



# Common or barely seen? Feline pyoderma

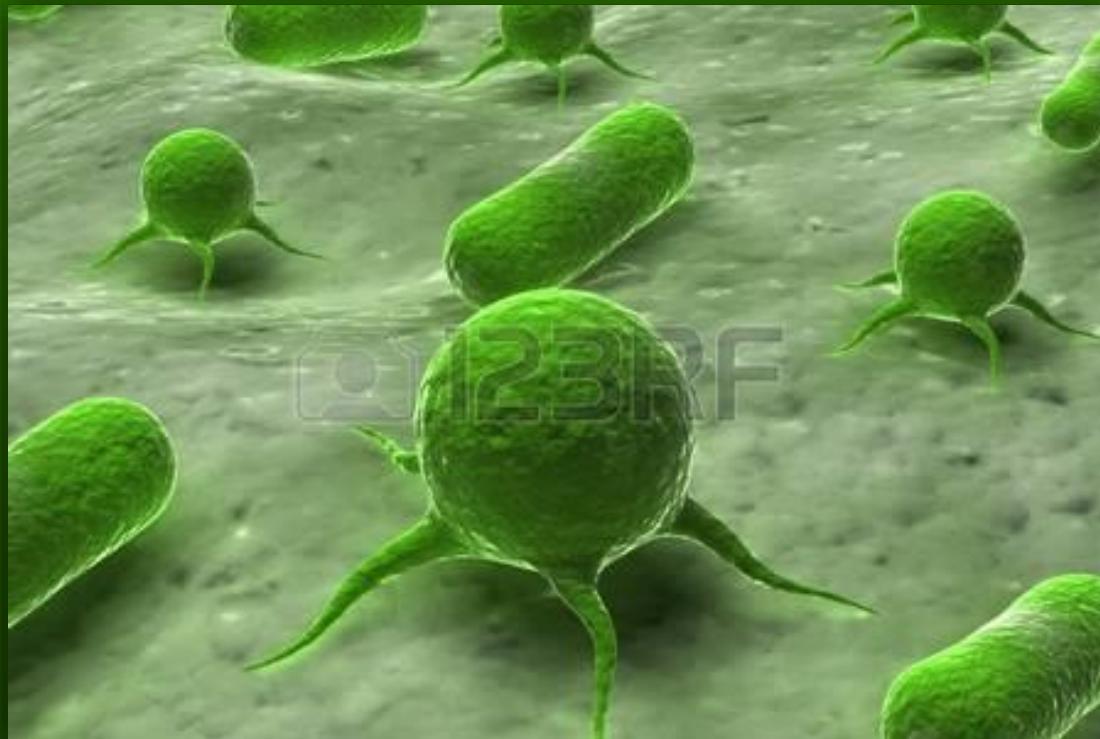
Ekaterina Mendoza-Kuznetsova

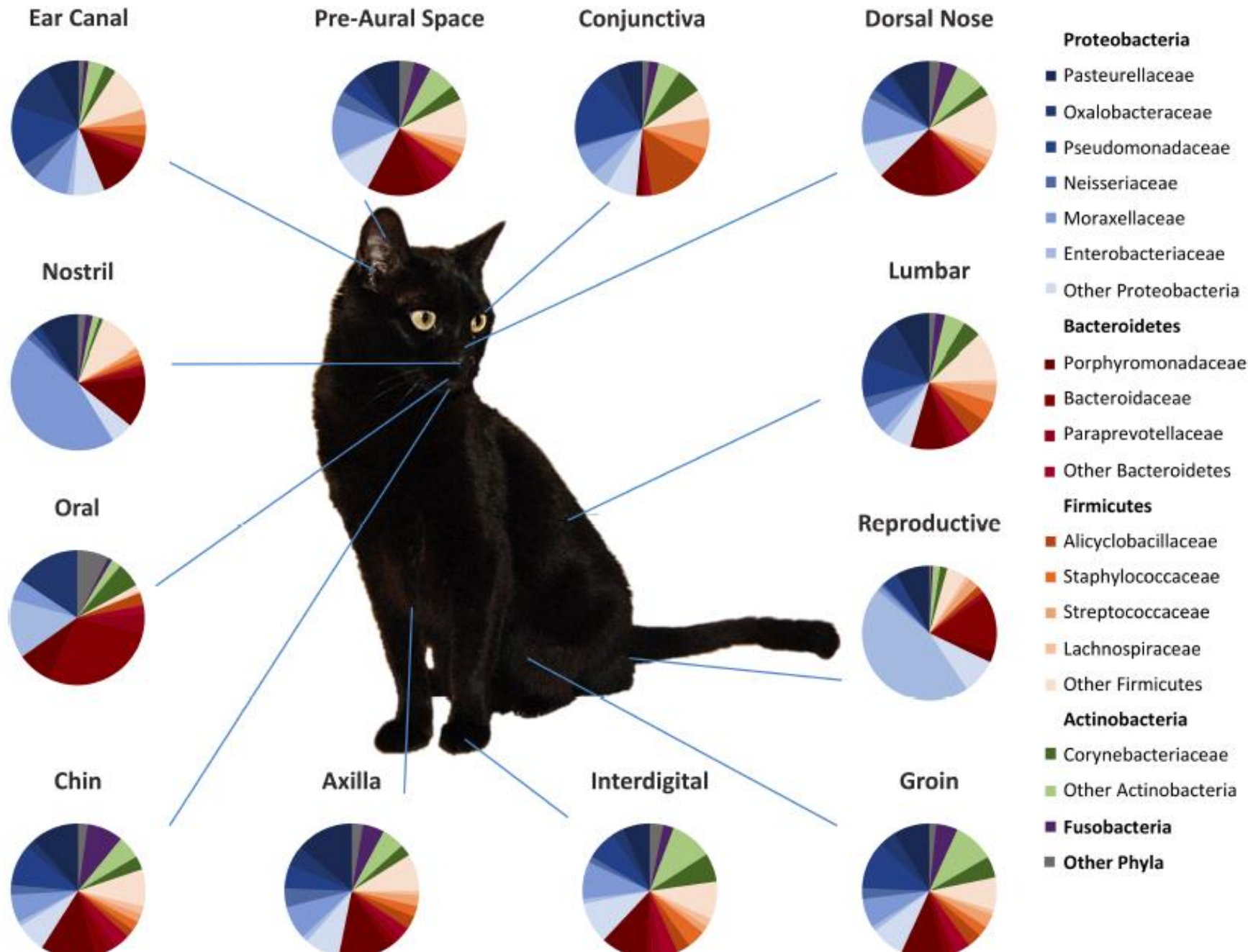




## Pyoderma – what does it mean?

- Pyoderma is a cutaneous disease caused by a bacterial infection.





Older *et al.*, PLOS 2017.  
 The feline skin microbiota:  
 The bacteria inhabiting the  
 skin of healthy and allergic  
 cats.





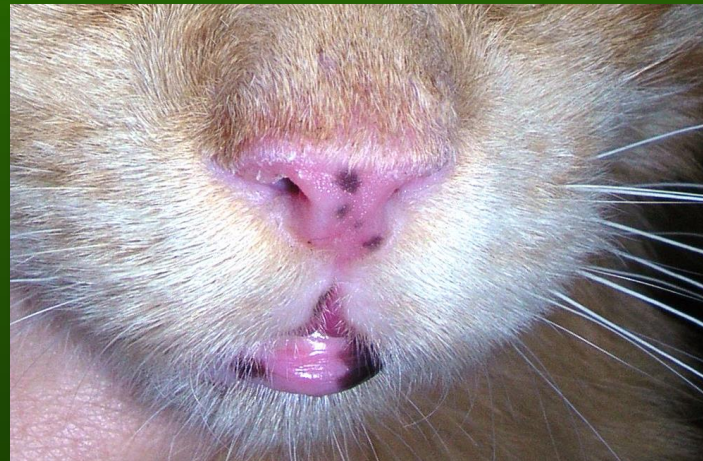
# Bacteria on feline skin

## Healthy cats

- *Micrococcus* spp.
- *Acinetobacter* spp.
- *Streptococci* spp.
- *Staphylococcus* spp.
  - *S. pseudintermedius*
  - *S. aureus*
  - *S. simulans*
  - *S. felis*
  - *S. epidermidis*
  - *S. hyicus*
  - *S. saprophyticus*
  - *S. schleiferi*

