New ISCAID guidelines on the responsible use of antimicrobials in dogs with pyoderma

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1. Background

Pyoderma is a group of bacterial skin infections that is frequently encountered in canine practice. Given the urgent need to reduce inappropriate use of antimicrobials and limit the spread of antimicrobial resistance, the International Society for Companion Animal Infectious Diseases (ISCAID) recently established new guidelines for the diagnosis and treatment of canine pyoderma and published them in a recent issue of Veterinary Dermatology [1]. Unlike the previous ISCAID guidelines [2], which focused on the diagnosis and antimicrobial therapy of canine superficial bacterial folliculitis, the new version also includes recommendations for managing surface and deep pyoderma.

This joint lecture will present how these guidelines promote rational use of antimicrobials in the treatment of canine pyoderma, integrating the perspectives of two speakers, a clinician (KN) and a clinical microbiologist (LG). The key features of the guidelines are illustrated in Fig. 1 and further summarised in the following sections by type of pyoderma.

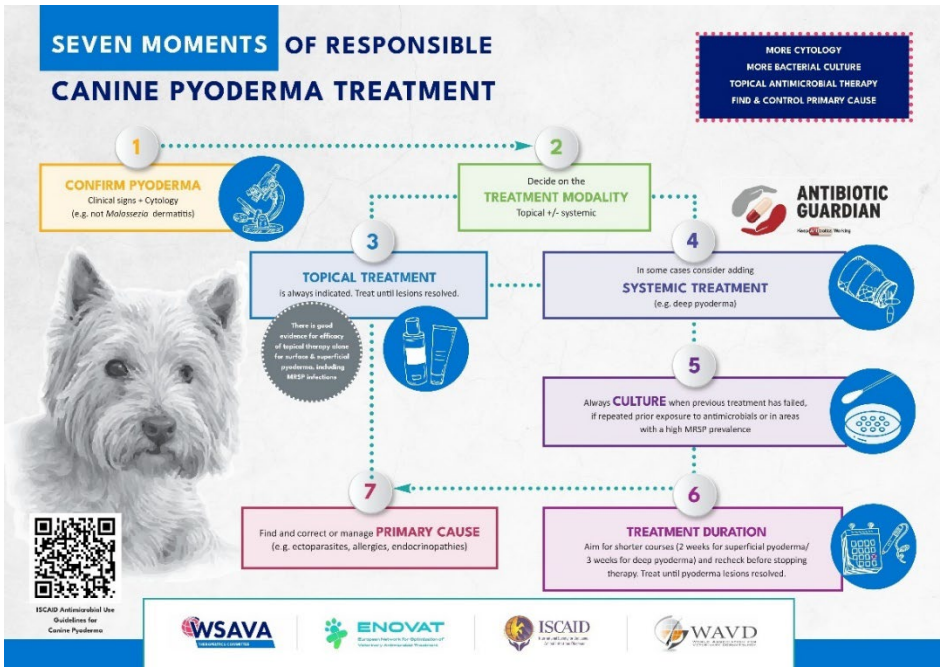

Fig. 1 Infographics of canine pyoderma treatment available at https://wsava.org/wp-content/uploads/2025/05/Seven-Moments-of-Responsible-Canine-Pyoderma-Treatment.pdf

2. Treatment recommendations for surface pyoderma

Surface pyoderma refers to the bacterial or mixed microbial overgrowth in the superficial layers (stratum corneum) of the epidermis. Pyotraumatic dermatitis (acute moist dermatitis or “hot spot”), intertrigo (skin fold dermatitis) and bacterial overgrowth syndrome are included in this disease category. The diagnosis is made upon compatible history, suggestive clinical lesions in typical locations, and cytology to confirm bacterial overgrowth. Bacterial culture and antimicrobial susceptibility testing (BC/AST) are not recommended in the routine management of this disease condition.

Topical antimicrobial therapy is the treatment of choice and can be used as a sole therapy in dogs with surface pyoderma. Topical antiseptics (e.g. chlorhexidine) should be prioritised over topical antibiotics (e.g. fusidic acid, mupirocin), as the former exhibit broader activity against the relevant pathogens and a limited chance to select resistant bacteria. Clinicians should choose the appropriate formulations depending on the lesion types. For example, gels or sprays may be suitable for pyotraumatic dermatitis. In contrast, wipes or gels will allow good penetration into skin folds. Systemic antimicrobial therapy should be avoided in any case of superficial pyoderma due to the limited accessibility of the active ingredients to pathogens.

It is widely accepted that inflammation plays a significant role in superficial pyoderma; hence, the combination therapy of topical antimicrobials with either topical glucocorticoids, a short course of systemic glucocorticoids (5-7 days) or Janus kinase inhibitors may be helpful. Proactive antiseptic treatment may be beneficial as a long-term management of superficial pyoderma, which is potentially lifelong unless the primary underlying causes (e.g., skin folds) can be resolved.

