

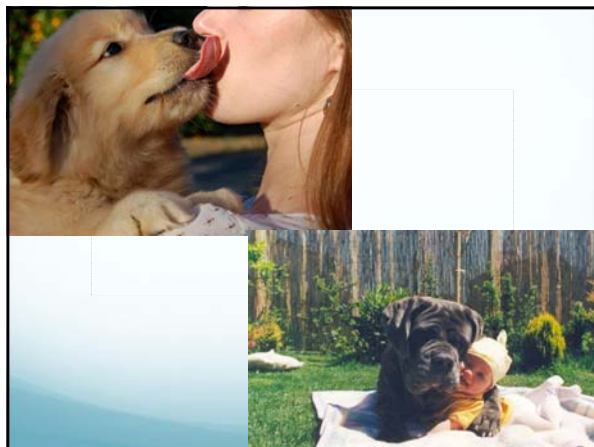
The role of pets on MRSA in humans

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We are not a population of people, in populations of dogs, cats, horses...

We are a population of animals.







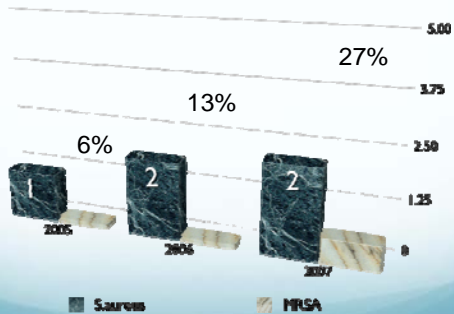


In the beginning...

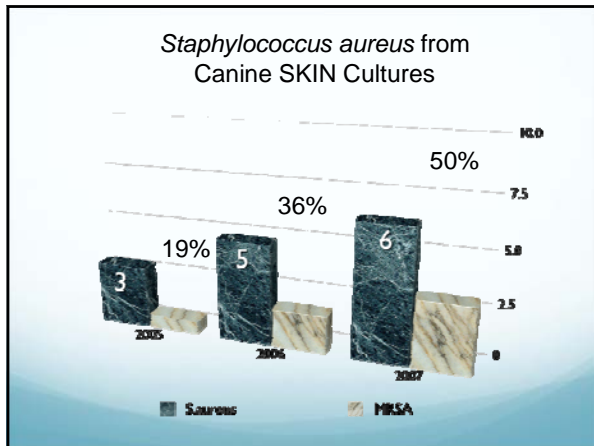
- Initially, sporadic infections, small clusters in UK, US, Canada, Korea, Australia (Pak et al J Vet Med Sci 1999, Tomlin et al Vet Rec 1999, Weese et al 2006)
- Later, reports of large numbers of infections in UK, Ireland, smaller numbers in US, Canada, elsewhere (Boag et al Vet Rec 2004, Rich et al Vet Rec 2004, Weese et al 2006, O'Mahony et al 2005)

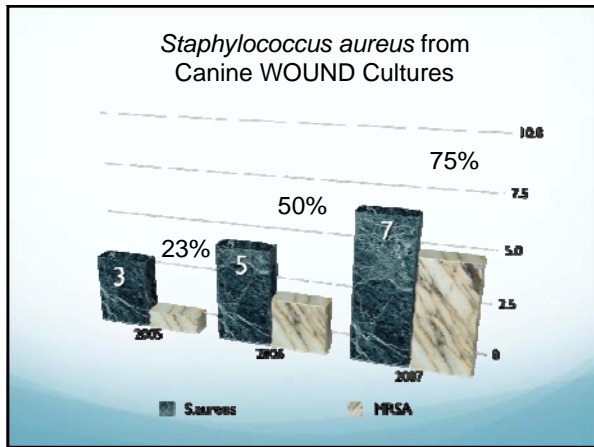
How common is it?

