

Prevalence and Susceptibility of MRSA from Blood in the UK and Ireland in 2008

C2-115

rreynolds@bsac.org.uk

49th ICAAC, 12 - 15 September 2009, San Francisco.

R. Reynolds¹, R. Hope² and The BSAC Extended Working Party on Resistance Surveillance¹

¹British Society for Antimicrobial Chemotherapy, Birmingham, B1 3NJ ²Health Protection Agency, London, NW9 5HT

BACKGROUND

The BSAC Bacteraemia Resistance Surveillance Programme has tracked resistance in organisms causing bacteraemia in the UK and Ireland since 2001.

METHODS

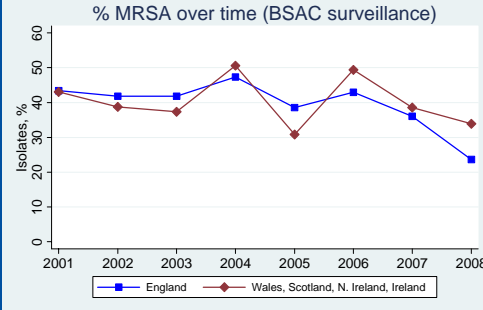
- 25 centres each year contribute 20 *S. aureus* isolates from blood (previously 10, 2001-2007).
- MICs (mg/L) are determined centrally by the BSAC agar dilution method at the Health Protection Agency (HPA).
- Results are compared with those from other national surveillance schemes (see references):
 - mandatory reporting covers England only;
 - HPA voluntary reporting covers England, Wales and N. Ireland with local testing and >70% ascertainment.

RESULTS

- MRSA bacteraemias fell in number and as a proportion of all *S. aureus* bacteraemias from 2006 to 2008.
- The proportion of MRSA isolated after >48 hours in hospital or with erythromycin resistance also fell slightly, but remained high.
- Anti-MRSA agents remained highly active.

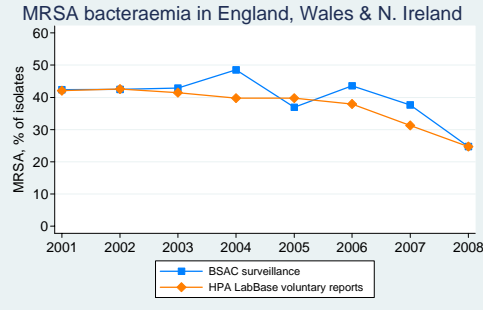
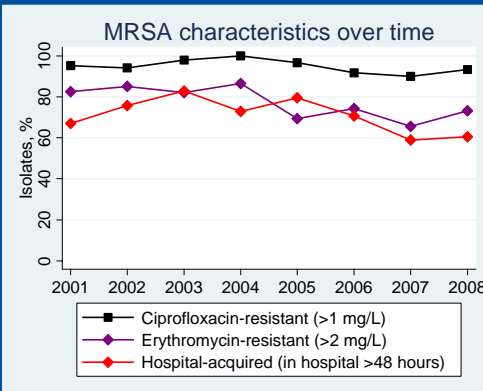
References:

BSAC Resistance Surveillance Project: R Reynolds et al. JAC, 2008. 62(Suppl 2): p. ii15 - ii28.
 Mandatory MRSA surveillance: HPA, www.hpa.org.uk, Quarterly reporting of MRSA Bacteraemia April 2001 to March 2006; and April 2006 to June 2009.
 HPA voluntary surveillance: HPA, www.hpa.org.uk, Voluntary reporting of *Staphylococcus aureus* bacteraemia in England, Wales, and Northern Ireland January - December 2007; and (2008 data) personal communication, A. Johnson, HPA



Health service organisation differs between the five countries, but there was no conclusive difference in MRSA trends between England and the other four countries combined.

years	England		other countries	
	N	%MRSA	N	%MRSA
2001-06	980	43	468	42
2007	175	36	70	39
2008	338	24	115	34



MRSA rates in the BSAC sentinel surveillance programme agreed closely with those from the larger HPA LabBase voluntary surveillance.

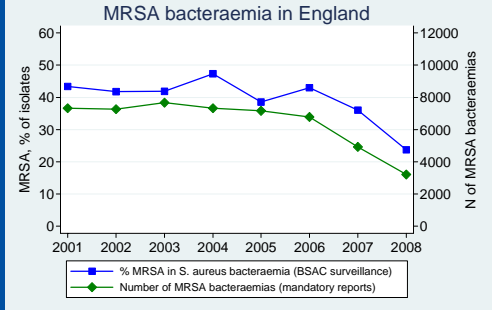
The proportion of *S. aureus* bacteraemias caused by MRSA fell substantially from 2006.

Year	%MRSA	BSAC	LabBase
2001-06	43	40.6	40.6
2007	38	31.3	31.3
2008	25	24.7	24.7

The proportion of MRSA bacteraemias arising after >48 hours in hospital fell from 75% in 2001-2006 to 61% in 2008. Erythromycin resistance in MRSA fell slightly (80% to 73%) but ciprofloxacin resistance remained >90%.

Susceptibility (S) to current and developmental anti-MRSA agents remained very high in 2008.

Drug	%S	mode MIC	max MIC
vancomycin	100	1	4
teicoplanin	100	1	4
linezolid	100	2	4
tigecycline	100	0.25	0.5
ceftobiprole	n/a	0.5	2
telavancin	n/a	0.25	1



The total number of MRSA bacteraemias in England fell in close parallel with the proportion of *S. aureus* bacteraemias caused by MRSA. This means that MSSA bacteraemia numbers did not drop in the same way as MRSA.

HPA voluntary surveillance also shows that the number of MSSA bacteraemias has been stable from 2004 to 2008 (A Pearson et al. JAC, 2009. 64 (suppl 1): p. i11 - i17).

CONCLUSIONS

- MRSA (but not MSSA) prevalence has fallen substantially in the UK and Ireland since 2006.
- The reduction has been greater among MRSA isolated after >48 hours in hospital.
- UK MRSA are still mostly resistant to quinolones and macrolides.
- Established and developmental anti-MRSA agents retain good activity.

Working Party Members (July 2009): A. MacGowan¹ (Chair), M. Allen², D. Biek³, D. Brown⁴, D. Felmingham⁵, R. Flamm⁶, R. Hope⁷, D. Lewis⁸, D. Livermore⁷, M. Lockhart⁹, C. Longshaw¹⁰, K. Maher¹¹, I. Morrissey¹¹, J. Northfield¹², J. Porter¹³, R. Reynolds¹, C. Thomson¹², A. White¹⁴.

Organism ID and Susceptibility Testing 2008 collection: R. Hope⁷ and staff at HPA⁷.

Collecting Laboratories: See www.bsac.org.uk or White 2008, JAC 62 (Suppl 2) ii3 - ii14

¹North Bristol NHS Trust; ²Novartis; ³Cerexa; ⁴EUCAST Scientific Secretary; ⁵Consultant Clinical Scientist; ⁶Johnson&Johnson; ⁷Health Protection Agency, London; ⁸HPA South West; ⁹AstraZeneca; ¹⁰Wyeth; ¹¹Quotient Bioresearch Ltd., Microbiology; ¹²Astellas; ¹³Pfizer; ¹⁴Tony White Ltd.

Central Laboratory: Health Protection Agency, London.

Sponsors 2001-2009: Astellas, AstraZeneca, Cerexa, Cubist, Johnson&Johnson, MSD, Novartis, Pfizer, Theravance, Wyeth. **Support:** BSAC.

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

rreynolds@bsac.org.uk

www.bsac.org.uk

