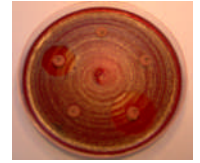
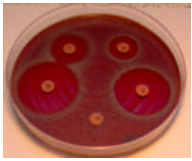


What comes out of Vets Noses? - Nasal Carriage of MRSA in Veterinary Personnel



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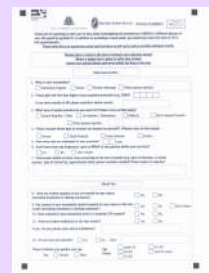
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AIMS

- To estimate prevalence of nasal carriage of Methicillin – resistant *Staphylococcus aureus* amongst Veterinary Personnel attending the 2006 British Equine Veterinary Association congress.
- To investigate associated factors relating to carriage of MRSA and strain type.

METHODS

- Participants volunteered to provide nasal swabs and completed a short questionnaire relating to demographics, occupation, species of animals treated, exposure to human hospital environment and antibiotic therapy taken.
- Swabs were enriched in broth for 24hr, then plated onto selective media for MRSA and incubated for 48 hrs
- Typical colonies were sub-cultured onto blood agar and catalase, staphylase (Pro-Lab), coagulase and gram stains were performed on all isolates.
- Isolates underwent PCR for *mecA* and *femA* genes. PCR for *pvl* toxin gene was also performed.
- All MRSA isolates were tested for antibiotic sensitivity via disc diffusion assay against 10 commonly used antibiotics
- Questionnaire data was analysed using Chi-squared analysis with Minitab software



RESULTS

- 274 participants provided samples and completed questionnaire
- Of these, 22 were found to be carrying MRSA strains - 8.03% prevalence (95% CI 5.1, 11.9)
- 18 isolates were from veterinary surgeons, 2 veterinary Nurses and 2 veterinary students.
- All but 3 of the 22 indicated they treated horses, with 58% stating horses were the sole species treated. (Table 1)
- No significant associated risk factors were found when comparing MRSA positive and negative participants.
- The antibiograms of the isolates led to presumptive identification of strain types (Table 1 & Fig.1) – further molecular analysis through PFGE and MLST is ongoing.

Table 1: Occupation, species treated and presumed MRSA strain type

	Species treated	EMRSA-15 <small>Common Human Epidemic Form</small>	EMRSA-10	Unknown
VETERINARY SURGEONS	Horse only	2	5	4
	Mixed (>2 species)	5	1	0
	Small animals only	0	0	1
VETERINARY NURSES	Small animals only	0	1	0
	Mixed (>2 species)	0	1	0
VETERINARY STUDENT	Species not specified	1	0	1
TOTALS		8	8	6

Fig 1: Antibiotic resistance amongst MRSA isolates (n=22)

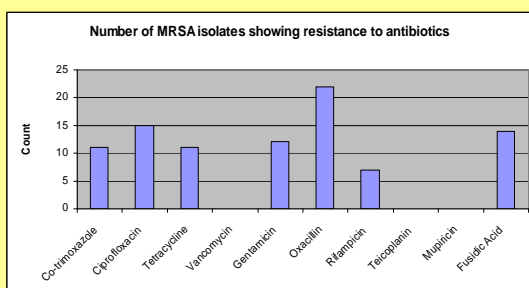
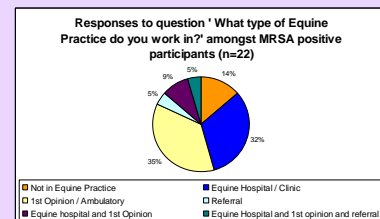
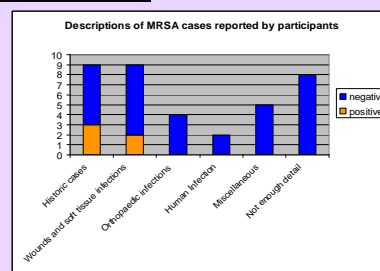


Fig 2: Pie chart of 'Type of Equine Practice' amongst MRSA positive respondents



43 participants (15.7%) reported they had seen clinical cases of MRSA over the 3 months prior to congress (Fig 3). These cases were reported in horses, small animals and humans.

Fig 3: Bar chart showing types of clinical cases of MRSA reported in previous 3 month period



NB: Historic cases are MRSA cases reported at clinics greater than 3 months ago.

CONCLUSIONS

- Eight isolates were of the common UK human epidemic form EMRSA-15. However, eight isolates were more typical of EMRSA-10 which is not usually reported in people in the UK.
- EMRSA-10 has previously been reported in horses and veterinary personnel in Austria¹ and in horses at our veterinary hospital².
- This strain may be adapted to horses and these results may indicate zoonotic transmission between horses and veterinary personnel.
- Further studies investigating the prevalence and relatedness of these strains from a representative sample of veterinary personnel and horse populations are now required.

REFERENCES:

- Cuny et al., 'Emergence of MRSA infections in Horses in a Veterinary Hospital: Strain Characterisation and comparison with MRSA from humans' *Eurosurveillance* Vol 11 Iss 1-3 Jan-Mar 2006
- Moodley et al., 'Spa typing of Methicillin resistant *Staphylococcus aureus* isolated from domestic animals and veterinary staff in the UK and Ireland' *JAC* (2006) **58**, 1118-1123