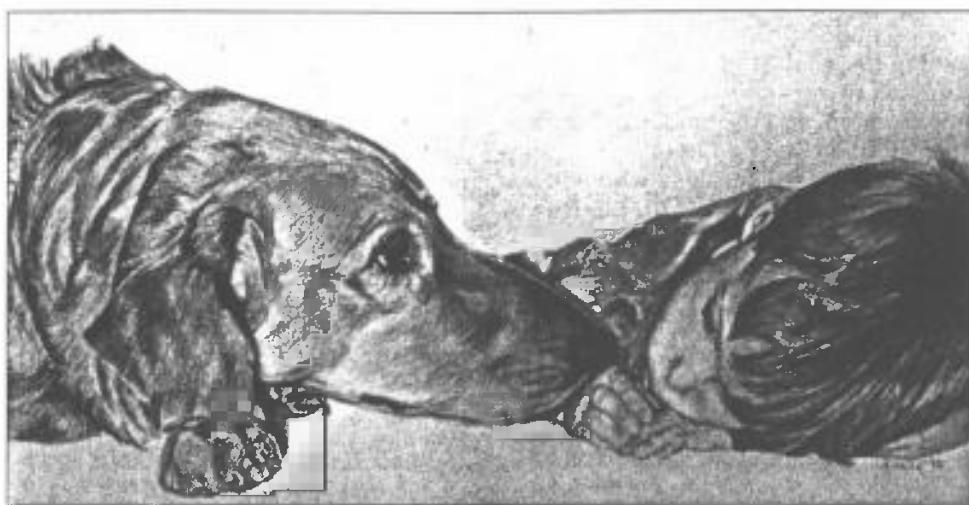


AVMA Animal Welfare Forum: Human-Canine Interactions



Courtesy of Donna F. (Maine) Smith

December 6-7, 1996, Rosemont, Illinois

The following reports were submitted by speakers and moderators at the 1996 AVMA Animal Welfare Forum, held at the Clarion International Hotel at O'Hare in Rosemont, Ill. During the Forum, the 1996 AVMA Animal Welfare Award was presented to Dr. Bonnie Beaver of College Station, Tex.

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The AVMA Animal Welfare Forum is an annual event planned by the Animal Welfare Committee, under the direction of the Executive Board. This year's Forum was a joint effort of the Animal Welfare Committee and the Committee on the Human-Animal Bond. For additional information about the Forum or the Animal Welfare Award, please contact the AVMA's Division of Education and Research.

Remarks

Dr. John I. Freeman
President-Elect

I'm proud to have been given this opportunity to welcome you, on behalf of the more than 58,000 members of the American Veterinary Medical Association, to the Seventh AVMA Animal Welfare Forum.

As veterinarians, our commitment to advancing scientific and medical knowledge, while working for the protection of animal health and the relief of animal suffering, puts us at the forefront of the animal welfare movement. For the past 6 years, the AVMA Animal Welfare Forums have given the animal welfare community an opportunity to discuss a variety of issues including the welfare of wildlife, pet overpopulation, animals in agriculture, the role of animals in medical research, and the health and welfare of cats. At this forum, we have an impressive group of internationally recognized speakers who will address some of the issues associated with human-canine interactions.

It is common when presenting a welcome to a forum or symposium to talk about how important the subject is and how it affects us personally and professionally. I know some people may wonder why we've chosen to look at aggressive dogs as an animal welfare issue. When you consider that behavioral problems are one of the principle reasons for dogs being surren-

dered to animal shelters and euthanized, you realize that this truly is an animal welfare problem.

Today, we will follow the development of human-canine interactions from the domestication and evolution of the dog through the role of veterinarians and others in responsible pet ownership. We will learn about the importance of the human-canine bond and what it means to have an effective strong, positive bond. Perhaps more important, we are going to discover what can happen when this bond fails. We are going to learn about the effects of dogs on human health, and we are going to discuss the effects that aggression has on dogs and people. This year, we have added a second day to the forum, and tomorrow we will be dividing into breakout sessions to discuss specific aspects of human-canine interactions.

This is an important subject, and one that affects all of us. Having devoted my professional life to public health and epidemiology, aggressive dogs and, particularly, dog bites, are two areas with which I am very familiar; therefore, the subject of this forum is of particular interest to me. We owe the members of the AVMA's Committee on the Human-Animal Bond and the Animal Welfare Committee our sincere appreciation for selecting such an appropriate and timely topic.

Primitive dogs, their ecology and behavior: Unique opportunities to study the early development of the human-canine bond

I. Lehr Brisbin, Jr., PhD, and Thomas S. Risch, MS

The human-canine bond, as we see it today in the United States, is the modern manifestation of an important and unusual event that happened more than 11,000 years ago in the Shanidar Cave region of Iraq. This event was the domestication of the dog. As the first example of animal/plant domestication and the

From the Savannah River Ecology Laboratory, University of Georgia, PO Drawer E, Aiken, SC 29802 (Brisbin), and the Department of Zoology and Wildlife Science, Auburn University, Auburn, AL 36849 (Risch). The speaker was Dr. I. Lehr Brisbin, Jr.

Support for manuscript preparation was provided, in part, by Financial Assistance Award DE-FC09-96SR 18546 from the US Department of Energy and the University of Georgia.

only example to take place during the hunter-gatherer stage of human cultural development, establishment of the human-canine bond paved the way for a process that has since provided human beings with a wide variety of food-producing, transport, and companion animals.

