

MRSA: from front page to front line

METHICILLIN-resistant *Staphylococcus aureus* in animals is still a growth concern in the veterinary profession.

A front-page news regular for the nation's hospitals during the past five years, the issue of post-surgical infection in veterinary practices, along with the transfer of bacteria from people to their pets and vice versa, has stimulated research and volatile debate the world over.

Now, the Bella Moss Foundation (BMF) is organising the first international conference on MRSA in animals, at Liverpool University from June 19-21. It will focus on MRSA in animal medicine like never before. Fitting tribute, says BMF founder Jill Moss, to the memory of her 10-year-old samoyed dog who, she claims, died as a result of post-surgical MRSA infection. This is a personal project.

It's tiring work organising a three-day conference from scratch, says Jill, and I believe her. She appears weary, but unbowed, as we discuss events over coffee in her new apartment. There is a quiet determination about her process, as she and BMF partner, Mark Doshier, arrange and finance the programme with help from the university.

"We have all the keynote speakers lined up from human and animal medicine," says Jill. "We've got equine, livestock and small animal experts on MRSA and although it's not a big event – we only have room for 140 delegates – it's a start. The first day will be based on science and research, and the second day on clinical practice.

"We'll also have workshops running separately so we're hop-

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finds out the latest on efforts to educate the public and profession about MRSA in animals ahead of the first international conference to discuss the growing phenomenon

ing to get lots of nurses there," she continues. "There'll be a discount for students as well. The way I see it, it's vitally important to provide practising vets and the next generation with information on MRSA – what it is, different strains, ways to prevent it, new science."

Tim Nuttall, senior lecturer in veterinary dermatology at the University of Liverpool, says it is a well-known fact that animals can act as reservoirs of MRSA for colonisation and infection of humans. "Dogs and cats appear to carry the UK's common human hospital-acquired strains, E15 and E16, and it's a similar story for relevant strains elsewhere in the world," he says.

"It is likely that animal colonisation and infection originates from humans. In certain, rare instances it is possible for a colonised animal to act as a source of infection for humans and the environment."

He continues: "The current advice is to include animals in elimination programmes for human patients. This is uncommon though, possibly because *Staphylococcus* species are host-adapted and do not readily colonise other hosts. Humans are much more likely to acquire MRSA from other humans than from animals, and animals appear to be at much more risk from us than vice versa."

MRSA carriage

There is an urgent need for more research into the prevalence of, and risk factors for, MRSA carriage in healthy animals, says Tim. As the BMF raises money to fund this research, it intends to target MRSA epidemiology in large populations.

"We'd like to take samples from dogs all around the UK,"

says Jill. "Dogs Trust has offered us unique access for that. We don't believe dogs routinely carry *S aureus*, but what we do know is that cross-contamination is a real risk."

What she also knows is that more and more people seek advice on their pets from the BMF. During the past 18 months, it has received frantic calls from people whose animals have MRSA, or have it themselves, who need veterinary advice. In some cases, it has put people in touch with experts; in others it has provided help in understanding information they have been given.

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and collating the information," says Jill. "So we ask every owner to get their bacterial cultures and send us the report. We tell them to get tested to see if they are carrying MRSA. We ask them to be very careful about the kind of contact they have with their dog.

"We're dealing with individuals who are frightened and stressed, and need the facts explaining to

them. It's not an easy conversation; you really have to start from scratch and explain everything."

It all could have been so different, muses Jill. The BMF is a rational reaction to an emotional situation – the death of Jill's dog Bella. Surgery on a cruciate ligament injury should have been a routine procedure, but Bella's surgical wound became infected with MRSA and

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The first international conference on MRSA is a fitting tribute to Bella Moss (above), BMF founder Jill Moss' 10-year-old samoyed, who died as a result of MRSA infection.

Pseudomonas, and she died in "distress and agony" following further complications.

Jill is among, perhaps, a minority of animal lovers, who keenly miss their pets as if they were close relatives. Some become embittered, others like Jill, take positive action. She is in constant contact with the BVA and is a founding member of the DEFRA committee on MRSA in animals.

The BMF now campaigns regularly at Crufts dog show with the open invitation of The Kennel Club, its honorary patron is well-known agony aunt Claire Rayner, and ex-*Blue Peter* presenter, Peter Purves, is now the foundation's honorary vice-patron. Publicity is not a problem.

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It all comes back to the paucity of current research. In 2005, Canadian researchers (Weese et al) published in *Veterinary Microbiology* on the risks of skin infections resulting from horse to human transmission in a veterinary hospital.

