Dog Bites
- ~4.7 million Americans bitten each year
- 80% are bitten by a familiar dog (on owner’s property)
- ~800,000 injured/year
- 47 dog bite-related deaths in the US in 2019
- Children are the most common victims (ages 5-9 yr.)

Aggression
- Definition: “Threat or harmful action directed towards another”
- Usually is a normal behavior
- Some consider it abnormal if too intense, too prolonged, or absence of appropriate trigger
- Can be complex and confusing to define

Criteria for Aggressive Behavior
- Should have potential to cause injury or damage to another individual
- Intentional
- Aversive to the victim
- Includes physiologic arousal in aggressor (predatory?)
- All are necessary, but not sufficient alone to constitute aggression

Aggression
- Interplay between:
  - Biological factors: genes, neurotransmitters, neural circuits, hormones, etc.
  - Context in which animal finds itself: space, individual(s), resources involved
  - Experience and learning: previous conflict or exposure to individual

Breed Predisposition?
- Emergency rooms:
  - Rottweiler
  - German shepherd
  - “Pit bull”
- Behavior specialists:
  - English springer spaniel
• Owner survey:
  – Dachshund
  – Chihuahua

Sex and Aggression
• Human-directed
  – Male dogs > female dogs?

• Inter-dog aggression
  – Spayed females
  – Intact males

• Be careful recommending spaying or neutering to decrease aggression / anxiety

Early Development
• 4-14 weeks socialization period
• Lack of exposure to humans, dogs, cats, etc.
• Fear-producing experience
• Orphans
• Juvenile illness

Classification in Canine Aggression
• No DSM for applied animal behavior
• Target: Victim (human, canine, other)
• Function:
  – Broad: defensive vs. offensive; affective vs. non-affective
  – Specific: fear; conflict; pain-induced; territorial; status

Aggression Classification
• Try to label in clinical setting, but may not have biologic relevance
• May be some distinct neural pathways involved (predatory, fear, inter-male), or some overlap
• Fear and/or anxiety underlies VAST majority of cases
• Motivation does not greatly influence treatment method
“Dominance” Aggression
• Is it accurate to apply “dominance” to inter-species relationships?

• Myth: Problem behaviors are due to dogs striving to achieve higher rank and they must be “put in their place”

• Reality: Most aggression is associated with fear or conflict behaviors (e.g., defensive aggression, appeasement behavior after episode)
  – Offensive body postures often start as defensive aggression

• Dominance is NOT a personality trait

Aggression Diagnosis
• Target or victim – family members, unfamiliar people, child in home
• Body postures (past and present)
• Context
  – High-value toy/food/person present
  – On/off property
  – Couch/bed
  – Lot of excitement/visitors
  – Reaching over dog, etc.

• Age of onset; signalment; experience and behavior as a puppy
• Overall health / medical problems
• Temperament / body language / vocalizations
• Stimulus or trigger / situations and context in which aggression is displayed
• Owner responses
• Motivation
• Progression of behavior

Conflict Behaviors
• Signals that appear to be out of context
  – Lip-licking
  – Yawning
  – Looking away
  – Mounting
  – Self-scratching
  – Other displacement behaviors (e.g., head shaking, spinning)
  – Aggression
• Contradictory behavior — e.g., approach/withdrawal (want to interact, but apprehensive about owner’s reaction)

• Result of anxiety, frustration, inconsistent and unpredictable interactions and environment, and lack of control

• (Luescher & Reisner: Vet Clinics N. Amer., 2008)

Risk Assessment

• Indicators of poorer prognosis:
  – Home with young children, elderly, or disabled
  – Large-sized dog
  – Owners unable to predict triggers
  – High intensity (bites vs. snarls) / severe injury
  – Benign context (vs. pain, redirected, or other “understandable” situations)
  – Aggressive behaviors (not play biting) in puppy
  – Predatory aggression

Treatment Overview

Environmental Management

• Ensure safety of everyone!
  – Avoid situations that elicit aggression
  – Teach owners to read dog’s body language
  – Separate or confine dog
  – Basket muzzle and/or head halter

Behavior Modification

• Leadership training
  – Structure all interactions so they are consistent → creates predictable consequences; control
  – Dog should sit calmly for all interactions and rewards
  – Ignore attention-seeking behavior
  – Do NOT punish
  – Lays groundwork for teaching dog to focus on owners in distracting situations

• Counterconditioning / Desensitization
  – Teach dog to perform behavior incompatible with being aggressive (e.g., sit, down, or focus)
  – Work just outside dog’s threshold for aggression
  – Target present = dog gets treats; no target present = no treats
  – Ensures that every encounter with target (person or other animal) is pleasant
  – Progress slowly (so no aggression occurs)
Medications / Diet / Supplements
- Drugs – SSRIs
  - May help decrease arousal, impulsivity, and reactivity
- Diet therapy
  - Low protein diet
- Supplements
  - Tryptophan
  - Neutraceuticals affecting gabanergic, adrenergic, and serotonergic systems
  - Synthetic pheromones

Tools
- Muzzles – basket style preferred
- Desensitize and countercondition dog to muzzle before it is needed
- Can wear it for hours – able to pant, drink
- Muzzle Up! Project: https://muzzleupproject.com/