An understanding of the changes that took place in dogs and in their relationships with human beings during the first several thousand years of contact is relevant to a number of problematic aspects of the human-canine bond as we see it in our society today. These aspects include, but are not limited to, problems

with dog bites, the health and physiologic well-being of domestic dogs and people, and pet overpopulation.

Most efforts to study and understand the domestication of the dog and the early development of the human-canine bond have focused on an archaeologic approach to these issues.¹⁻³ An alternative but complementary approach involves anthropologic studies of relationships between human beings and dogs within present day aboriginal or culturally simple human societies.⁴⁻⁵ We propose a third approach to studying the early human-canine bond—namely, documentation of the basic biologic behavioral and ecologic characteristics of present-day populations of primitive free-ranging or semiconfined dogs. These dogs have characteristics that indicate a close descent of type, if not direct genetic relationship, to dogs that participated in the initiation and early development of the human-canine bond thousands of years ago. In particular, we will describe 2 types of primitive dogs, emphasizing studies of their ecologic and behavioral characteristics under semiconfined or free-ranging conditions. These dogs include the New Guinea Singing Dog (NGSD; *Canis lupus dingo*)⁶⁻⁸ and the Carolina Dog, a registered domestic breed developed from the captive breeding of wild-caught dogs having a primitive long-term feral/pariah phenotype, acquired from several locations in the southeastern United States.⁹⁻¹¹

The Domestication and Dispersion of Primitive Dogs

A number of accounts summarize the domestication of the dog in the Middle East and give details of the developing relationship between neolithic human beings and sympatric wild *Canis* sp of that region.^{1-3,12} Most of these domestication scenarios propose one or more southwest Asian subspecies of the wolf (eg, *C. lupus pallipes*, *C. lupus arabs*) as the canids most likely to have been involved in this process, and this position is generally supported by available archaeologic material. However, this initial contact was followed by the rapid spread of these primitive human being/wolf-dog symbionts out of the Middle East, moving southward into Africa and eastward across the Indian subcontinent into southeast Asia, and there is little useful archaeologic material available from these regions. Thus, a notable lack of information exists about the characteristics of these early domesticating wolf-dogs and their relationship with their hunter-gatherer consorts during the “long walk” of this critical phase of the early development of the human-canine bond.

What information is available points to a high degree of uniformity in the cranial/skeletal features and the external body phenotypes of the canids involved.¹³ This degree of morphologic uniformity, converging on an external phenotype typified by the Australian Dingo, is even more remarkable considering the broad biogeographic range involved.^{5,13} The canids most closely associated with the early dispersal phases of the domestication process have the *poultatini* cranial morphotype of the so-called southern pariahs.² However, the exter-

nal body morphotype shared by these canids, throughout the far-flung reaches of their dispersion, bears little resemblance to that of the wolf subspecies generally considered to have begun the domestication process in the Middle East. The appearance and bodytype of the southern pariah dog is that of the prototypic “yaller” dog: a sharp, pointed muzzle with erect, pointed ears, giving a distinctively fox-like appearance; fish-hook shaped tail, usually having a whitish or pale coloration on the underside; and a uniform reddish-yellow to ginger body color with a short, dense pelage.² Rather than typifying southwest Asian wolves, these features characterize the appearance of 2 other wild canid species that developed within the same biogeographic region as the location of the dog's early domestication and initial early dispersion. These species are the Simien Wolf (*C simensis*) of North Africa and the Dhole (*Cuon* [now *Canis*] *alpinus*) of the Indian subcontinent of southeast Asia.⁹ Although neither of these species have been formally considered as possible ancestors of the domestic dog, the aforementioned similarities of appearance, biogeographic, and close behavioral and social overlap with free-ranging domestic dogs^{14,15} indicate the importance of considering the roles of one or both of these species (perhaps through introgressive hybridization of symbiotic pariah *C. lupus* from southwest Asia) in giving rise to the southern pariah type of today's domestic dog.

Whatever their ancestry and wherever they may be found, studies of populations of free-ranging dogs approximating the southern pariah/poultatini long-term feral morphotype may help us to understand how this morphotype and its associated behavioral and ecologic characteristics became established and contributed to the development of the human-canine bond.

The New Guinea Singing Dog

Although primitive dogs have existed throughout the island of New Guinea for many thousands of years, the native range of the most primitive and feral form, the NGSD, has been restricted to the higher cloud forests and associated alpine and subalpine areas of the island's Central Highlands and other mountainous habitats since the time of its discovery.⁸ The remote and isolated nature of this area delayed this dog's discovery and recognition by the scientific community until the mid to late 1950s.^{7,8} When first discovered, the NGSD was described as the new species *C. hallstromi*, based on the external appearance of the first 2 captured dogs that were held and bred at the Taronga Park Zoo in Sydney, Australia.⁸ Offspring from this pair were bred and their progeny were distributed widely to many of the world's major zoos. Later, taxonomic analyses based on skeletal and cranial characteristics indicated that this dog was not a new species, but only a primitive feral type of the domestic dog (then designated as *C. familiaris*).⁶

