Dog bites in the United States
- Estimated 4.7 million dog bites per year\(^1\)
- 800,000 require medical attention\(^1\)
- Children are most common victims\(^2\)

Risk factors for dog bites
- Canine factors
  - Intact male dog
  - Purebred status
  - Terrier, Working, Herding breed categories
- Human factors
  - Male children age 5-9
  - Low-income neighborhoods

Canine aggression
- 15.6% dogs in a general veterinary caseload\(^1\)
- Most common reason for consulting a veterinary behaviorist\(^2,3\)
- Dalmatians, English Springer Spaniels, German Shepherd Dogs overrepresented\(^3\)

What is aggression, really?
- Communication – a distance increasing signal
- In response to a perceived threat
- Predation?

What is threatening to a dog?
HUMANS: we are taught to meet & greet people with a direct approach while making direct eye contact, we often move rather quickly and lean forward to shake hands or offer a hug, etc

Human vs. canine body language
• Dogs greet each other more indirectly – lateral approach, polite sniffing, averted gaze, play bow
• Dogs who approach other dogs with forward, direct behavior are perceived as threatening and may elicit fear +/- aggression
• Inherent miscommunication when a person approaches a dog; As humans, when we communicate directly, many dogs find it threatening, especially if we are unfamiliar
• We must learn to use the appropriate body language to help dogs understand that we intend no harm. This is very important for fearful/aggressive dogs

Aggression progression
Avoidance behaviors → freeze → stare → growl → lip retraction → lunge → air snap → bite
  • Avoidance behaviors = turning head away, squinting, ducking head, holding one leg up, yawning, lip licking, “wet dog” shake

Bite severity¹
Level 1- Dog growls, lunges, snarls-no teeth touch skin.

Level 2- Teeth touch skin but no puncture. May have red mark/minor bruise

Level 3- Punctures ½ the length of a canine tooth, one to four holes, single bite.

Level 4- One to four holes from a single bite, one hole deeper than ½ the length of a canine tooth, Dog clamped down and shook or slashed victim.

Level 5- Multiple bites at Level 4 or above. A concerted, repeated attack.

Level 6- Any bite resulting in death of a human.

Warning signs of a bite
It’s all about body language…

Signs of a RELAXED dog
  **Posture:** relaxed, weight carried evenly, may see play bow or body “wiggle”
  **Tail:** relaxed & neutral position, may be wagging
Ears: Relaxed, neutral position
Mouth: appears “soft”, may be open, tongue hanging out, mouth may be closed with lips relaxed over teeth
Eyes: “soft”, relaxed, eyebrows neutral, normal pupil size, steady, relaxed gaze

Signs of a defensively threatening dog
Body Posture: muscles tense, weight shifted back, low to ground, may roll to expose belly, holding one paw up
Tail: stiff, usually tucked or low to ground, may be wagging (slowly or rapidly)
Piloerection: may or not be present, may be “blowing coat”
Ears: pulled back against head
Mouth: lips pulled back +/- growling/snarling, excessive panting, lip licking, chewing, yawning
Eyes: Vigilant with pupils dilated, eyebrows furrowed, scanning, darting eyes, “whale eye”
The defendively threatening dog:
• Is feeling threatened and is saying “I don’t like that, stop what you are doing!”
• This dog is trying to avoid a fight, and would rather run away…
…But is likely to become OFFENSIVELY THREATENING if provoked further. DO NOT ANTAGONIZE THIS DOG!

Signs of an offensively threatening dog
Body posture: “hard & stiff”:
    muscles tensed, weight forward,
    may be very still
Tail: carried high, often wagging
    slowly & methodically
Piloerection: usually present
Ears: erect and forward, little movement
Mouth: top lip pulled up (baring front teeth only), growling, snapping, barking
Eyes: Hard stare, wide open or
squinted/hooded, eyebrows tensed,
pupils dilated

The offensively threatening dog:
• This dog means business, is ready and willing to aggress, is not going to avoid it any
  longer if a perceived threat continues.
• NOTE: It is VITAL to understand that while we may think this dog is acting “aggressively”
or “offensively”, the underlying motivation for this behavior is FEAR

Diagnosing aggression
Based on motivation for behavior:
• Fear related aggression
• Resource guarding
• Conflict related aggression
• Territorial aggression
• Maternal aggression
• Inter-dog aggression
  o Social status
  o Fear
  o Arousal/excitement

Often exacerbated by underlying anxiety disorder
  o Increases general arousal level
  o Lowers threshold for what dog perceives as threatening and aggressive response

Typical development of aggression
○ Fear/avoidance behaviors displayed as puppy
○ Growling, freezing, snarling, etc. emerge during adolescence
○ Lunging/snapping/biting often emerges as dog enters social maturity (1-3 years of age)
○ Dogs then learn that aggression is more effective than avoidance in making threat go
  away
○ Gets worse, rather than better, with age...