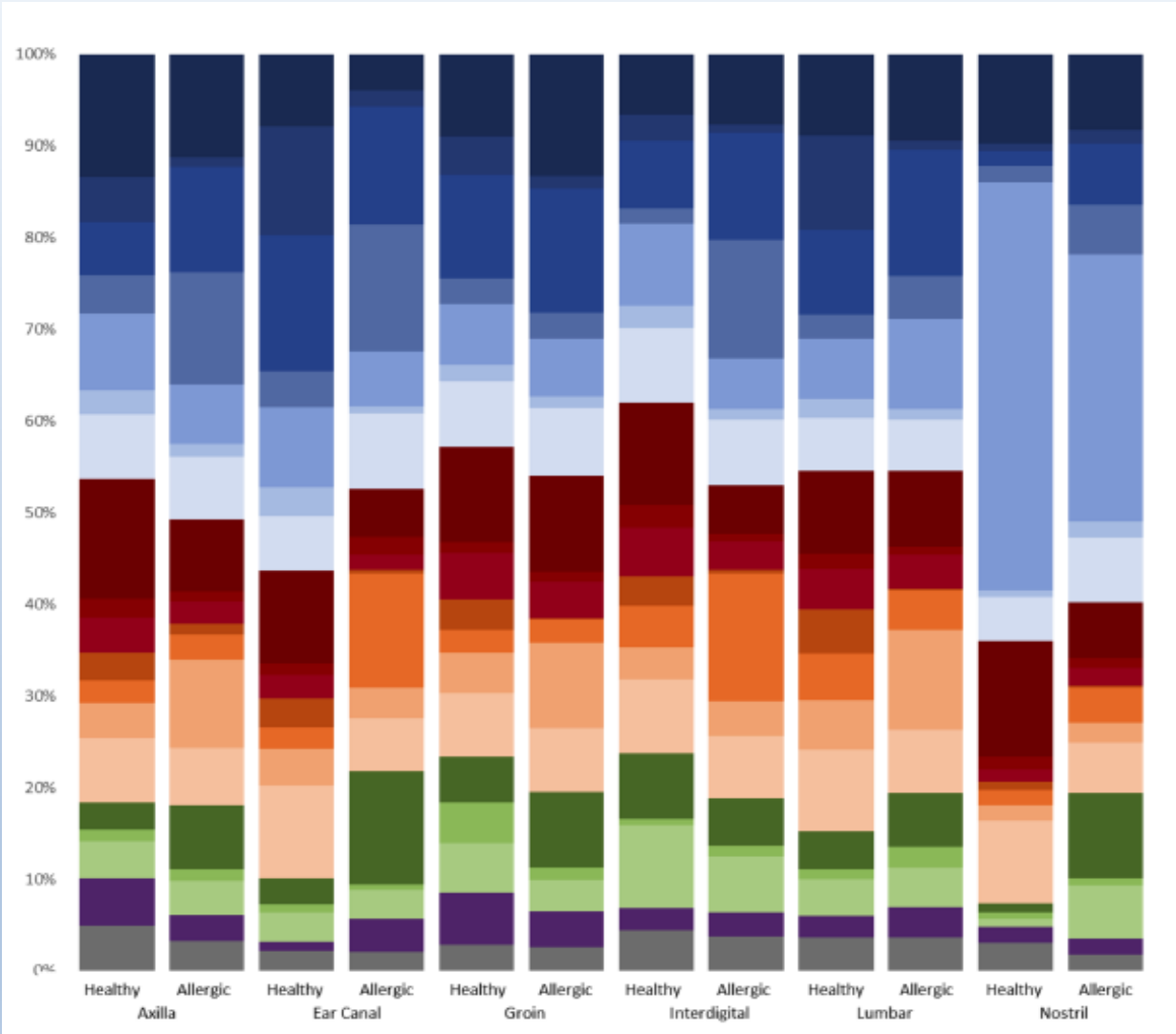
## Cats with pyoderma

- *Staphylococcus pseudintermedius*
- *Staphylococcus aureus*
- *Staphylococcus schleiferi*
- *Staphylococcus simulans*





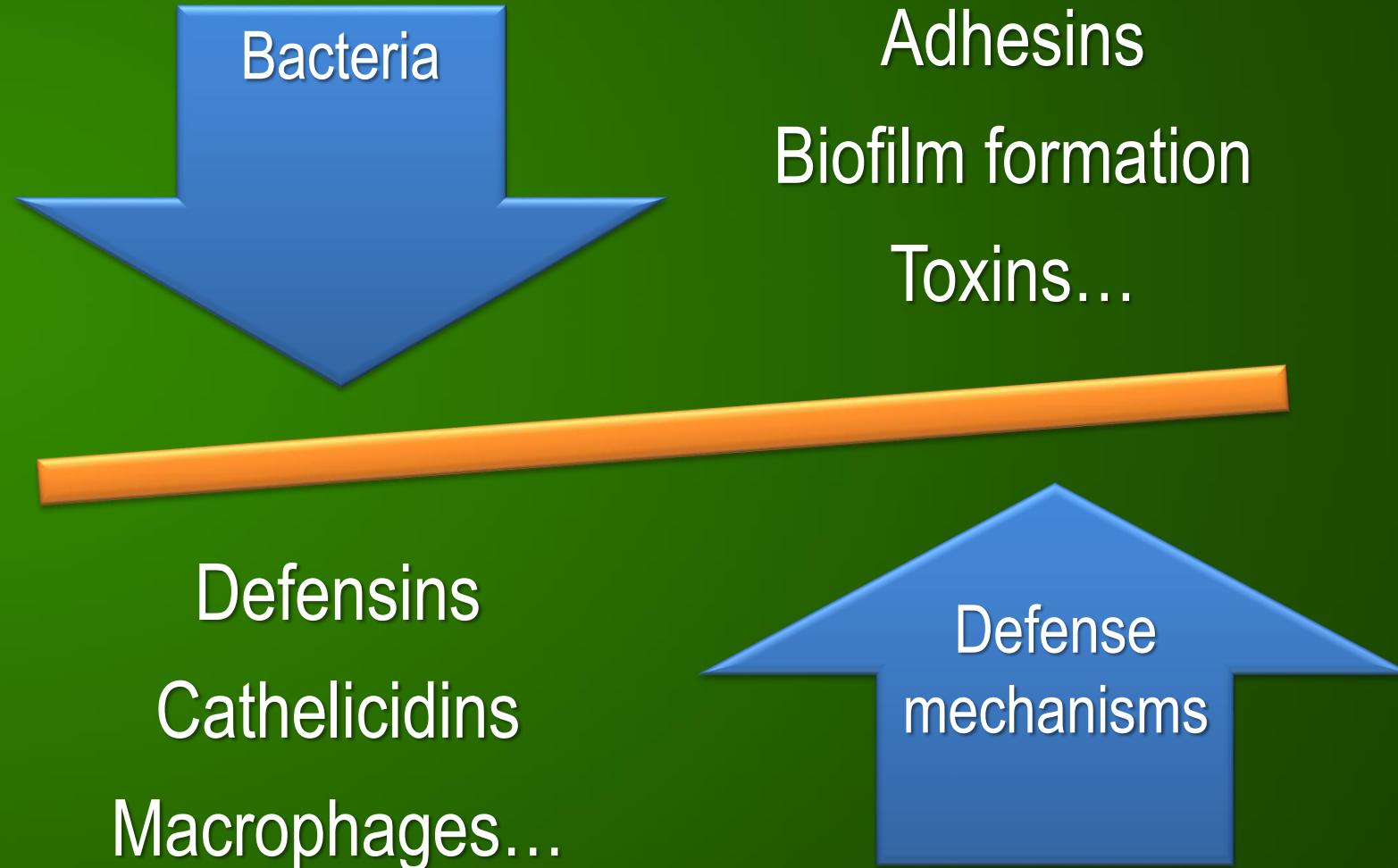
# Feline skin microbiota: healthy cats vs. allergic cats.