In the early 1990s, the NGSD was rediscovered as a unique taxonomic type, perhaps distinct at the subspecific level from all other feral or domestic dogs of

the *C. lupus-familiaris* classification. This rediscovery was based, in part, on studies of a newly outcrossed captive population of dogs in North America that included bloodlines of dogs captured by members of a German expedition to a remote region of Irian Jaya (currently part of New Guinea) during the late 1970s.^{7,8} These studies included descriptions of unique patterns of reproduction, behavior, socialization, and vocalizations under semiconfined captive conditions. This work, along with a review of several molecular genetic studies, resulted in a proposal to describe the NGSD as belonging to the same subspecies as the Australian Dingo, *C. lupus dingo*.⁸ Subsequent unpublished multilocus studies of genomic DNA have supported the validity of this designation.⁹

Having evolved for many thousands of years in an environment free of other members of the genus *Canis* (eg, wolves and coyotes), the Australian Dingo and the NGSD offer a unique opportunity to describe and study many of the most primitive characteristics of the first members of the dog-wolf group to participate in the formation and early development of the human-canine bond.⁴ Of particular importance is the degree of apparent social monogamy displayed by the NGSD under semiconfined captive conditions.¹⁰ Because all of the wild canids likely involved in the domestication process are highly social in nature and because most other domestic and feral dogs, including the Australian Dingo, are also highly pack oriented, the nonpack monogamous status of the NGSD may represent the low point in a U-shaped continuum of social complexity that developed throughout the formation of the human-canine bond.⁸ The fact that dogs were likely to have reached New Guinea and other islands of the Australian region through travels with early seafaring peoples may have contributed to a more monogamous nature. Certainly, single pairs of dogs would have been easier to maintain than larger packs on such voyages, and many island colonization events likely involved only a pair or single monogamous family group of dogs. The consequences of this possibility for later development of the human-canine bond in island versus larger continental habitats (eg, Australia) should be explored further, particularly through studies of the primitive types of dogs that may still exist in a free-ranging state (ie, free of genetic or social contact with more modern types of domestic dogs or other wild species of the genus *Canis*).

The Carolina Dog

Unlike the situation described for the NGSD, the first primitive dogs to accompany human beings across the Bering Land Bridge and into North America about 8,000 years ago entered a continent already inhabited by at least 2 and possibly 3 wild species of the genus *Canis* (the gray wolf, *C. lupus*; coyote, *C. latrans*; and red wolf, *C. rufus*). It has been established that hybridization eventually ensued between most of these canids.^{10,11} These hybridizations, along with crosses to modern European dogs that were established on the

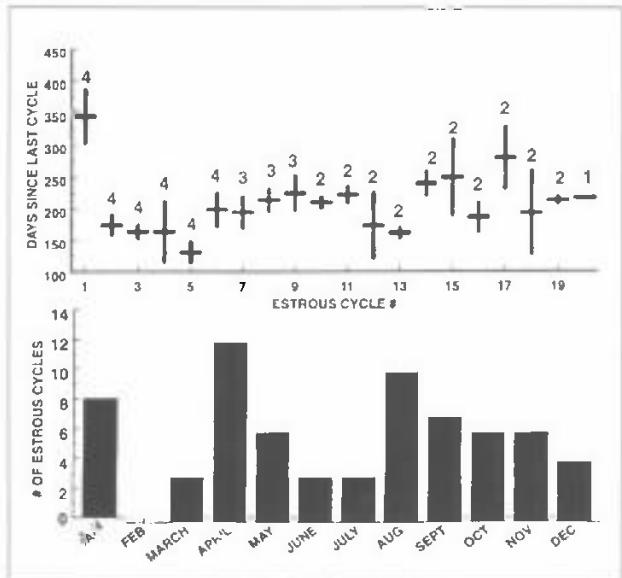


Figure 1—(Top) Intervals (days; mean \pm 1 SE) between estrous cycles throughout the lifetimes of 4 captive Carolina Dogs. Numbers indicate sample sizes. (Bottom) Monthly distributions of estrous cycles of the 4 dogs depicted above. Peaks in estrus frequency are evident in the spring and late summer, coincident with peaks in the reproduction of small mammals from the area where the dogs originated.¹⁹

continent during the past 500 years, have created a situation in which it is unlikely that more than a few, if any, remnants of the primitive dog type still exist in a genetically pure state. However, in the southeastern United States, certain free-ranging dogs recently have been discovered whose external body phenotype closely resembles that of the Australian Dingo and other primitive Australian feral/pariah dogs.^{11,12} This discovery has provided an opportunity to test the hypothesis that these dogs may represent close descendants of type, if not direct genetic ancestry, from dogs that crossed the Bering Land Bridge with primitive human beings and helped to shape the early development of the human-canine bond in North America.

