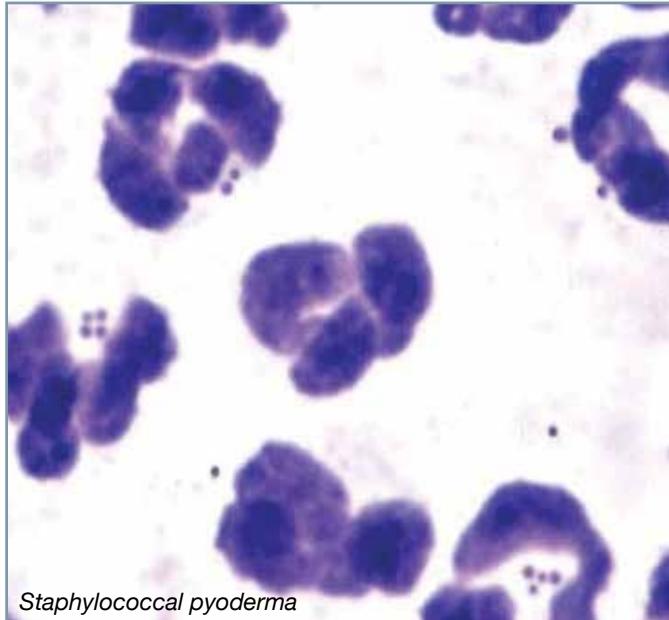


# TOPICAL THERAPY In the Era of Methicillin-Resistant Pyoderma

Jocelyn Wellington, DVM DipACVD

Superficial bacterial pyoderma is the most common cutaneous infection diagnosed in companion animal practice and accounts for a significant percentage of antibiotic prescriptions.<sup>1</sup> *Staphylococcus pseudintermedius* (previously identified as *Staphylococcus intermedius*) is the primary bacterial pathogen isolated from canine pyoderma and soft tissue infections.



*Staphylococcal pyoderma*

Widespread use of antibiotics in human and veterinary medicine has resulted in worldwide emergence of methicillin-resistant *staphylococcus* spp. leading to treatment failures when  $\beta$ -lactam antibiotics are prescribed. Of more concern is the recognition worldwide of multidrug-resistant staphylococcal isolates. Cutaneous infections with these highly resistant bacteria are a therapeutic challenge due to the limited selection of effective systemic antimicrobial drugs. Although often under-prescribed in clinical practice, topical therapy with shampoos, rinses, wipes, gels or creams is beneficial in improving/resolving any skin infection and reducing the

frequency and severity of recurrent pyoderma when used as part of a maintenance protocol. Topical biocides may be the only rational treatment available for patients with multi-antibiotic resistant pyoderma.

Chlorhexidine and benzoyl peroxide are topical biocides beneficial in the treatment of superficial pyoderma, with chlorhexidine shown to have superior effectiveness.<sup>2-3</sup> Studies support the use of 2-4% chlorhexidine products alone (no concurrent systemic antimicrobial drugs) to resolve superficial pyoderma, including cases culture-positive for methicillin-resistant *Staphylococcus pseudintermedius* (MRSP). A recent *in vivo* study showed that once daily topical therapy with a combination of 4% chlorhexidine shampoo (bathed twice per week) and 4% chlorhexidine spray (applied on days not bathed) for 28 days as the sole treatment resolved superficial pyoderma caused by both methicillin-sensitive and methicillin-resistant staphylococcus in client-owned dogs.<sup>4</sup> Methicillin-sensitive and methicillin-resistant staphylococcal isolates are equally susceptible to chlorhexidine.<sup>3-5</sup> To date, resistance to chlorhexidine by *Staphylococcus pseudintermedius* has not developed.



*Bacterial folliculitis*

# Topical Therapy In the Era of Methicillin-Resistant Pyoderma (continued)

Chlorhexidine has also been used in combination with miconazole with good efficacy against *Malassezia pachydermatis*.<sup>3</sup>



*Pyoderma, ventral abdomen*

Chlorhexidine is commercially available in shampoos, rinses, sprays and wipes; thus providing clinicians a choice of suitable formulations to encourage owner adherence to topical treatment recommendations.

Miconazole, an azole antifungal, is frequently prescribed for the topical treatment of yeast dermatitis, an opportunistic infection associated with allergic dermatitis and keratoseborrheic disorders. Miconazole also has antibacterial activity against *Staphylococcus pseudintermedius*, including methicillin-resistant isolates.<sup>6</sup> A 2% chlorhexidine/2% miconazole shampoo showed *in vitro* antimicrobial activity against *Staphylococcus intermedius* (which is now assumed to be *Staphylococcus pseudintermedius*) within a contact time likely to be achieved during routine use in clinical practice.<sup>7</sup> Miconazole with or without chlorhexidine is a treatment option for superficial MRSP infections.<sup>6</sup>

In an era of increasing bacterial resistance, topical therapy is an important therapeutic option and often the only option in the treatment of methicillin-resistant and multidrug-resistant superficial bacterial infections.<sup>8</sup> Treatment should be continued for 7 days beyond clinical resolution of

all lesions associated with an infection. Management of superficial infections with topical therapy alone may contribute to the substantial reduction of systemic antimicrobial administration.<sup>4</sup>

## REFERENCES

1. Esher M, Vanni M, Intorre L et al. Use of antimicrobials in companion animal practice: a retrospective study in a veterinary teaching hospital in Italy. *J Antimicrob Chemother* 2011; 66: 920-927.
2. Loeffler A, Cobb MA, Bond R. Comparison of a chlorhexidine and a benzoyl peroxide shampoo as a sole treatment in canine superficial pyoderma. *Vet Rec* 2011; 169: 249-254.
3. Young R, Buckley L, McEwan N et al. Comparative *in vitro* efficacy of antimicrobial shampoos: a pilot study. *Vet Dermatol* 2011; 23: 36-40.
4. Borio S, Colombo S, La Rosa G et al. Effectiveness of a combined (4% chlorhexidine digluconate shampoo and solution) protocol in MRS and non-MRS canine superficial pyoderma: a randomized, blinded, antibiotic-controlled study. *Vet Dermatol* 2015; 26: 339-344.
5. Valentine B, Dew W et al. *In vitro* evaluation of topical biocide and antimicrobial susceptibility of *Staphylococcus pseudintermedius* from dogs. *Vet Dermatol* 2012; 23: 493-496.
6. Weese JS, Walker M et al. *In vitro* miconazole susceptibility of methicillin-resistant *Staphylococcus pseudintermedius* and *Staphylococcus aureus*. *Vet Dermatol* 2012; 23:400-402.
7. Lloyd DH, Lamport AI. Activity of chlorhexidine shampoos *in vitro* against *Staphylococcus intermedius*, *Pseudomonas aeruginosa* and *Malassezia pachydermatis*. *Vet Rec* 1999; 144; 536-537.
8. Hillier A, Lloyd DH, Weese SJ et al. Guidelines for the diagnosis and antimicrobial therapy of canine superficial bacterial folliculitis (Antimicrobial Guidelines Working Group of the International Society for Companion Animal Infectious Diseases). *Vet Dermatol* 2014; 25: 163-175.

**For Technical Support Contact Dechra Veterinary Products at:**  
**866-933-2472, [www.dechra-us.com](http://www.dechra-us.com), support@dechra.com**

Dechra Veterinary Products US and the Dechra D logo are registered trademarks of Dechra Pharmaceuticals PLC.  
Copyright © 2016 Dechra Veterinary Products

