, BS10 5NB; British Society for Antimicrobial Chemotherapy, Birmingham, B1 3NJ; Public Health England, London, NW9 5EQ; LGC, Fordham, CB7 5WW

BACKGROUND
The BSAC Resistance Surveillance Project tracks antimicrobial susceptibility in *S. pneumoniae* from blood (invasive infections) and community-onset lower respiratory infections (LRTI, up to 48 hours in hospital) in the UK and Ireland.

Routine vaccination with PCV7 (from Sept 2006) and PCV13 (from April 2010) targeted resistant invasive serotypes, while increasing antibiotic prescription maintained selection pressure on LRTI in the community.

METHODS
From Oct 2000 to Dec 2013, 8037 LRTI and 2959 blood isolates were collected from 20-39 centres per year. MICs were measured by BSAC/EUCAST breakpoints. Resistance (R) classes were penicillin (PEN) intermediate (I) or R; erythromycin (ERY) R; tetracycline (TET) R; and fluoroquinolone (FQ) R - defined as ciprofloxacin MIC>8 mg/L, known to predict moxifloxacin R. Dual R is R to exactly 2 classes; multiple R is R to ≥3 classes.

RESULTS
89% of blood *S. pneumoniae* of known origin were from RTI; 30% lacked this data.

CONCLUSIONS
Among *S. pneumoniae*, in the last 5 years:
- Rates of resistance to PEN, ERY and TET increased substantially among respiratory isolates, as did dual and multiple resistance.
- An apparent shift from single to dual and multiple resistance among invasive isolates was not a statistically significant trend.
- Respiratory *S. pneumoniae* are now three times as likely as invasive isolates to have at least one resistance (22.6 vs 7.2%), and nearly five times as likely to have multiple resistance (9.9 vs 2.1%).


Organism ID and Susceptibility Testing: J. Murray and staff at LGC, Fordham; S. Mushtaq and staff at Public Health England.

Collecting Laboratories: See www.bsac.org.uk /North Bristol NHS Trust; Bayer; Novartis; EUCAST Scientific Secretary; Pfizer; Public Health England; University of East Anglia; AstraZeneca; LGC; Cambridge University; Basilea; Cubist


Support: BSAC
Correspondence: Dr. R. Reynolds, BSAC Resistance Surveillance Coordinator, Department of Medical Microbiology, Southmead Hospital, Bristol, BS10 5NB, UK. rosrey@nbt.nhs.uk

www.bsac.org.uk
The British Society for Antimicrobial Chemotherapy

C-1470
54th ICAAC, 6th Sept 2014, Washington, DC.

ABSTRACT CORRECTION Data for TET and ERY were transposed; this is corrected here.

1Southmead Hospital, Bristol, BS10 5NB; British Society for Antimicrobial Chemotherapy, Birmingham, B1 3NJ; Public Health England, London, NW9 5EQ; LGC, Fordham, CB7 5WW

INVASIVE infection - bacteremia

Resistence Rising in *Streptococcus pneumoniae* from Community-Onset Lower Respiratory Tract Infection, Less So in Bacteremia, in the UK and Ireland

R. Reynolds & S. Mushtaq & J. Murray & The BSAC Extended Standing Committee on Resistance Surveillance

Southmead Hospital, Bristol, BS10 5NB; Public Health England, London, NW9 5EQ; LGC, Fordham, CB7 5WW

BACKGROUND The BSAC Resistance Surveillance Project tracks antimicrobial susceptibility in *S. pneumoniae* from blood (invasive infections) and community-onset lower respiratory infections (LRTI, up to 48 hours in hospital) in the UK and Ireland. Routine vaccination with PCV7 (from Sept 2006) and PCV13 (from April 2010) targeted resistant invasive serotypes, while increasing antibiotic prescription maintained selection pressure on LRTI in the community.

METHODS From Oct 2000 to Dec 2013, 8037 LRTI and 2959 blood isolates were collected from 20-39 centres per year. MICs were measured by BSAC/EUCAST breakpoints. Resistance (R) classes were penicillin (PEN) intermediate (I) or R; erythromycin (ERY) R; tetracycline (TET) R; and fluoroquinolone (FQ) R - defined as ciprofloxacin MIC>8 mg/L, known to predict moxifloxacin R. Dual R is R to exactly 2 classes; multiple R is R to ≥3 classes.

RESULTS 89% of blood *S. pneumoniae* of known origin were from RTI; 30% lacked this data.

CONCLUSIONS Among *S. pneumoniae*, in the last 5 years:
- Rates of resistance to PEN, ERY and TET increased substantially among respiratory isolates, as did dual and multiple resistance.
- An apparent shift from single to dual and multiple resistance among invasive isolates was not a statistically significant trend.
- Respiratory *S. pneumoniae* are now three times as likely as invasive isolates to have at least one resistance (22.6 vs 7.2%), and nearly five times as likely to have multiple resistance (9.9 vs 2.1%).


Organism ID and Susceptibility Testing: J. Murray and staff at LGC, Fordham; S. Mushtaq and staff at Public Health England.

Collecting Laboratories: See www.bsac.org.uk /North Bristol NHS Trust; Bayer; Novartis; EUCAST Scientific Secretary; Pfizer; Public Health England; University of East Anglia; AstraZeneca; LGC; Cambridge University; Basilea; Cubist.


Support: BSAC
Correspondence: Dr. R. Reynolds, BSAC Resistance Surveillance Coordinator, Department of Medical Microbiology, Southmead Hospital, Bristol, BS10 5NB, UK. rosrey@nbt.nhs.uk

www.bsac.org.uk
The British Society for Antimicrobial Chemotherapy