Older *et al.*, PLOS 2017. The feline skin microbiota: The bacteria inhabiting the skin of healthy and allergic cats.

No significant differences were found in species richness and diversity between healthy and allergic cats overall. A significant difference was found between the allergic and healthy nostril.

# Why does pyoderma develop?



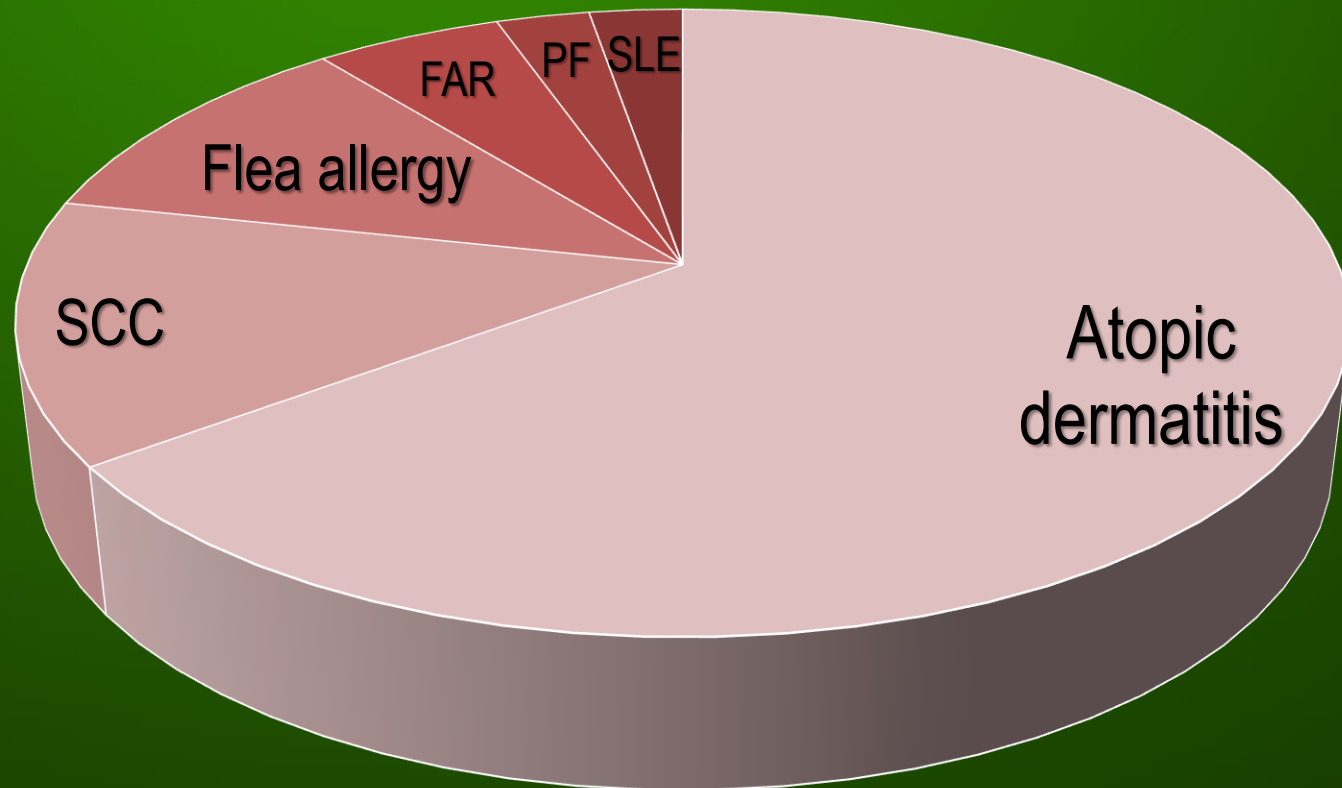




## Diseases associated with pyoderma in cats

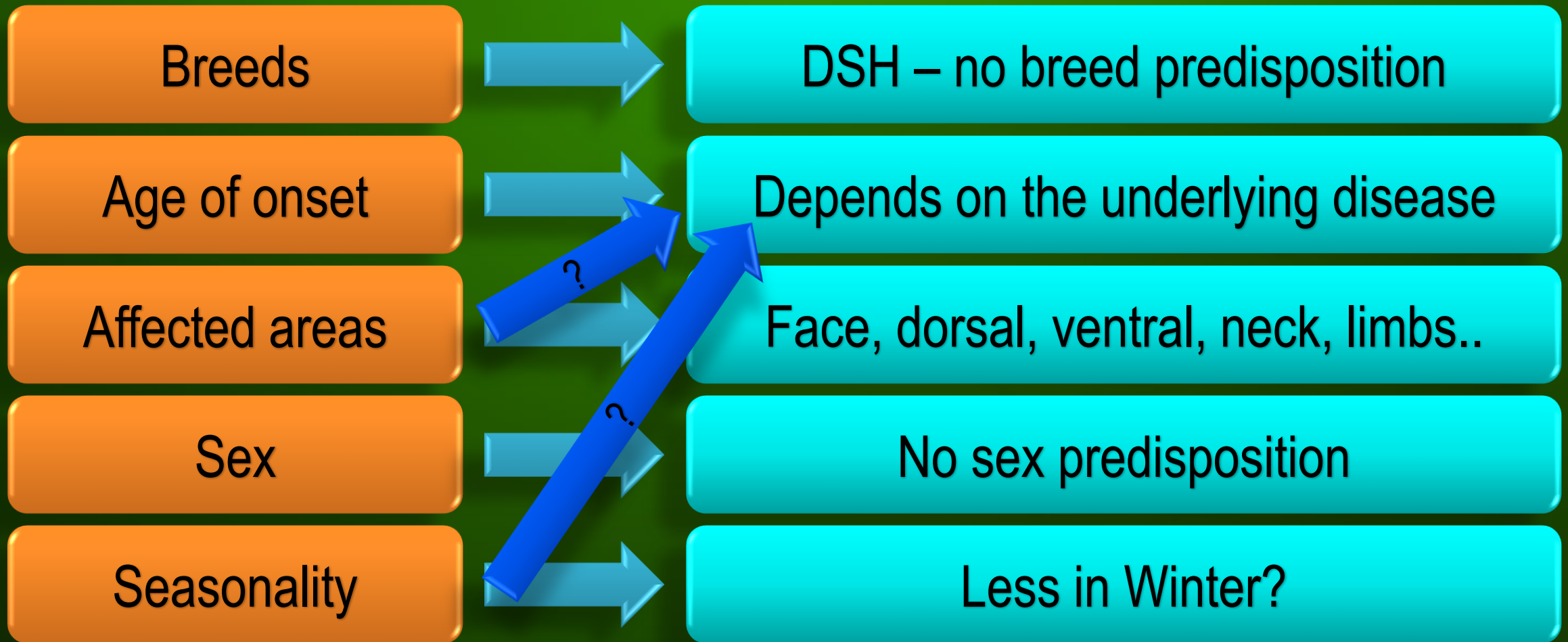
- Yu and Vogelnest, 2001-2011, Sydney

*Vet Dermatol* 2012; **23**: 448–e86





## Feline pyoderma - signalments





# Skin lesions of pyoderma – primary

**Papules in cats**



**Papules in dogs**





# Skin lesions – primary

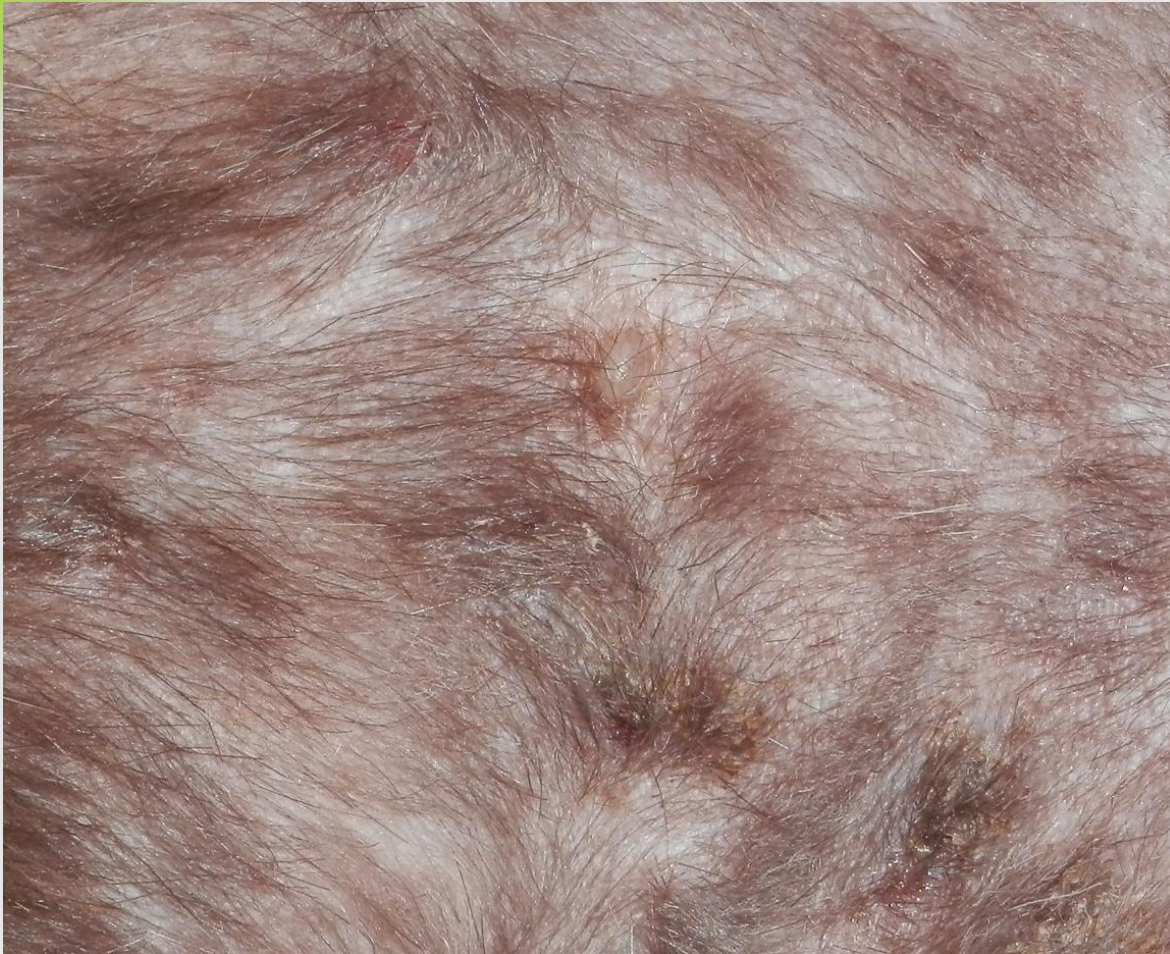
## Plaques



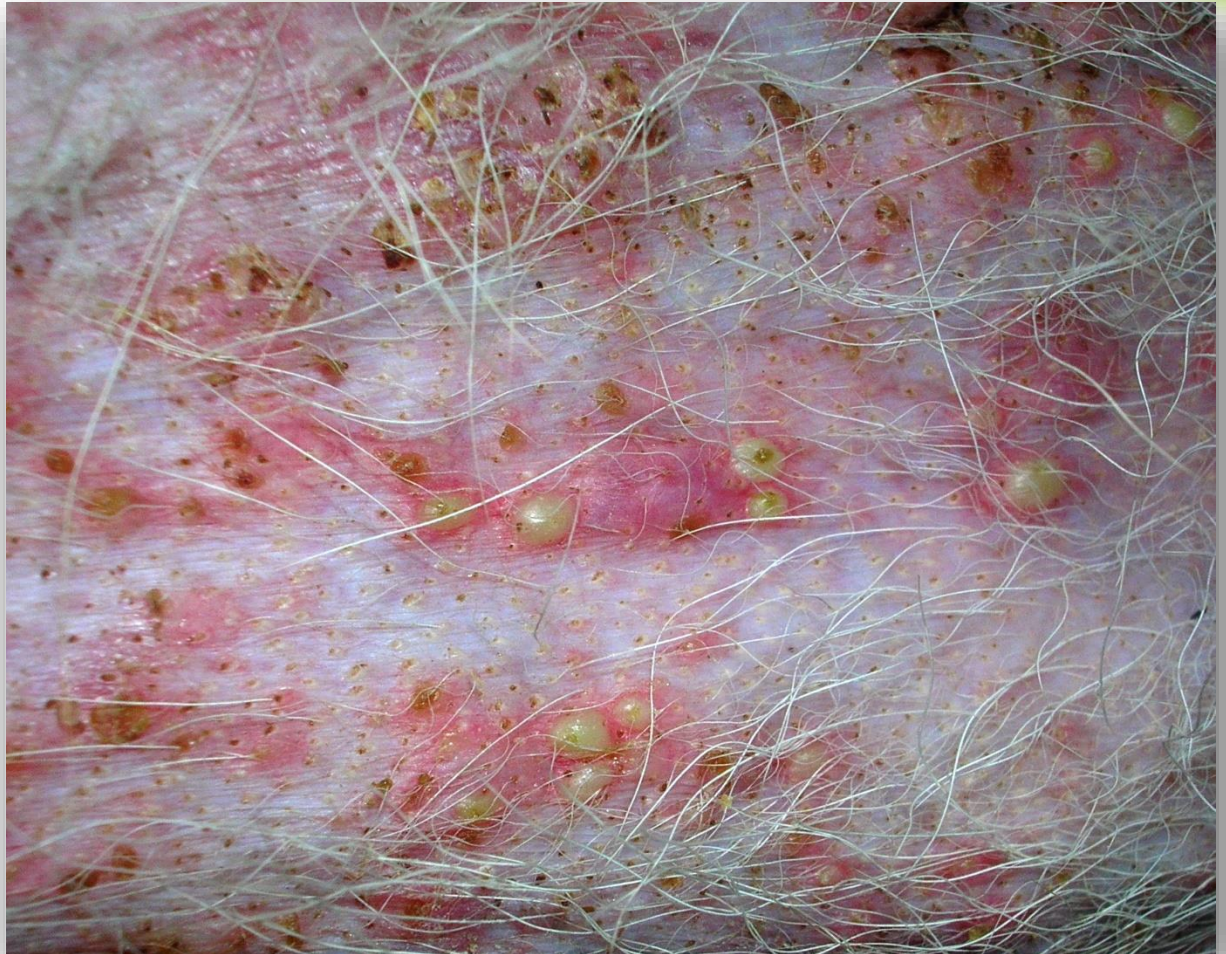