Atypical presentation
Acute onset
Aggression without history of fear/avoidance/aggression in a dog >7 yr
Think about pain, irritability, brain disease

Diagnosing aggression
All aggressive dogs should be evaluated for medical illness, regardless of age and presenting complaint
Physical examination
Blood chemistry, urinalysis, thyroid level

What about dominance?
- Outdated diagnosis for owner-directed aggression
- Based on idea that dogs perceive owners as conspecifics and that they operate on a linear social hierarchy like wolves
- Aggression then assumed to be related to a lack of “alpha” status on the owner’s part
- Recent studies suggest owner-directed aggression based in fear/conflict and not related to social status
- Further studies found that group-living feral dogs lack linear hierarchy
- Often see aggression related to social status between familiar dogs
- No longer recognized as a motivation for human-directed aggression
- Use of confrontational “dominance” based training methods is dangerous
- No evidence of effectiveness

Managing canine aggression
Notice I did not say “cure”…
- Identify triggers
- Avoid/change triggers
- Teach alternate behaviors
- Counter-conditioning when appropriate
- Address underlying anxiety
- Avoidance of punishment

Identify all triggers

- Avoid/change all triggers
- Secure, quiet eating area
- Pick up food bowl when meal finished
- Remove bones/high value toys unless in a secure area
- Do not disturb dog with food, toy or bone
- Always make a trade for an item you need to take away

Avoid/change all triggers

- Provide resting area away from people
- Let a sleeping dog lie…
- Use non-threatening body language
- Grooming alternatives
- Separate/control in the presence of visitors
- Secure, solid fence

Teach alternate behaviors: Response substitution

- “Watch me”
- “Settle”
- “Go to your place”
- “Leave it”

Counter-conditioning

- Change a negative emotional response (fear) to a positive one (happy) by associating the frightening stimulus with one that naturally elicits a positive emotional response (food, toys)
- People entering the home
- Owner approaching food bowl
- Passing dogs on walks
- Grooming/toenail trims

Decrease underlying anxiety
Increase exercise when appropriate
- Caution in older pets or pets with orthopedic problems
- Avoid weighted backpacks

Add structure and predictability to daily routine
- “Sit for everything"
- Keep to a daily schedule
- Associate words with interactions
  - “foot”, “ears”, “up”, “off”, “kennel”

Anti-anxiety medication
Clomicalm®
TCA, FDA approved for treatment of separation anxiety
Reconcile®
SSRI, FDA approved for treatment of separation anxiety

Supplements
Anxitane® (L-theanine)
- Green tea extract
- Reduce behavior problems – fear and anxiety
- No known drug interactions or side effects

Harmonease®
- Natural extracts of Magnolia officinalis and Phellodendron amurense
- Reduces stress-related behaviors
- Study in kenneled dogs with repetitive behaviors

Why not punishment?
- Appealing since it may lead to temporary inhibition of aggression
- Does not address underlying motivation for behavior
- Increases arousal, fear, and anxiety
- Punishing warning signals early in sequence of aggression (i.e. growling) may lead to biting without warning
- Puts owner at risk of injury
- Remember that aggression is a response to a perceived threat
- Further threatening the animal only adds fuel to the fire…
- Need to build dog’s trust – weakening the bond with harsh punishment will only backfire in the long-term
- Focus on teaching new behaviors and counter-conditioning a new response

Airplane analogy…

Good prognostic indicators
- Dog has already reached social maturity
- Triggers are few and easily manageable
- No history of serious bite injury
- Small breed dog
- Motivated, responsible owners with realistic expectations

Poor prognostic indicators
- Aggression started as puppy or adolescent
- Inability to predict triggers
- Inability to avoid/control triggers
- Small children, elderly persons, or disabled persons in frequent contact with dog
- History of serious bite to benign trigger
- Large breed dog (>18.2 kg)

Aggression prevention
- Think about genetics
- Protect the prenatal environment
- Proper socialization
- Protect during fear periods
- Provide structure and predictability
- Develop a good understanding of canine body language

Think about genetics…
- Behavior traits are heritable
- If an option, meet both parents
- Consider matching breed to lifestyle
- Working breeds?
Herding breeds?
Terriers?
Can the owner provide a job for these dogs?

Protect the prenatal environment
- Stress during pregnancy
- ↑ Cortisol from shared with fetus
- Changes ‘set point’ HPA axis
- High emotionality as adults
- Puppy mills?

Proper socialization
- Sensitive socialization period = 3-12 wks
- Need to meet and have pleasant experiences with people of all shapes, sizes, races, and ages
- Need to adapt proper dog play skills
- Need positive experience with environmental stimuli in indoor and outdoor environments
- Lack of experience can be as detrimental as abusive experience

Protect during fear periods
- First fear period = 8-10 wks
- Second fear period = 3 wks duration between 4-11 months of age
- Very sensitive to traumatic experience
- Single scary event can have life-long effects
- Can retain fear of person, dog, object, veterinarian
- HANDLE WITH CARE!

Provide structure and predictability
- Teach a desirable “default” behavior as young as 8 weeks
- “sit” for everything
- Consistent feeding, resting, and exercise routine and locations
- Decide on household rules and stick to them!
- In bed or not? On furniture? On laps?
Concluding Remarks

- Aggression is an emotional behavior, most often associated with fear
- Dominance does not play a role in human directed aggression
- Genetics and early environment shape most aggression problems
- Prevention is key

The End