3. Treatment recommendations for superficial pyoderma

Superficial pyoderma is defined as a bacterial infection that affects the epidermis and/or the hair follicle epithelia. Superficial bacterial folliculitis, impetigo, exfoliative superficial pyoderma (formerly named as superficial spreading pyoderma), and mucocutaneous pyoderma are included in this disease category. *Staphylococcus pseudintermedius* is the most frequently isolated, while *Staphylococcus coagulans* (*S. schleiferi* subsp. *coagulans*) or *Staphylococcus aureus* are also isolated to a lesser extent from the skin lesions of superficial pyoderma in dogs. The diagnosis is made upon clinical and cytological findings, the latter of which confirms cocci and neutrophils, and the exclusion of differential diagnoses.

The guidelines state topical antimicrobial therapy alone as the treatment of choice for canine superficial pyoderma. Again, topical antiseptics should be prioritised over topical antibiotics. Clinicians should reassess the response to topical therapy after 2-3 weeks. To limit the spread of antibiotic-resistant strains, systemic antimicrobial therapy should be reserved for cases that have failed to respond to topical antimicrobial therapy alone or if topical treatment is not feasible due to client or patient limitations. Even though systemic

antimicrobials are considered, adjunctive topical antimicrobial therapy should be concurrently used to shorten the duration of systemic treatment.

If the systemic antimicrobial therapy is selected, bacterial culture and antimicrobial susceptibility testing (BC/AST) are strongly preferred to guide systemic drug choices. If clinicians prescribe the drugs empirically, only first-choice drugs (see below) should be considered. BC/AST is particularly important in areas with high MRSP prevalence to reduce treatment failures and limit overuse of first-choice β-lactams (i.e. amoxicillin-clavulanate and first-generation cephalosporins), by guiding the use of alternative antibiotics such as lincosamides when appropriate. BC/AST data also support the development of antimicrobial formularies aligned with local resistance patterns, a key element for the implementation of stewardship programmes at the clinic level. Given the strategic importance of BC/AST in promoting rational antimicrobial use, diagnostic laboratories and veterinary practices should work together to ensure reasonable pricing and encourage broader adoption.

After an initial 2-week course of systemic therapy, the patients should be re-examined by the clinicians to determine whether systemic treatment can be stopped or if longer treatment is required. Clinical resolution of superficial pyoderma can be assumed when primary lesions of pyoderma (papules, pustules and erythematous epidermal collarettes) no longer exist. The guideline committee emphasise that there is no evidence to support extending systemic antimicrobial therapy beyond the clinical resolution. After the clinical resolution, topical antiseptic treatment can be continued, potentially lifelong, where the primary causes cannot be resolved.

4. Treatment recommendations for deep pyoderma

Deep pyoderma is a group of bacterial skin infections that extend into the dermis and occasionally subcutis. This group includes deep folliculitis and furunculosis, postgrooming furunculosis, pyotraumatic folliculitis and furunculosis, acral lick furunculosis, infected interdigital furunculosis, callus pyoderma and chin pyoderma. This is potentially a severe and debilitating disease with a risk of septicaemia. Although *S. pseudintermedius* remains a primary pathogen of deep pyoderma in dogs, it accounts for approximately 60% of pathogens, and other bacteria, such as streptococci or Gram-negative rods, were also isolated from the skin lesions.

Because of the inaccessibility of topical ingredients and the risk of systemic illness, systemic antibacterial therapy is always indicated in dogs with deep pyoderma. Also, because the pathogens are not always predictable, the choice of drug should always be based on BC/AST results. Medication to relieve pain should also be considered if the dog is likely to be in pain. As soon as the dog is considered pain-free, adjunctive topical antimicrobial therapy should be started in every case of deep pyoderma to reduce the pathogens and shorten the duration of systemic antimicrobial therapy. After the initial 3-week course of systemic therapy, the patients should be re-examined by the clinicians to determine whether systemic treatment can be stopped, or longer treatment is required. Clinical resolution of deep pyoderma can be assumed when skin lesions associated with deep infection (draining tracts, haemorrhagic pus and crusts) no longer exist, and there is no

cytological evidence of infection. Particularly given the longer treatment duration required for deep pyoderma and the potential negative impact of treatment failure on patient outcomes, it is also recommended to repeat BC/AST if the lesions of deep pyoderma have not improved, and cytological evidence of bacterial infection remains. The guideline committee emphasise that there is no evidence to support extending systemic antimicrobial therapy beyond the clinical resolution. Instead, primary causes must be identified and addressed.

In conclusion, this joint lecture will underscore the importance of interdisciplinary collaboration in advancing responsible antimicrobial use. Integrating clinical and microbiological perspectives will provide a comprehensive overview of the new ISCAID guidelines and their practical application in the diagnosis and treatment of canine pyoderma.

References

1. Loeffler A, Cain CL, Ferrer L et al. Antimicrobial use guidelines for canine pyoderma by the International Society for Companion Animal Infectious Diseases (ISCAID). *Veterinary Dermatology* 2025;36:234-282.
2. Hillier A, Lloyd DH, Weese JS 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-e143.