# Skin lesions - primary

**Pustule in a cat**



**Pustules in a dog**





# Skin lesions - secondary

## Crust



## Epidermal collarettes





# Skin lesions - secondary

## Erosion



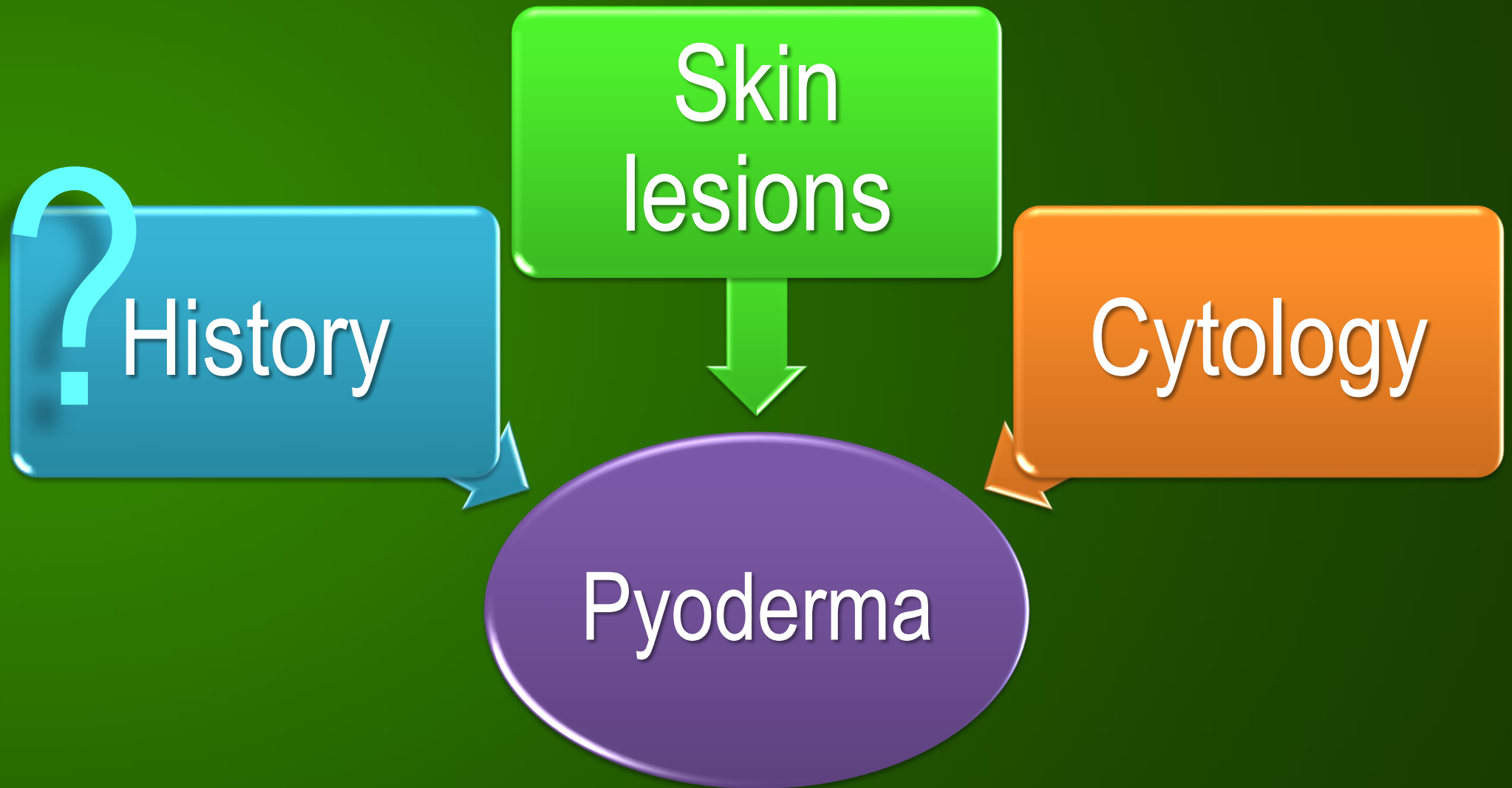
## Ulcer and draining tract



Courtesy of Lyubov Nikolaeva

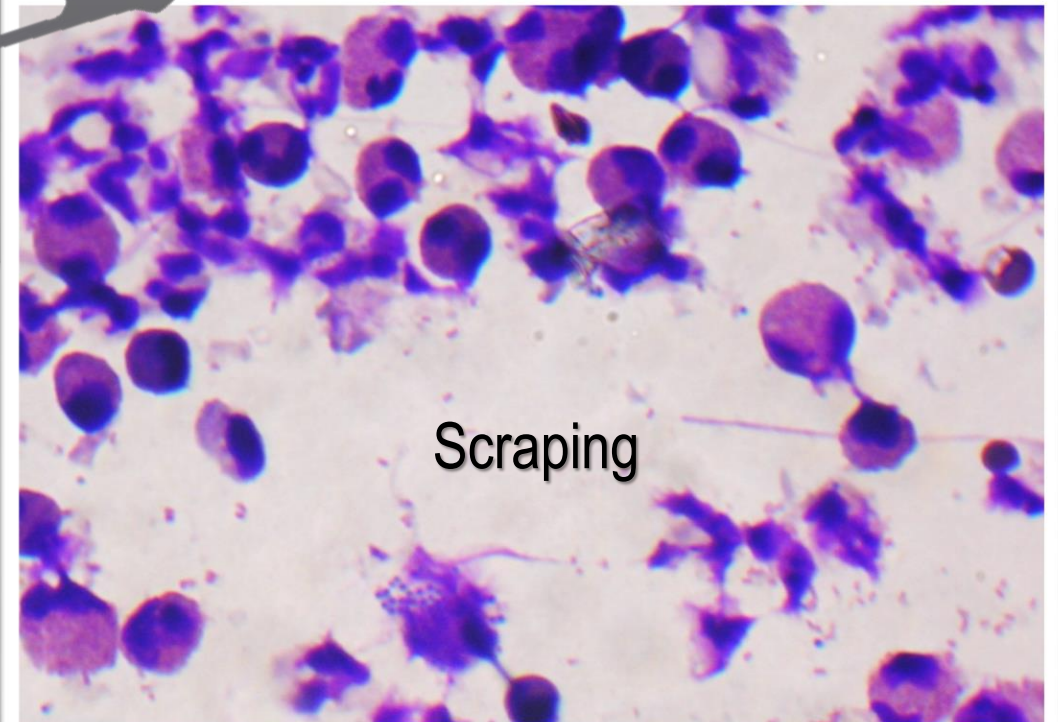
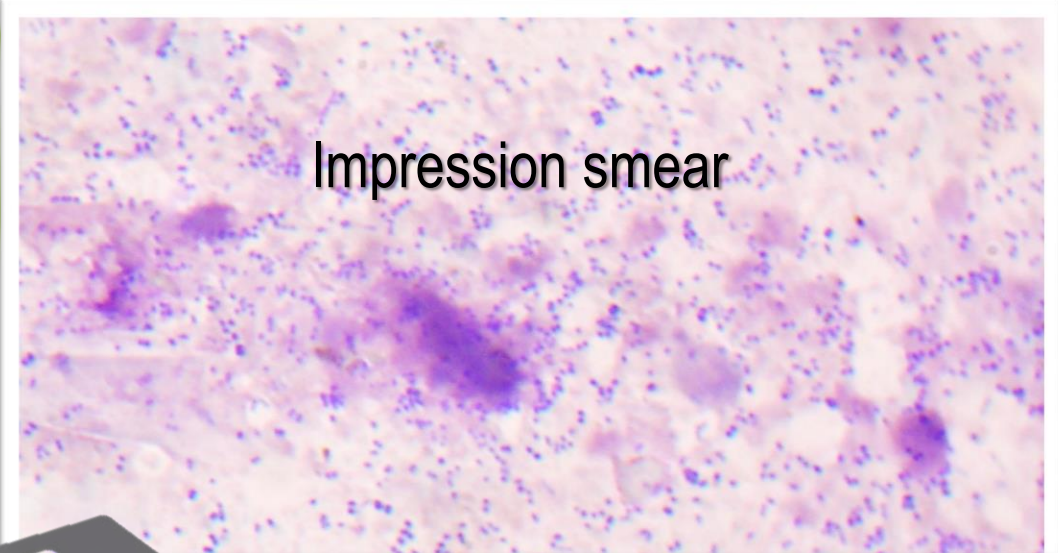


# Diagnosis of pyoderma





# Choosing the sampling method





A close-up photograph of a horse's eye, showing the iris and surrounding facial hair. The image is partially obscured by a green diagonal shape that serves as a background for the text.

## When the culture and sensitivity (C&S) is indicated (1)?

- When there are rods in cytology
  - Depending on the lesions which cytology was taken from
  - Are rods intra- or extracellular?
- Deep pyoderma, especially without obvious cause
  - Some bacteria can be more pathogenic than others
- Recurrent pyoderma without obvious primary disease
- Pyoderma which doesn't respond to topical treatment
  - Was a topical treatment performed appropriately?



## When the culture and sensitivity (C&S) is indicated (2)?

- Patient's history is suspicious of resistant infection
  - Multiple systemic ABs use in the past
  - Inappropriate choice of systemic AB
  - Inappropriate dose or duration of AB course
- Pyoderma which doesn't respond to empirically chosen AB
  - Are the dose and duration appropriate?
  - Is it still pyoderma or the primary disease?
- Atypical clinical presentation / no bacteria in cytology.