To date, most attempts to test this hypothesis have involved behavioral or ecologic studies of wild-caught dogs or their first- or second-generation captive-bred progeny.¹³ Although most of these studies have not yet produced definitive or publishable results, they have already begun to describe a number of traits that have never before been recorded for any other member of the genus *Canis*. In most cases, these traits seem to be those that indicate a form of adaptation to the ecologic niche occupied by these dogs in rural or uninhabited areas of the southeastern United States. An example of such a trait is an unusual pattern of changes in the spacing of estrous cycles throughout the lifetime of individual females (Fig 1). An extraordinarily high frequency of estrus (up to 3 cycles/y) in young dogs, followed by longer interestrus periods as dogs age, would be a reasonable (ie, adaptive) pattern for females that are under strong selection pressure to pro-

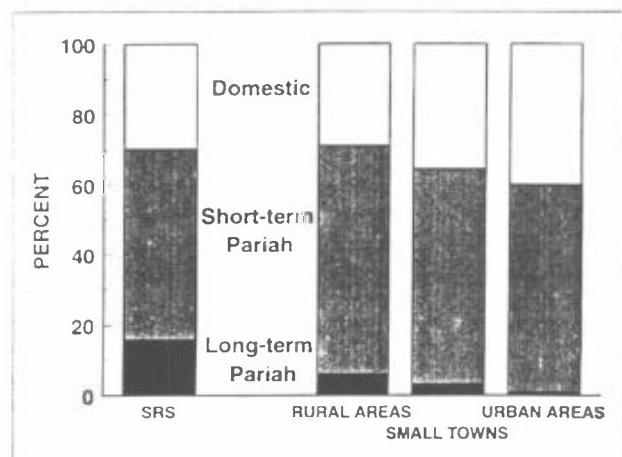


Figure 2—Frequencies of external body phenotypes of 488 roadside sightings of free-ranging dogs in the southeastern United States, centering around the US Department of Energy's Savannah River Site (SRS) in west-central South Carolina. Dogs having a body morphotype typical of the Australian Dingo or Carolina Dog ("Long-term Pariah"; shown in black) were more abundant on and around the lands of the SRS, which are closed to public access, and were less common in rural areas, small towns (population 500 to 10,000), or urban areas (population > 10,000). Dogs whose phenotypes conformed to the standard of a recognized domestic breed (shown in white) had an opposite distribution pattern, being least abundant on and around the SRS. The distribution of phenotypes differed significantly among study areas ($\chi^2 = 22.08$; $df = 11$; $P \leq 0.05$). However, when data from the SRS were deleted, the distribution of phenotypes did not differ significantly among the remaining 3 study areas ($\chi^2 = 9.07$; $df = 8$, $P > 0.05$).

duce 1 or more litters quickly before succumbing to any of what must be a large number of mortality factors (eg, heartworm disease) that would take their toll at 2 to 3 years of age.

Conclusion: An Agenda for Future Research and Conservation Priorities

Preliminary results of studies that have been conducted on these dogs indicate that during the early development of the human-canine bond in North America and elsewhere throughout the world, many of the behavioral and ecologic traits of the dogs involved were the result of environmental selection pressures or selective breeding choices made by the dogs themselves, rather than the result of artificial selection imposed on the dogs by their human consorts. The ability to identify and value these traits, as displayed within remnant populations of primitive free-ranging dogs, could provide a useful approach to current-day problems such as unwarranted canine aggression, public health issues, genetic diseases of modern domestic dogs, and pet overpopulation.

The extent to which this can be done is dependent on the existence of genetically isolated populations of primitive dogs whose ecologic characteristics and relationships with local human populations continue to approximate those of the earliest dogs that participated in the formation of the human-canine bond. Such

populations of dogs are only found in parts of the world where few, if any, modern domestic breeds of dogs live and where local human populations maintain basic lifestyles and attitudes toward dogs and livestock. Today, these areas include the Central Highlands of Papua, New Guinea, and Irian Jaya⁴ and remote regions of the Australian Outback.⁵ In North America, several large isolated tracts of land from which the public and free-ranging modern domestic dogs are largely excluded also may provide a place for small pockets of genetically isolated primitive dogs to exist. Suitable land holdings in the southeastern United States include acreage associated with military bases and government weapons production facilities, such as the US Department of Energy's Savannah River Site near Aiken, SC.²⁰ Studies at this site have confirmed that the proportion of free-ranging dogs whose external body phenotype closely resembles that of the Australian Dingo is significantly higher in the lands on or directly adjacent to this 780-km² site than in surrounding habitats (Fig 2).⁶ Studies of dogs captured from lands surrounding the Savannah River Site and their first- and second-generation captive-bred offspring have begun to reveal unusual behavioral traits, some of which seem to be seasonally adapted to the dogs' environmental conditions.⁷ Until recently, primitive dog populations of the Savannah River Site and other tracts of isolated land in the southeastern United States have remained free from contact with any native wild species of the genus *Canis*. However, the invasion of this region by coyotes poses a substantial threat to the existence of primitive dog populations in these areas.²⁰ Pedigreed captive populations of primitive dogs can provide temporary protection for the unique genomes of these animals⁸; however, even when based on wild-caught parents, continued management under conditions of captive breeding cannot be expected to maintain those traits that set these dogs apart from other domestic dogs.

Concerns for the conservation of these and other types of primitive feral/pariah canids are now becoming shared worldwide. However, threats from loss of isolated habitat, the introduction of diseases of domestic dogs, and the potential for genetic contamination continue to increase in those regions of the world that offer refuge to these unique dogs.^{5,8} Only concerted public awareness and concern coupled when necessary with appropriate legislative protective measures will assure the continued existence of these unique opportunities to understand the early development of the human-canine bond.

⁴A detailed description of the generalized southern pariah external body phenotype is represented by the breed standard of the Carolina Dog, as published by the American Rare Breed Association (*The Rarity* 1993;3:18-19).

⁵The proposal to place *Cuon* within the genus *Canis* has been made by: Anderbjörn A, Kleist T. A phylogenetic classification of the family Canidae (abstr), in *Proceedings. Int Theriological Congr* 1993.