MRSA skin infections were identified in three neonatal intensive care unit personnel, following contact with an infected foal. Ten of the remaining 103 staff were found to have nasal bacterial colonisation.

Zoonotic pathogen

Weese and his associates concluded that: "transmission to veterinary personnel, despite short-term contact with standard protective barriers, highlights the potential importance of MRSA

as an emerging zoonotic pathogen." The paper urged further evaluation of interspecies transmission, and ways to prevent zoonotic infection.

Prevention advice is an important aspect of the BMF's work, insists Jill, and a series of presentations to Blue Cross animal charity hospitals are underway.

On March 30, Jill and Annette Loeffler, from the Royal Veterinary College, delivered a clinical seminar on the development of bacterial resistance, treatment of resistant infections and aspects of infection control.

"We were very pleased to have started our programme of visiting veterinary hospitals with the Blue Cross," says Jill. "They have incredibly high standards and don't allow the fact that they rely entirely on donations to compromise the standards of their work."

If the RCVS was given the power to impose mandatory standards on veterinary practices, in Jill's opinion, we could then move towards a gold standard for hygiene in practice. As it is, says Jill: "The [Practice Standards] scheme fails to address the crucial issue of infection control. It may be very well to say that practices must be clean and well maintained, but in the scheme there is no requirement that practices develop written policies to guide staff on effective infection control practice.

"We think it is unacceptable that practices will be required to have written policies on communication, but nothing that says gloves and masks should be worn during surgical procedures."

The BMF believes that making veterinary surgeons responsible for their own practice and the conditions in which they



This dog is believed to have contracted MRSA infection after a stay in kennels while the owners were away on holiday. Seven-year-old Jazz (male) has now made a full recovery.

work will force any bad practices out of business much more effectively than the commercial competition incentive, espoused in the RCVS' Practice Standards Scheme (PSS).

It says that if a veterinary surgeon agreed to work in conditions that contravened or failed to meet a required standard, then he/she would be in breach of the code of practice and would have to account for their decision to work under such conditions. This would have the benefit of forcing higher standards and would remove the current incentive to ignore dangerous or sub-standard conditions or unprofessional working practice, it insists.

"The Bella Moss Foundation welcomes the steps the RCVS has taken on this matter, but it urges the college to set in place mechanisms that truly improve infection control and clinical practice," says Jill. "The only way to make higher standards the norm is to make the scheme compulsory."

Standard benchmarks

As part of the push towards compulsory standards, the BMF has taken up an issue flagged by the BVA, on standard benchmarks for veterinary laboratories. At present, there are no national standards for vet laboratories, creating the potential for inaccurate results and misdiagnosis.

What the BMF wants is to have a centralised database to collect and collate information on standardisation of veterinary laboratories, so that data being collated is of a uniform standard, with identical methodology. It would stop one lab using a different method from another. "The BVA has written to DEFRA about the standardisation of veterinary laboratories, and we are encouraging DEFRA and the BVA to push it forward," says Jill.

"The BVA's argument is that it can't have a centralised database that it would hold, because it would be too expensive. I've said at the meeting that while I'm raising money for research and a veterinary scientific conference,

it's also possible to raise money for a centralised database.

"The money is out there, it's just a question of tapping into it. This is something that everybody agrees should be done, it's just a case of when and how." A cursory search on the internet service Google using the words "pet" and "MRSA" turns up 2,480,000 hits. It's a world away from the situation 18 months ago when Jill first tried to get information on MRSA for her dog's infection. "When Bella died I scanned the internet for more information and there was nothing," she says.

"If you do a quick search now you'll get pages and pages of information. That's what I wanted. There are now hundreds of products from companies that will prevent MRSA in pets, and research is progressing," Andrew Waller, section head of bacteriology at the Animal Health Trust, says practical measures and research should go hand in hand: "Our diagnostic laboratories have introduced some new tests where MRSA is suspected in order to speed up diagnosis. Much of my work continues to be at the research level.

"Our *Staphylococcus intermedius* work has exploited the *S aureus* primers for the *pta* gene, to sequence type clinical isolates from dogs and horses. The isolates include a methicillin resistant *S intermedius* (MRSI) strain and we have done some early work using phylogenetics."

Meanwhile, the BMF education programme continues, and up-to-date research will be presented at the conference in June. But, says Jill, what's happening right now in veterinary practices that still aren't working in highly aseptic conditions?

"How do we reach 3-4,000 veterinary practices in this country to say 'these are the risks, not just for MRSA, but for other serious postoperative infections?'" she asks.

"How do we tell them these are the things you need to do to prevent it happening? Because we believe that most of it is preventable."