# Treatment of pyoderma

Treatment of  
underlying disease

Topical



Systemic





# Treatment of feline pyoderma, what is different from dogs?

- ABs are prescribed less often
  - Deep pyoderma is less common than in dogs
  - Uncommon cases of pyoderma without pruritus or signs of primary disorder
  - GCS rarely lead to develop deep pyoderma in cats
  - Cats more often develop GI upset on oral medications
  - Difficult to give them tablets
- Topical treatment is complicated
  - They don't like bathing!
  - They lick everything off
  - They are more sensitive
  - Less medications are tested on cats.

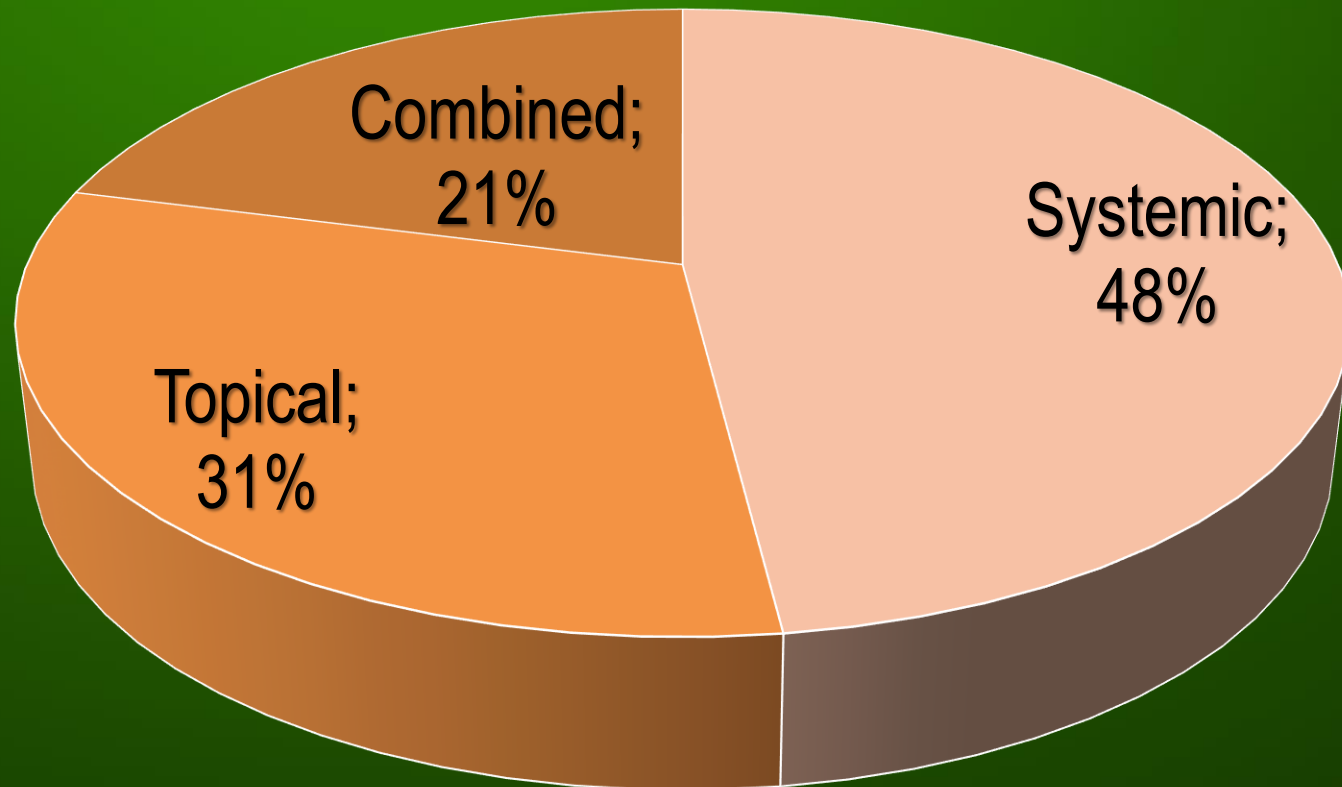




# Treatment of feline pyoderma

- Yu and Vogelnest, 2001-2011, Sydney

*Vet Dermatol* 2012; **23**: 448–e86







## Practical approach to feline pyoderma

Perform  
rechecks

- Clinical signs may represent pyoderma and underlying disease

Repeat cytology

- If the skin lesions are still there, check if they are still due to pyoderma

Choose the right  
AB

- Only ABs of first choice can be prescribed empirically!

# Choosing the right AB for pyoderma

First choice	Between first and second choice	Second choice
First generation cephalosporins (cefaletin, cefadroxil), Amoxicillin-clavulanate	Third generation cephalosporins (cefovecin, cefpodoxime).	Doxycycline or minocycline
Clindamycin or lincomycin		Fluoroquinolones (enrofloxacin, marbofloxacin, orbifloxacin, pradofloxacin and ciprofloxacin)
Trimethoprim- and ormetoprim-potentiated sulphonamides		Rifampin
		Aminoglycosides
<a href="http://onlinelibrary.wiley.com/doi/10.1111/vde.12118/abstract">http://onlinelibrary.wiley.com/doi/10.1111/vde.12118/abstract</a>		



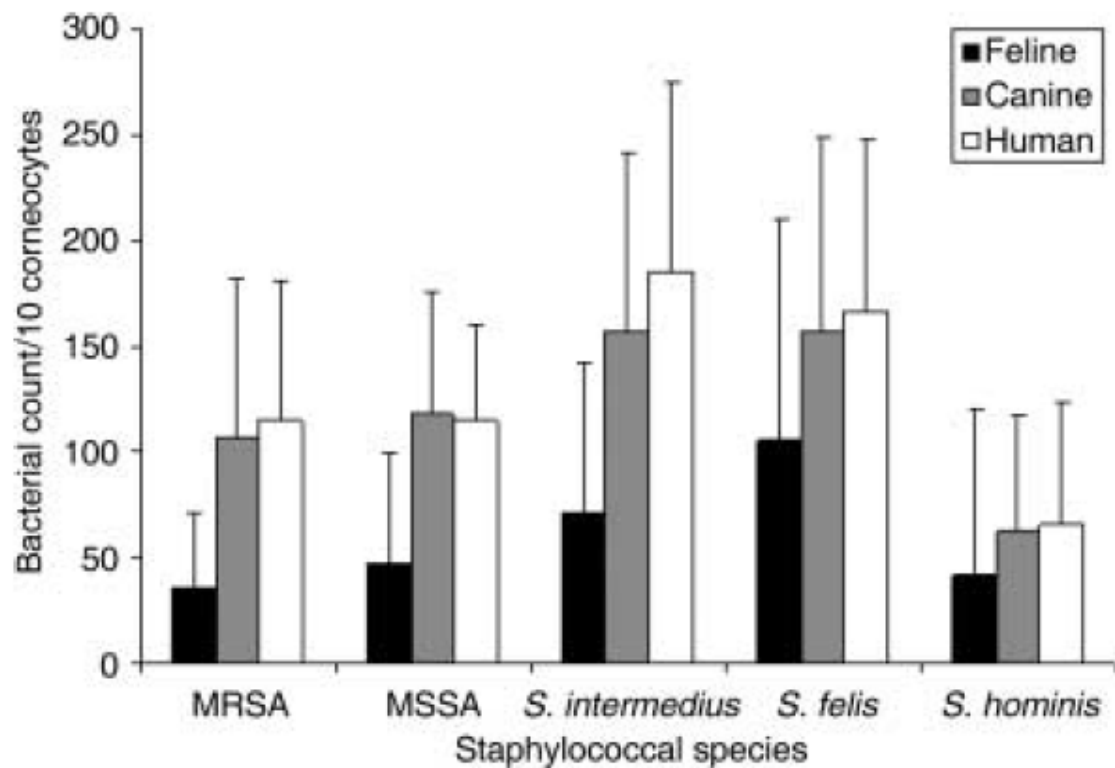


## What is the prevalence of feline pyoderma?

Practice	Number of cats	Pyoderma in feline derm. cases	Pyoderma in canine derm. cases	Authors and year
Cornell University, 2013	1407	8.4%	-	Scott <i>et al</i> , 1988-2003
UK, 20 general practices, 2006	154	3.2% (28% with abscesses)	11.1%	Hill <i>et al</i> , 1998-2011
University of Sydney, 2012	266	20%	-	Yu <i>et al</i> , 2001-2011

# Why is feline pyoderma diagnosed less frequently than canine?

- Low adherence of *S. pseudintermedius* and *S. aureus* to feline corneocytes?