Staphylococcus aureus from Canine EAR Cultures



Courtesy Dr. David Aucoin, Antech Diagnostics



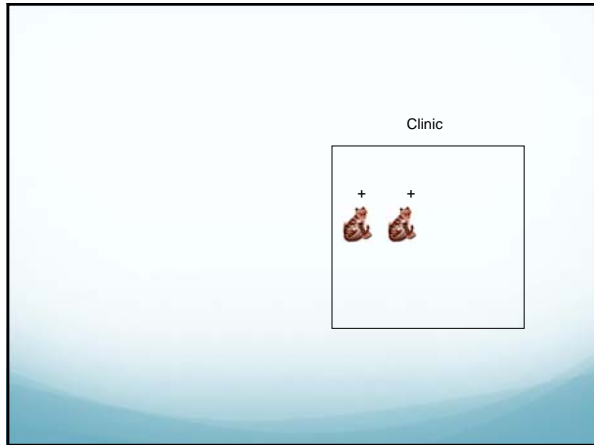


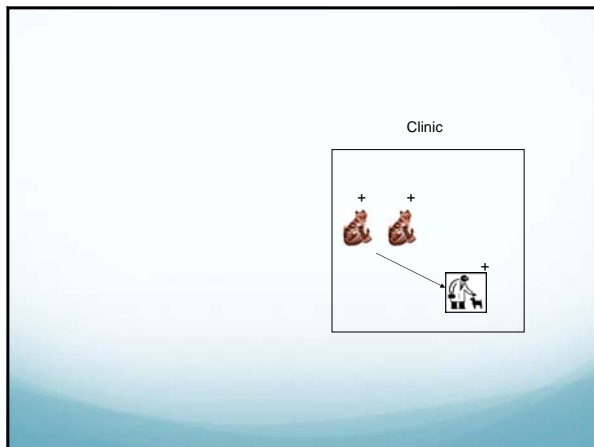
Colonization

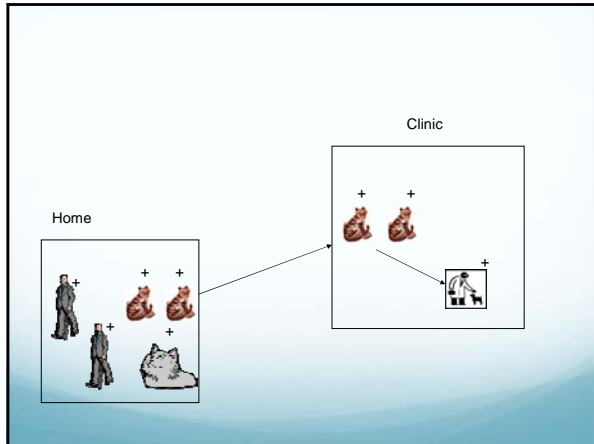
- Uncommon in general pet population
 - 0-4% of pets of different populations (Murphy et al 2006, Hanselman et al 2006, 2008, Kottler et al 2009, Boost et al 2007...)
 - Nasal and rectal
- Climbing??
- Being surpassed (suppressed??) by explosion in MRS *pseudintermedius*

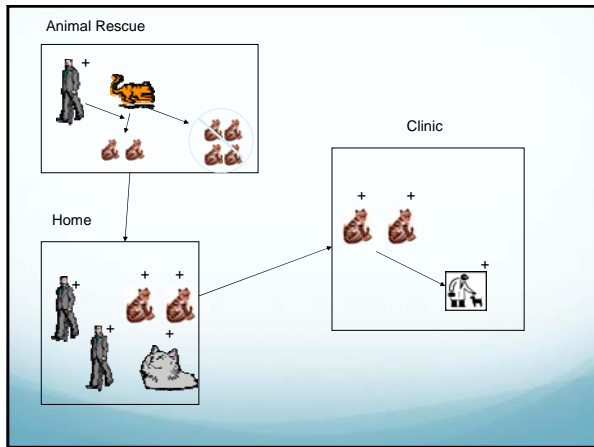
Concurrent Colonization/Infection

- MRSA from both owner(s) and pet (Cefai et al 1994, Manian et al 2003, van Duijkeren et al 2004, van Duijkeren et al 2005, Weese et al 2006, Vitale et al 2006)
- 7% of pets of people with CA-MRSA (Bender et al ICEID 2008)
- MRSA in humans in 27% of households with infected pet (Faires et al 2009)
- Recurrent infections in human, colonized cat (Sing et al 2008)









Household

- Household
 - mother, father, toddler, infant, 2 dogs
- Father
 - MRSA skin infection
- Mother
 - C-section incision infection
 - Nasal abscess
- Toddler
 - 11 separate episodes of skin infection/abscess
- Infant
 - 6 separate episodes of skin infections

- Multiple treatments
 - Mupirocin, doxycycline, trimethoprim-sulfa
 - Bleach soaks, triclosan baths
 - Attempts to treat whole family at once
 - No success

- Nasal/rectal swabs from both dogs
 - One dog colonized (nasal)

When evaluating the household, you need to look at the **whole** household.

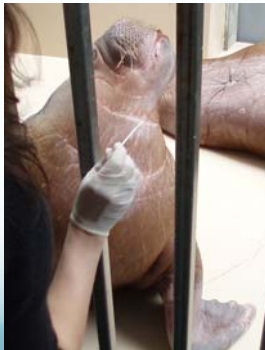
Colonized Animals

- No evidence that antimicrobial therapy is effective in any veterinary species
 - I have only seen one companion animal that would not decolonize *with infection control practices to prevent re-infection*
 - Sick animals take longer
- Restrict contact, especially high-risk contact
 - Limit face-face, hand-face, pet-compromised body site contact
 - Limit longterm, close contact (i.e. sleeping on bed)
- Hand hygiene

Infected Animals

- Same plus
 - Restrict contact with infected site
 - Cover infected site if possible
 - Assume colonized in nose and GI tract

Screening



When to screen pets?

- Recurrent disease in humans in the household
 - **Only when people in the household are being screened**
- No indication to screen pets
 - Following single human MRSA infection
 - Multiple MRSA infections without entire household investigation
 - Immunocompromised owners
 - ...

- "In exceptional circumstances when a colonized pet is implicated as a source of infection and infection is serious and recurrent, temporary removal of the pet may be considered. The beneficial effects of pet contact should be considered in any discussion of pet removal."

Can J Infect Dis Med Microbiol 2006

Take Home

- MRSA is present in the pet population
 - Healthy and infected
- Pets are presumably a source of infection in humans but...
 - Pets are not small furry people
 - Humans are a much greater source
 - MRSA in animals is ultimately human in origin

The End