⁶Gergits WF, Brisbin IL Jr. A taxonomic reassessment of the New Guinea Singing Dog (abstr), in *Proceedings. 75th Annu Meet Am Soc Mamm* 1995.

^aClutton-Brock J. Department of Zoology, The Natural History Museum, London: Personal communication, 1995.

^bData for Figure 2 are taken from: Brisbin IL Jr. Morphological and behavioral characterizations of free-ranging *Canis familiaris* inhabiting an area of restricted public access (abstr), in *Proceedings. 68th Annu Meet Am Soc Mamm* 1988.

^cBrisbin IL Jr, Risch TS. Studies of an American Dingo: digging behavior of free-ranging *Canis lupus familiaris* from the southeastern United States (abstr), in *Proceedings. 75th Annu Meet Am Soc Mamm* 1995.

^dThe New Guinea Singing Dog and the Carolina Dog are recognized breeds that are registered with the American Rare Breed Association and the United Kennel Club. Stud-book registries for wild-caught parent stock and their captive-reared progeny are maintained for both breeds by the latter organization and the International Species Inventory System.

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Celebrating the relationship between people, pets, and their veterinarians

Marty Becker, DVM

Five score and 17 years ago, by opening the first veterinary school on the plains of Iowa, our colleagues brought forth on this continent a new profession . . . veterinary medicine. Conceived in science, and dedicated to the health of horses, it was indeed an important and proud moment for all of us that believe veterinary medicine is a calling . . . not a job.

Actually, the genesis of the existence and purpose of veterinary medicine came thousands of years before the day the first veterinary school opened 117 years ago. Archaeologists have confirmed that more than 12,000 years ago dogs became the first domesticated animals. Then, somewhere in the void of time, a man or woman reached down and patted the dog on the head to reward it for helping with the hunt or hauling

From the All Pet Complex, 250 Second Ave S, Ste B2, Twin Falls, ID 83301.

loads. In recognition of this visible sign of affection, the dog wagged its tail in appreciation and pledged limitless love and devotion for its master. In that instant, the human-animal bond was formed. Prior to this, humankind had failed to recognize the existence and significance of the simple wag of a dog's tail.

With this new emotional connection came much more than a win-lose partnership in which human beings always benefited at the expense of animals. A covenant was formed whereby humankind would forever benefit from having a more loving relationship with animals, and vice versa. It was going to be, increasingly, a win-win connection.

Backyard to the Bedroom

Along the way . . . things changed. Now cats hunt to try to please their human families. We talk to our

birds, and they talk back. Our dogs have gone from the backyard to the bedroom, from the back of the pickup truck to the front seat of the car . . . in a seat belt. We are the first generation to have had OUR pets sleep in OUR beds. OUR house has become the dog house. Gee whiz, cats are even treating us as equals! Pets truly have been welcomed into our hearts, not only as family members . . . but also as children.

Consider what you feel in your heart and head when you see the following words:

- Animal
- Pet
- "Scooter"
- The Becker family's beloved Wirehaired Fox Terrier, "Scooter."

YES! You can feel the difference, can't you? It's not the human-animal bond. It's the family-pet bond.

The Bond is Getting Stronger and Stronger

These family-pet bonds are getting stronger and stronger as:

- Neighborhood and societal relationships weaken
- We understand scientifically and objectively that the bond is good for us physically and emotionally
- More and more people work at home
- We see pets almost routinely pictured as part of the nuclear family in television, movies, books, magazines, and ads
- Most importantly, veterinary medicine is embracing the bond as a vital lifeforce for not just happy, healthy pets . . . but happy, healthy people of all ages.

But, however strong the family-pet bond is, it is threatened or reaches only a small fraction of its maximum potential without another key partner—the veterinary hospital team.

The Family-Pet-Veterinary Bond

We cannot be a profession of spectators. Leadership is ownership and initiative. Veterinarians and staff are uniquely motivated and trained to catalyze the family-pet bond and make it thrive! No longer content with only treating accidents and illnesses, veterinary hospitals have embraced pet ecosystem management—a precradle to postgrave commitment of veterinarians and their staff to celebrate and protect the family-pet bond. And by doing so, we can rejoice in the actualizing of the family-pet-veterinary bond. If you embrace pet ecosystem management, then you'll be privy to, and partners with, clients in many of the most heartwarming and heart-wrenching moments of their lives.

We'll be there in the most joyous times when they welcome a new family member (read: pet) into their lives. We'll goo-goo at their pet's childish antics and celebrate the bond in every way possible. Then, at the end of the pet's life, we'll be there during and after the time the human family must say good-bye to an old family member and friend.

We, and we alone, get to share these private moments, because we, and we alone, are part of this im-

mediate family. Remember, it's the family-pet-veterinary bond. It's a covenant. A professional mission. A moral obligation. Don Dooley calls it, "The key to our self-esteem." I call it our key to having it all—financial success and emotional wealth.

By assisting with pet selection, by facilitating socialization and behavior training, by providing a high level of preventive health care, and by being there when it comes time for the family to say goodbye to a beloved four-legged family member, we have become much more than members of a veterinary hospital work team—we've become partners, healers, teachers, heroes, friends, and angels. Not just for our clients, but for pets, people, our communities, and society as well.

Veterinarian, Salesperson, or Both?