**Figure 1.** Mean (bar = standard deviation) counts of staphylococci adherent to feline, canine and human corneocytes (per 10 corneocytes).

K. L. Woolley, R. F. Kelly, J. Fazakerley,  
N. J. Williams, T. J. Nuttall and N. A. McEwan

Veterinary Dermatology, 2007



# Why is feline pyoderma diagnosed less frequently than canine?

- Low adherence of *S. pseudintermedius* and *S. aureus* to feline corneocytes?
- Are we missing pyoderma in cats?

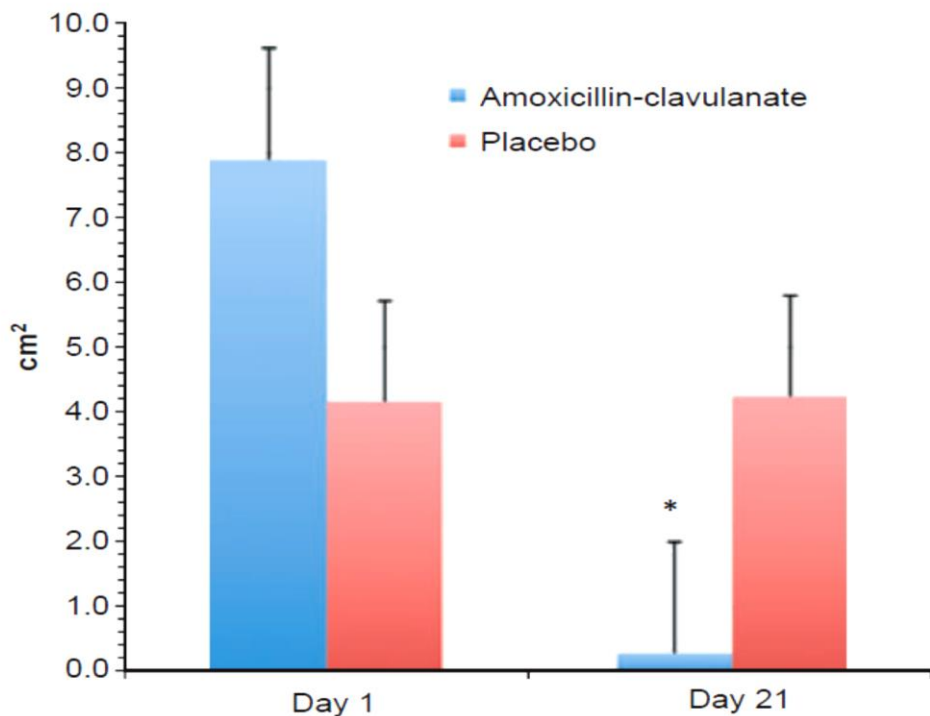
## Veterinary Dermatology

DOI: 10.1111/j.1365-3164.2011.01020.x

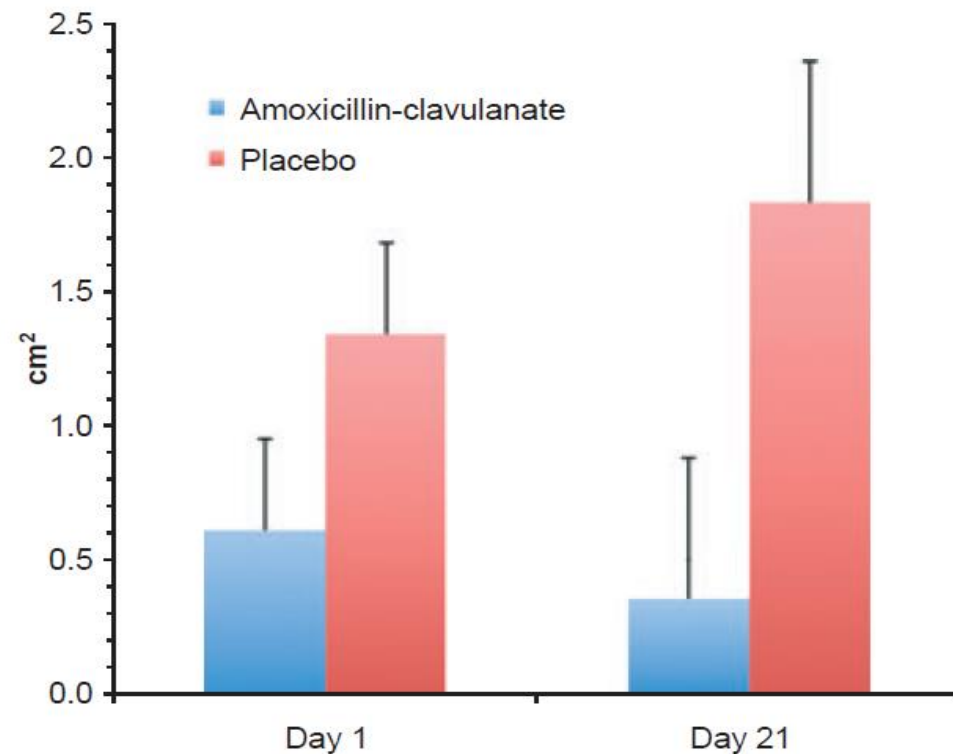
**Response of feline eosinophilic plaques and lip ulcers to amoxicillin trihydrate–clavulanate potassium therapy: a randomized, double-blind placebo-controlled prospective study**

# Why is feline pyoderma diagnosed less frequently than canine?

- Low adherence of *S. pseudintermedius* and *S. aureus* to feline corneocytes?
- Are we missing pyoderma in cats?



**Figure 1.** Mean + SEM of eosinophilic plaque size for the amoxicillin-clavulanate and placebo groups on days 1 and 21. \*Statistically significant ( $P < 0.05$ ) decrease compared with day 1.



**Figure 3.** Mean + SEM of lip ulcer size for the amoxicillin-clavulanate and placebo groups on days 1 and 21.



# Why is feline pyoderma diagnosed less frequently than canine?

- Low adherence of *S. pseudintermedius* and *S. aureus* to feline corneocytes?
- Are we missing pyoderma in cats?
- What if we treat feline superficial pyoderma without knowing it?





# What if we treat just an underlying disorder?





# What if we treat only pyoderma?





If feline pyoderma is common, should we address it often?

