

## Skin in the Game: Evidence-Based Therapy for Preventing Pyoderma

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Pyoderma, a bacterial infection of the skin most commonly associated with *Staphylococcus* spp., is a frequent and often recurrent condition in small animal practice. While primary pyoderma is rare, most cases are secondary to underlying disease processes that compromise the skin's natural defenses. Effective long-term management requires accurate diagnosis, identification of underlying causes, and implementation of preventative strategies.

Diagnosis should not rely solely on clinical appearance. Cytology is essential to confirm infection, differentiate from mimicking conditions (e.g., autoimmune disease), and guide appropriate therapy. A complete dermatologic minimum database—including skin scrapings, cytology, and thorough history—is critical, particularly in recurrent cases.

Recurrent pyoderma is most commonly associated with allergic disease, including atopic dermatitis, flea allergy dermatitis, and cutaneous adverse food reactions. Other important causes include ectoparasites, endocrinopathies (e.g., hypothyroidism), demodicosis, autoimmune disease, and mechanical skin disruption. Failure to identify and address the underlying cause is the most common reason for treatment failure.

Prevention of recurrent pyoderma is best approached through three key pillars: management of inflammation, improvement of the epidermal barrier, and reduction of microbial load. These components are interdependent and must be addressed concurrently for optimal outcomes.

Control of inflammation is central, particularly in allergic patients. Systemic therapies—including glucocorticoids, oclacitinib, lokivetmab, and cyclosporine—are commonly utilized, with topical glucocorticoids serving as valuable adjuncts. Consistent management of inflammatory flares is essential, as uncontrolled inflammation predisposes to recurrent infection.

The epidermal barrier plays a critical role in host defense. In atopic dogs, barrier dysfunction—characterized by altered lipid composition and reduced ceramide content—facilitates penetration of allergens and microbes, perpetuating inflammation and infection. Therapeutic strategies aimed at restoring barrier function include the use of topical products containing ceramides, essential fatty acids, and other lipid complexes delivered via shampoos, sprays, mousses, or spot-on formulations.

Reduction of microbial colonization is the third pillar of prevention. Dogs with atopic dermatitis exhibit increased colonization with *Staphylococcus* spp. and *Malassezia* spp., both of which can exacerbate inflammation. Regular use of topical antimicrobial

therapies—including shampoos, sprays, wipes, and mousses—can reduce microbial burden and decrease recurrence. Product selection should be individualized based on patient tolerance, owner compliance, and concurrent skin needs.

Cats present unique considerations, as bacterial pyoderma is less common and often secondary to other conditions, including allergic disease or eosinophilic granuloma complex. Cytology is particularly important in these cases to confirm infection and guide therapy.

Successful prevention requires a multimodal approach tailored to the individual patient. Simplified treatment protocols and clear client communication are essential to ensure compliance and long-term success. Clinicians should emphasize that recurrent pyoderma is not a standalone disease but a manifestation of underlying pathology requiring ongoing management.

In summary, prevention of pyoderma relies on accurate diagnosis, identification and control of underlying disease, and consistent implementation of strategies targeting inflammation, epidermal barrier function, and microbial load. A proactive, evidence-based approach can significantly reduce recurrence and improve patient outcomes.