Let's start with the tenet that, as a veterinarian or member of the hospital work team, you have a moral and professional obligation to sell a client everything they need (but only what they need) to keep their pet happy, healthy, and living life to its fullest potential. This moral and professional obligation comes from the fact that only veterinarians and veterinary team members are uniquely trained and experienced to provide professional recommendations on what's best for a specific pet, in a specific household, in a specific community. That's what we were trained to do. Plus, as spokespersons for pets' best interests, we have agreed to optimize health, prevent pain and suffering, and bring them joy. Far too often, we enter the examination room, cram a bunch of medical jargon and recommendations down the throats of the nervous or impatient client, and leave, wondering why the client didn't say "YES!" to them all. It's just another variation of the push-your-product-and-services approach.

There is a better way! It is called dialogue selling. In dialogue selling, salespeople position themselves as advisers to clients. Rather than being sold to, clients increasingly sell themselves through the interaction between pet, client, veterinarian, and veterinary team member as partners. Face it. As a profession we must sell! But we are not selling men's ties or hamburgers, we are selling goods and services that directly affect the health and well-being of pets and the strength and length of the family-pet-veterinary bond. This philosophy calls to mind one of the mission statements of our veterinary hospital:

To worry less about the cost to the pet owner if they accept our recommendations and more about the cost to the pet if they don't accept our recommendations. Bottom line . . . what is in the pet's best interest?

Furthermore, we have a professional and moral obligation to always recommend the highest level of care, knowing that only the owner can decrease that level of care. Not us. With that in mind, what do we recommend for this unique pet, in this unique household, in this unique community? It's simple. Ignoring every other factor (eg, socioeconomic status of client, age and breed of pet, etc), you recommend what is in

the pet's best interests. It's easy if you think of it in this way:

If you could give all of your veterinary products and services away FREE... what recommendations would you make concerning the pet and client that's in the examination room with you right now?

Of course! You would recommend everything that is needed to keep the pet happy, healthy, and living life to its fullest potential without regard for your perceived notion of the relationship the client shares with their pet (animal vs pet) and their ability to pay.

The ability to personalize a sales presentation and to recommend the ideal product or precise combination of products and services to each client requires a good deal of self-education, communication, and dedication among ALL veterinary team members. Importantly, ONLY the veterinary profession has the training, experience, and passion to recommend a personalized protocol for every client that takes into account their perceived or real situation.

The responsibility for client education and training is tremendous and is best shared by all members of the team—veterinarian, technician, and front office staff. The role of each member should be defined precisely. Every pet, every house, every community is different. Therefore, the veterinary team must personalize their recommendations for each client. Today's clients have limited resources of time and energy to deal with their pet's health care. Usually money is a secondary concern to clients, whereas time and effort required—and relationship quality—are paramount.

Take the time to examine pets closely and to really listen to clients in your search for "what is best for them." For every family and pet there will be an "ideal" protocol with the greatest potential for optimizing its health. Within this "ideal" many acceptable and flexible alternatives exist. Team members must be sensitive to differences in individual pet profiles, owner concerns, and financial constraints when helping to design a personalized optimal health strategy.

Luckily, a substantial part of our educational process as veterinarians involved critical thinking. Let us use this skill to educate and train our staff and to help clients make sound choices. The team approach to sales offers a golden opportunity for relationship management by the profession. Successful hospitals know that the first month's installment of a wellness plan—bought by a long-term, informed, responsible pet owner—is worth far more than \$200 spent to suture a laceration on a pet whose owner is short term, uninformed, irresponsible, or who shares their pet health dollars with everyone including the grocery store, pet store, and mail-order catalogues.

Your "best" clients will be the ones who are fully educated about everything they need to know and buy to insure their pets are happy and healthy. The "best" clients are emotionally bonded and physically linked to a life-long partnership with you and their pet. They celebrate and protect the family-pet-veterinary bond,

they buy a lot of products and services, and they buy them primarily or only from YOU!

Pets are a Necessity!

Far from being a luxury, pets are increasingly becoming a necessity. The therapeutic, emotional, and social role of pets is expanding. Reality indicates that as family, neighbor, and community bonds diminish, the family-pet-veterinary bond is strengthening. Having "someone" to care for gives meaning to life, a reason to get up in the morning, and a reason to want to come home at night. Pets satisfy the need to be needed and loved, an emotion that runs deep in all of us, regardless of age, color, sex, or economic success.

Sensible or not, we all have "our ways" of showing love. But there cannot be real love without responsibility. We all share a responsibility to be kind to pets, to prevent their unnecessary pain, suffering, or death, and to keep them happy, healthy, and living life to its fullest potential. Consider it a repayment for their devotion and contribution to the welfare of all humankind.

Every Pets' Life is Valuable But . . .

Without a doubt, every pet's life is infinitely valuable. But the reality is that resources are always finite. You are infinitely valuing the family-pet-veterinary bond when you optimize the use of finite resources such as time, money, staff, and energy. For example, a highly trained, compensated, and motivated staff member teaching new puppy and kitten behavior and house-training classes will bring many more benefits to everyone involved (ie, pets, clients, practice, and profession) than will a new ultrasound machine. Remember, the problem is that too many veterinarians would usually rather invest in equipment than people—they'd rather work at maintaining the status-quo rather than investing in the future.