Steroid adverse effects

Bacterial resistance

AB adverse effects





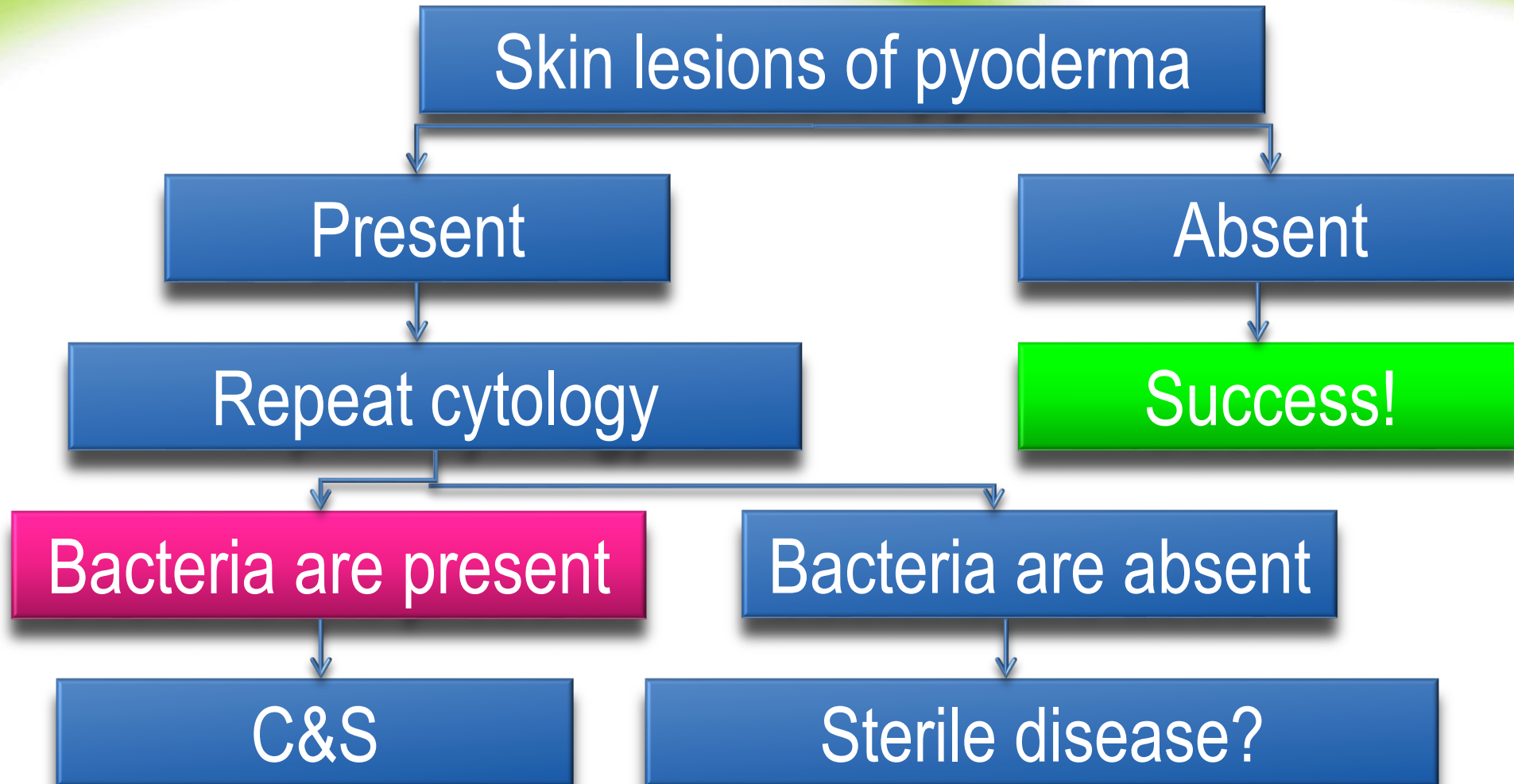
# Uncommon types of feline pyoderma

# Recurrent pyoderma

- Is it a recurrent or undertreated pyoderma?
  - Was the cat checked after the course of the treatment?
  - Was it easy to check the presence of pyoderma in the cat?
  - Was the treatment prolonged for 1-2 weeks after the clinical result?
- How long did the remission last?
  - 1-2 weeks – undertreated pyoderma is more likely
  - More than a month – relapse is more likely
- The main reason for pyoderma to recur – not controlled underlying disorder!



# Recheck – how to evaluate the result of treatment



# Bacterial paronychia



- Very uncommon
- Very suspicious of PF!
- Treat bacterial inflammation first, then check cytology
- Possible causes: trauma, immunosuppression, systemic diseases...
- Treatment is systemic AB and usually at least 3 weeks
  - Better based on C&S.



# Feline acne

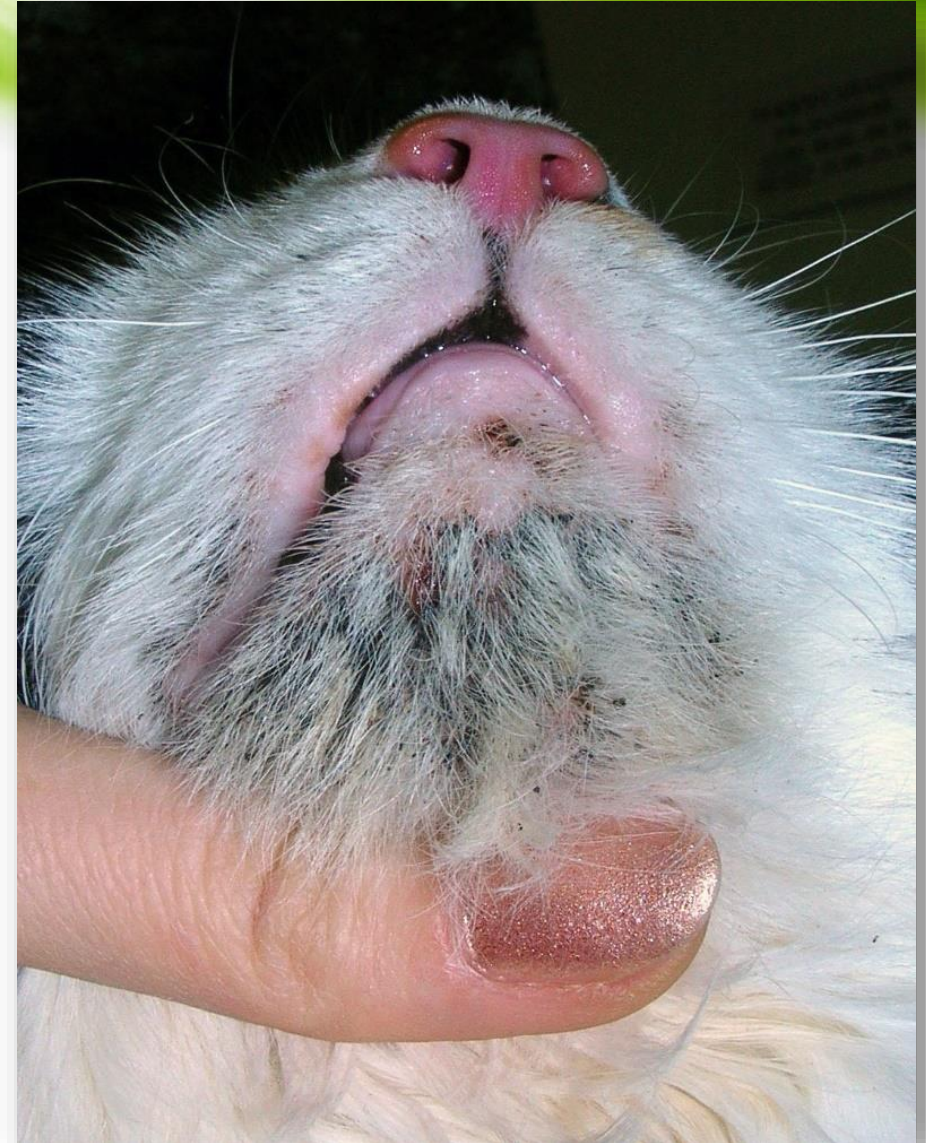
- Uncomplicated acne is a comedone formation
  - Neither painful no pruritic
  - Cosmetic disorder
  - Doesn't require treatment





# Feline acne

- Uncomplicated acne is a comedone formation
  - Neither painful no pruritic
  - Cosmetic disorder
  - Doesn't require treatment
- If secondary pyoderma develops
  - Differentiate from demodicosis, dermatophytosis, SCC, hypersensitivity...
  - History might be important
  - Topical BP treatment (can be irritating!)
  - Systemic ABs.





# Tail furunculosis



- More often in Persians and Maine Coons
- Big comedones and follicular cysts and hypotrichosis on the tail
- Likely is related to the “stud tail”

# Tail furunculosis



- More often in Persians and Maine Coons
- Big comedones and follicular cysts and hypotrichosis on the tail
- Likely is related to the “stud tail”
- Secondary deep pyoderma may develop
- C&S and long course of systemic AB is required
- Prevention:
  - Vit A topically?
  - Castration?
  - Systemic retinoids?



# Tail furunculosis







Questions?

