

Transmission of Methicillin-Resistant Staphylococci in Small Animal Clinics

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In the Literature

Worthing KA, Brown J, Gerber L, Trott DJ, Abraham S, Norris JM. Methicillin-resistant staphylococci amongst veterinary personnel, personnel-owned pets, patients and the hospital environment of two small animal veterinary hospitals. *Vet Microbiol.* 2018;223:79-85.

FROM THE PAGE ...

Staphylococci are frequently carried on the skin and mucosal surfaces of dogs, cats, and humans. *Staphylococcus aureus* in humans and *S pseudintermedius* in dogs are causes of opportunistic infections, and the emergence of methicillin resistance in these species (MRSA and MRSP, respectively) has resulted in infections that are resistant to numerous antimicrobial classes and challenging to treat. Movement of these pathogens among individuals of the same species, among those of different species (eg, dogs and humans), and in the hospital environment is not well understood.

This study investigated the prevalence of MRSA and MRSP in 2 veterinary companion animal hospitals (one general practice and one referral practice). Forty-six veterinary staff, 79 staff-owned dogs and cats, 151 clinically normal canine patients, and 25 environmental sites were sampled to identify the presence of MRSA and MRSP. Whole genome sequencing was used to investigate relatedness between isolates.

MRSA was isolated from veterinary staff (8%) but no animals. MRSP was isolated from dogs (staff-owned, 8%; patients, 7%) but no veterinary staff. Neither pathogen was isolated from hospital environmental surfaces. Based on relatedness of isolates, transmission was likely among dogs living in the same household but not among other groups of dogs or among dogs, humans, and the environment. The MRSP isolates were resistant to multiple antimicrobial classes in addition to β lactams, which emphasizes the challenge of treating these infections.

Although this study highlights the strong species propensity for MRSA (in humans) and MRSP (in dogs) in a non-outbreak setting, it is important to note that these infections are not always species-specific. Several studies have

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documented infections with MRSA in pets, MRSP in humans, and both organisms on veterinary staff clothing and in the veterinary hospital environment.¹⁻³ Veterinary hospital-associated (ie, nosocomial) outbreaks of MRSA and MRSP in which humans, patients, and environmental contamination all likely contributed to the outbreak have been identified.^{4,5} Guidelines exist to assist practitioners in MRSA and MRSP infection risks, diagnosis, therapy, and prevention (see **Suggested Reading**).

... TO YOUR PATIENTS

Key pearls to put into practice:

- 1** All veterinary staff should understand the health risks MRSA and MRSP pose to their own pets, their patients, pet owners, and themselves, including the potential for transmission among humans, pets, and the hospital environment. Healthy animals and humans can carry these pathogens, contaminate surfaces, and transmit them to others.
- 2** Culture and susceptibility testing are warranted for infections that are refractory to empiric therapy or that are otherwise more likely to be multidrug-resistant. Recent antimicrobial use, ownership by healthcare workers, and extended hospitalization time are risk factors for methicillin-resistant staphylococci colonization or infection in pets.^{4,6}
- 3** Infection control practices—including use of personal protective equipment (eg, disposable gloves, gowns) when indicated, routine environmental cleaning and disinfection, and routine hand-washing or use of alcohol-based hand sanitizer—are key to MRSA and MRSP control and prevention. Such practices should be communicated clearly to and consistently practiced by all staff.

References

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5. Weese JS, Faires M, Rousseau J, Bersenas AM, Mathews KA. Cluster of methicillin-resistant *Staphylococcus aureus* colonization in a small animal intensive care unit. *J Am Vet Med Assoc*. 2007;231(9):1361-1364.
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Suggested Reading

Morris DO, Loeffler A, Davis MF, Guardabassi L, Weese JS. Recommendations for approaches to methicillin-resistant staphylococcal infections of small animals: diagnosis, therapeutic considerations and preventative measures: Clinical Consensus Guidelines of the World Association for Veterinary Dermatology. *Vet Dermatol*. 2017;28(3):304-e69.

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5 mg, 10 mg, 30 mg, 60 mg and 120 mg strengths
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BRIEF SUMMARY (For Full Prescribing Information, see package insert.)

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DESCRIPTION: VETORYL Capsules are an orally active synthetic steroid analogue that blocks production of hormones produced in the adrenal cortex of dogs.

INDICATION: VETORYL Capsules are indicated for the treatment of pituitary- and adrenal-dependent hyperadrenocorticism in dogs.

CONTRAINDICATIONS: The use of VETORYL Capsules is contraindicated in dogs that have demonstrated hypersensitivity to trilostane. Do not use VETORYL Capsules in animals with primary hepatic disease or renal insufficiency. Do not use in pregnant dogs. Studies conducted with trilostane in laboratory animals have shown teratogenic effects and early pregnancy loss.

WARNINGS: In case of overdosage, symptomatic treatment of hypoadrenocorticism with corticosteroids, mineralocorticoids and intravenous fluids may be required. Angiotensin converting enzyme (ACE) inhibitors should be used with caution with VETORYL Capsules, as both drugs have aldosterone-lowering effects which may be additive, impairing the patient's ability to maintain normal electrolytes, blood volume and renal perfusion. Potassium sparing diuretics (e.g. spironolactone) should not be used with VETORYL Capsules as both drugs have the potential to inhibit aldosterone, increasing the likelihood of hyperkalemia.

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 **VETORYL® CAPSULES**
(trilostane)

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