MRSA Now Seen to Jump From Pets to People

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WASHINGTON — As if there weren't already enough reasons to be worried about methicillin-resistant *Staphylococcus aureus,* the troublesome organism is now turning up in the pet population and appears to be able to move readily between animals and humans, a veterinary expert said at the annual Interscience Conference on Antimicrobial Agents and Chemotherapy.

"Methicillin-resistant *Staphylococcus aureus,* and *Staph aureus* in general, really hasn't been considered to be zoonotic, but now we're seeing that it can be transmitted between animals and people in both directions.

"As community-associated MRSA becomes more of a problem in people, it creates more potential exposure of pets," said J. Scott Weese, D.V.M., a professor of large animal medicine at the University of Guelph in Ontario, Canada.

MRSA from one rescue facility was brought into a house by one or more kittens, transmitted to both owners and another cat, and to a worker at a veterinary clinic.

Methicillin-resistant *Staphylococcus aureus* (MRSA) appears to be endemic at a low level in the horse population worldwide, and it can be transmitted between horses and people fairly readily. During an equine outbreak in Ontario between 2000 and 2002, MRSA was isolated from 79 horses and 29 horse personnel. In addition, there were 13 clinical infections in horses and 1 clinical infection in a veterinarian.

"So there was fairly clear interspecies transmission," Dr. Weese said. In fact, the outbreak was traced back to one individual.

To determine what was going on in the larger equine community, Dr. Weese and his colleagues performed a study using a convenience-based sample of 972 horses and 107 horse personnel in Ontario and New York. Nasal swabs were collected from horses and humans. Approximately 5% of horses—all of them on farms with previous MRSA exposures—and 13% of personnel were colonized with MRSA. "On every farm that had a colonized horse, there was at least one person who was colonized with an indistinguishable strain," Dr. Weese said.

"I think the household pet issue is a more concerning issue because of the degree of contact that we have with our pets in most situations," he said.

In the past year or two, there have been reports of a few hundred clinically infected pets in the United Kingdom. The numbers are lower in North America, but this may be attributable to lower rates of diagnosis and reporting. "We definitely do see them in North America."

However, the prevalence of colonization in pets in the general population appears to be very low. "Most of the reports of household MRSA report strains that are typical of the common human strains in the area," he said. The USA 100 strain is predominant in the United States and Canada.

Dr. Weese presented a few cases of transmission of MRSA between pets and humans that he has investigated. "These are not the worst of the worst. …They are representative of a lot of situations that we've investigated," he said.

In one case in Washington, two kittens were brought to a veterinary clinic with chronic rhinitis. MRSA was isolated from cultures taken from both kittens. A technician at the clinic who had worked with the kittens was colonized as well. The kittens' owners, as well as the other cat in the household, were also colonized.

Upon investigation, the researchers learned that the kittens had been adopted from a rescue facility, and the head of the rescue facility was colonized, too. The isolates collected in the course of the investigation were indistinguishable.

The MRSA originated at the rescue facility and "one or more of the kittens brought it into the house, transmitted it to both owners and the other cat and one person at the veterinary clinic," Dr. Weese said at the meeting, sponsored by the American Society for Microbiology.

In another case a few years ago, a dog was presented to a primary care veterinary clinic in New York for a postoperative in-

fection related to a surgery performed at another facility the previous week. The culture was positive for a very aggressive strain of MRSA. The dog had necrotizing fasciitis and osteomyelitis and had to be euthanized.

During the investigation, another dog developed a serious postoperative infection. This dog was admitted for surgery after the first dog had been euthanized, so there had been no chance for direct contact.

Two personnel were found to be colonized, one of whom had been observed poking at the incision line of the second dog. The investigators determined that the first dog had acquired MRSA at the facility where surgery was performed, and had transmitted the organism to the owner and two personnel at the second facility, who then infected the other dog.

Dr. Weese and his colleagues are currently investigating the possibility of transmission from people to therapy dogs making visits to hospitals. Dogs are screened for MRSA at enrollment and are periodically rechecked.

The study is ongoing, and to date, one dog has been documented to have acquired MRSA during visitation with a colonized individual. "The concern is that if the dog is colonized and seeing other patients in the hospital … what's the risk for transmission," he said.

When it comes to MRSA and potential transmission, different species have different issues, Dr. Weese said. With horses, there is concern about nasal/facial contamination, fecal contamination, and the greater potential for international movement.

With household pets—dogs, cats, and hamsters, among others—the degree, duration, and intensity of contact is the primary concern. "There's a lot of high-level contact within the household, creating the chance for transmission," he said.

As a general rule, physicians "need to know what's going on in the household with pets," he said. Find out if there are pets and how many, and if the pets are healthy. It's important to reinforce the importance of hand hygiene for people with pets, especially if the pet is sick.

It's also important to consider pets in the household if a patient has an otherwise unexplained MRSA infection or recurrent, persistent infections.

"Infection control measures are the key" to prevent household transmission of MRSA between pets and people, Dr. Weese said. Animals appear to eradicate MRSA colonizations on their own in most situations, he noted. ■