Ask Not What the Bond Can Do for You

The family-pet-veterinary bond is not something we have to imagine and create. Thankfully for everyone, it's here today, and it's a powerful, positive presence in our personal and professional lives!

In his inaugural speech, President John F. Kennedy said, "Ask not what your country can do for you . . . ask what you can do for your country." To borrow his passion and reasoning, I implore and challenge you to do the same! Rather than looking for what this bond can do for you, your mission—should you choose to accept it—is to look deep inside yourself and visualize what you can and must do to celebrate, protect, nurture, and strengthen this sacred moral and professional covenant with humankind and the animal kingdom.

Successful practitioners and staff, those who will achieve financial success and emotional wealth, will look to the family-pet-veterinary bond not only as an aspect of a flourishing 21st century veterinary hospital, but also as the foundation on which a "family-centered practice" is built. Someone else can give you the tactics, tips, and strategies for building a thriving

practice—full of financial and emotional rewards—but only you can provide the key ingredients of implementation and passion. It is easier done than said. The following are some suggestions:

- Call pets and owners by their names or nicknames
- Celebrate their unique and special stories
- Use bandannas, purple hearts, and other signs of visible affection
- Give pets lots of treats
- Visit nursing homes, schools, and have mascots
- Assist in pet adoption and pet selection programs
- Facilitate socialization and behavioral training of pets.

Theodore Roosevelt said, "We see across the dangers of the great future, and we rejoice as a giant awakened and refreshed. The great victories yet to be won, our greatest deeds yet to be done." He was talking about war, but for us it's a battle, too. A battle for:

- Happy, healthy pets who live life to its fullest potential
- Clients who treat their pets like children or family members and who depend on the family-pet-veterinary bond and consider it precious beyond measure
- Maintaining our leadership position as the shepherd and protector of pets and the family-pet-veterinary bond
- Practicing pet ecosystem management
- Making the pie bigger for EVERYONE.

I wish you could visit hundreds of veterinary hospitals like I have and see the potential, realized and unrealized. If we go forth and follow the mantra of celebrating and protecting "the bond" . . . what great things could happen!

Is what I'm describing easy? No! Possible? YES! But only if we combine sound professional practices and advice with proven business principles and skill, have a common vision of the routine celebration and protection of the family-pet-veterinary bond, and fuel it with powerful positive emotion. Then, as the shepherd and protector of pets and their human families, we will thrive in the greatest profession on earth and possibly in heaven! Dream big. In your daily personal and professional walk, think of this worthy and noble affirmation often: My clients, my staff, my community, my family, my friends will say, "It is because of Dr. _____ and the staff of _____ Veterinary Hospital that this unique family's life was changed for the better and made to feel special."

As futurist Joel Barker says, "Vision without action is merely a dream. Action without vision just passes the time. Vision with action can change the world!" So go forth all ye men and women. Start building a more significant, rewarding, and lasting personal and professional life . . . today. Start returning to all animals even a small portion of what they have so unselfishly and generously given us. Start building a "family-centered practice." Start a race that will never end.

Selecting, raising, and caring for dogs to avoid problem aggression

Benjamin L. Hart, DVM, PhD, and Lynette A. Hart, PhD

The quality of a person's relationship with a pet depends, to a large degree, on the pet's behavior. If the behavior of the pet is such that it meets the person's expectations and if there are minimal behavioral conflicts—especially those of an aggressive nature—the relationship can be very rewarding. Often, however, we find that a companion animal falls short of the caretaker's expectations, or there are serious behavioral problems that prevent the establishment of a close attachment or erode an existing attachment, leading to dissatisfaction with the pet, and perhaps, abandonment. Individuals other than the immediate caretaker may be affected by a dog's inappropriate behavior. Dogs may be aggressive toward a spouse or children in the family, passersby, mail delivery people, meter readers, visi-

tors, people the dog meets on a walk, and the dog's veterinarian.

Responsible pet ownership that results in a rewarding life for the companion animal and its human family not only requires a commitment to maintain optimal health in the dog but also a commitment for selecting the most appropriate companion dog and raising it in a fashion that reduces the probability of undesirable aggressive responses. In this report, we focus on the selection and early training of dogs to avoid problems, particularly those related to aggressiveness. We consider some aspects of the person's personality, life stage, and situation that may influence their compatibility with various breeds. We review new information about the neutering of males and females that relates to reducing or predisposing dogs toward certain types of aggression. Finally, we introduce a topic that has been growing in clinical importance—that of behavioral se-

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nility and late-onset aggressiveness. Attention to these aspects of companion dog stewardship provides the foundation for a rewarding relationship.

Puppy Selection

More than any other domestic species, dog breeds vary in behavior. Behavioral variability among dog breeds related to reactivity, aggressive tendencies, and trainability provide an opportunity to adopt a dog that will enhance, rather than conflict with, the lifestyle and personality of the caretaker(s). Lack of attention to breed and individual differences in behavior allows for problems with aggression or reactivity to develop. One of the greatest mistakes that prospective dog owners make is selecting a puppy based on impulse, cuteness, fad (eg, the popularity of Dalmatians stemming from the film), the desire to rescue, or pressure to meet deadlines for a gift (eg, Christmas). The first step is not to think about the appealing aspects of a puppy, but to look at the household of which the adult dog will be a member. Almost everyone involved will have some expectations as to the role that the new canine family member is going to fulfill. Is one expecting a watchdog because of increased concerns about home security? Is the family looking forward to a new playmate for a 7-year-old boy? Is a teenaged girl interested in training the dog for obedience trials?