Use of Fear or Pain as Punishment
- With affective aggression, can make fear and, therefore, aggression worse
- May be successful in suppressing aggressive behaviors, but not in changing motivation
- May suppress low level warning behaviors (e.g., growling) → silent biter
- Potential for redirected aggression towards owners
- Unethical as advice in clinic setting

Aggression Towards Humans
- Fear-based
- Resource guarding
- Conflict-related
- Territorial
- Predatory
- Redirected
- Pain-induced
- Maternal
- Irritable aggression (disease-induced)
Owner-directed Aggression (Adults)

- Resource-related
  - Food-related most common
  - Toy, resting place (couch, dog bed), specific person
- Fear and/or conflict-related
  - History of inconsistent (aversive) interactions with dog
- Pain-induced
- Maternal, redirected, idiopathic, pathophysiologic, learned

Treatment

- Avoid triggers
  - Remove all long-lasting, animal-based items (replace with appropriate non-food chews)
  - Contain high-value items (dog beds, furniture, food bowl) behind closed door
  - Devise containment plan for dog (e.g., confine in crate/bedroom during busy times of day)
  - Teach “Drop It” and “Leave It” commands
  - *No chasing, yelling, spanking, etc.*
- Relationship builder
  - Leadership training – humans are the gatekeepers to all resources; no force needed
  - Sets up reward-based, CALM control – aggression occurs in state of arousal
  - Creates consistent interactions
  - Dog must sit before allowed on furniture by owner

Tools

- Head halter
- Muzzle
- Baby gates

Medications

- Serotonin-enhancing medications are first line drugs of choice
- Safety and behavior modification *must* be implemented
- Medications are only an *adjunct* to treatment
Aggression over Resources

- Avoid!
- Lure vs. force
  - Teach “Drop it” and “Leave it”
  - Teach dog to get off furniture on command BEFORE aggression occurs – use upbeat voice and food lures
  - Leadership training (say “please” by sitting before allowed access to these items)

Aggression over Human

- Do not allow dog on high places or let sleep directly in front of the guarded person
- Target person calls dog away from guarded person for a treat BEFORE walking into the room (differential reinforcement of an alternative behavior)
- Negative punishment – “abandonment” protocol (guarded person leaves room)

Children and Dogs

- Fear-related / Conflict-related
  - Loud
  - Jerky movements
  - Stare at dog; at eye level
  - Unpredictable & inappropriate interactions (hug; grab; pull fur; trap dog)
- Resource guarding
- Infant-directed – occasionally predatory

Aggression to Children

- Constant supervision!
- Avoid!
  - Give dog a “save haven”; teach dog to go there on cue
  - Basket muzzle
  - NO chews, valued toys, furniture, etc. unless physical barrier between dog and child
- Encourage flight vs. flight – call dog away when giving low level stress signals (lip licking, yawning, etc.)
- Make sure dog is never trapped
- Remain calm
- Good classical conditioning:
  - NO punishment (want warning signals!)
– Lots of treat tossing; save best treat for child interactions

• Older children can be taught how to interact with dogs appropriately

• Have children participate in CC/DS:
  – Dog wearing head halter; child with adult just beyond threshold distance
  – Ask dog to obey commands while giving treats
  – Walk dog closer to child, serpentine pattern (not straight)
  – Switch so dog is in a down/stay and child is moving closer (as giving dog treats)
  – Pressure on nose loop (of head halter) if dog lunges or barks
  – Immediately release pressure and give food reward when focus is back on owner
  – Bonus (jackpot of treats) in initial stages when dog looks at child then looks back at handler

Child and Dog Resources

• [Dog Safety](#)
• [Family Paws](#)
• [The Blue Dog](#)
• [Baby safety around dogs](#)
• [I Speak Doggie](#)
• [Dog Body Language](#)

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Aggression to Unfamiliar People

• **Visitors to home**
  – Territorial and/or fear
  – Often show fearful or ambivalent behaviors off territory, but more offensive on property

• **Strangers off property**
  – Fear-related

Aggression to Visitors

• **Avoid**
  – Block view of street/front door
  – Keep behind closed door, especially during excitement of greeting; give dog something else to do (food toy)

• **Relationship builders – give dog control (choice)**
  – Leadership training
  – Appropriate greetings
• Tools
  – Head halter
  – Baby gate
  – Fence, NOT electric fence (or at least away from door)

Don’t Invade Space!
Avoid Threat Signals

Behavior Modification
Desensitization & counterconditioning
• Teach to go to “place” on command
  – When calm, lure dog to mat with treat → only give treat when dog lies down on mat
  – Habituate to doorbell/knocking
  – With dog on leash (attached to head halter), have familiar person ring bell/knock → say “place” → reward

• By communicating what you want dog to do, not just what you don’t want him to do, results are longer lasting
• Use classical conditioning with visitors – every experience should be positive

Aggression to Strangers off Property
• Avoidance
  – Exercise in low traffic areas at less busy times
  – Do NOT let people approach
  – Have an escape command (“let’s go”) – U-turn

• Relationship builders – make sure dog is reliable with cues (“look”, “sit”) for control outside home
• Tools – head halter and basket muzzle

Skateboards, Bikes, Runners
• Motivation?
  – Fear
  – Predatory

• Appropriate control
• Desensitization and counterconditioning