The most important variable relates to the dog's aggressive tendencies. Dogs with strong aggressive tendencies may fit in with families in which people are assertive and accustomed to handling dogs, whereas even a dog with only moderate aggressive tendencies could prove disastrous in homes in which people are not physically or psychologically assertive. Although the emphasis here is on aggressiveness, one will also want to consider other behavioral characteristics in which breeds differ markedly, including excitability, general activity, excessive barking, and trainability. People who want a quiet dog may be upset with dogs that are reactive and bark often. Families with athletic members who wish to run and play with their dog will be unhappy with dogs that are the least reactive. Of course, physical appearance, body size, hair length, and coat color should enter into the selection picture, but it is behavior that primarily will impact family members. After giving top priority to important behavioral characteristics, these physical characteristics can then be considered.

The companionship of a dog can assume a particular importance for an elderly person living alone by improving their morale and countering loneliness.¹ Small dogs generally are preferred by elderly people who may feel frail and be concerned about their physical ability to manage a dog. Furthermore, landlords who permit dogs often impose a size limit for pets.² Thus, small dogs with appropriate temperaments are in high demand.

Focus on Breed

The first issue generally faced by prospective dog adopters is choice of breed. An important point to be

made is that there is no all-around best breed. Although asking breeders or dog owners about their breed of dog can provide useful information, one must be concerned about the fact that their opinions almost always are based on a sampling of only a few dogs of that breed and could reflect an understandable bias. Also, the person interested in adopting a dog will have a different personality than the person giving advice, and a breed that is a good match for one personality may not be a good match for another.

There are a number of books available that deal with physical traits of various breeds and give descriptive information about behavioral characteristics,³ including the official publication by the American Kennel Club.⁴ However, to our knowledge, the only resource that provides an identifiable database for breed profiles is a volume⁵ we have published in which data from 96 authorities (48 nationally recognized obedience judges and 48 small animal veterinarians) were used to develop graphic behavioral profiles of 56 of the most popular breeds. Whereas breed descriptions in other sources generally agree with the profiles developed from our database,⁶ information in other volumes appears to reflect the views of the authors and breeders consulted by the authors rather than a statistical sampling of nonbreeder authorities.

The methods for collection and analyses of these data are described elsewhere.^{7,8} During telephone interviews, authorities were asked to rank a random selection of 7 breeds with respect to 13 behavioral traits. Thus, there was little opportunity for any particular authority to rank his or her favorite breed. In a structured conversation, authorities also were asked to compare males with females on the same traits. Significant differences among breeds were found for all characteristics: 1) excitability, 2) general activity, 3) snapping at children, 4) excessive barking, 5) playfulness, 6) ease of obedience training, 7) watchdog barking, 8) aggression toward other dogs, 9) aggressive dominance over their owner(s), 10) territorial defense, 11) demand for affection, 12) household destructiveness, and 13) ease of housebreaking. Computer processing of the data resulted in rankings of the 56 breeds on 13 traits, with each trait represented by a graph. Breed rankings on behavioral traits were then assigned a decile ranking among all breeds sampled and breed profiles were developed (Fig 1).

Analyses of gender effects revealed that males have a significantly greater predisposition toward aggressive dominance over their owners and aggression toward other dogs, whereas females are significantly more responsive to obedience training and easier to house-train.⁸ This gender difference in aggressiveness is reflected in the predominance of males over females in dogs referred to veterinary behaviorists for evaluation of aggressive behavior.^{9,10} Of course, there are important individual differences within breeds; the breed profiles are generalizations that correspond to the experience of authorities who are familiar with most breeds.

A casual perusal of the graphs on aggressive behav-

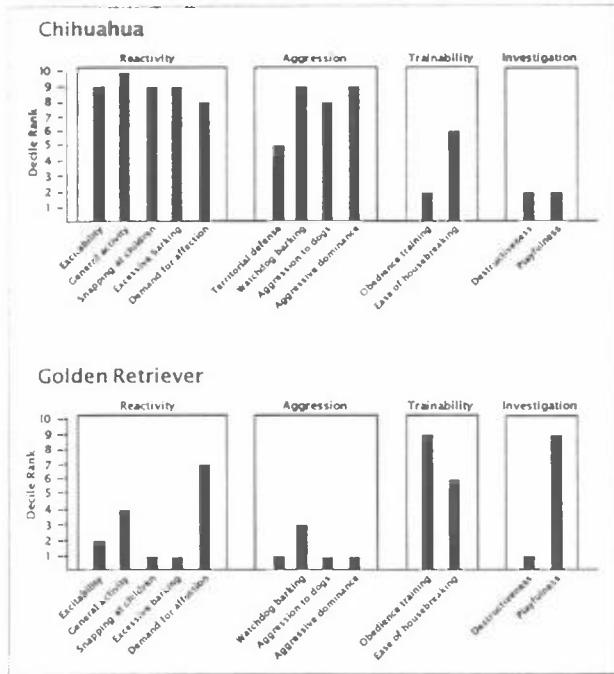


Figure 1—Examples of behavioral profiles of 2 breeds and decile rankings (1 = lowest; 10 = highest) on 13 behavioral traits. Traits are assigned to the categories of reactivity, aggressiveness, trainability, and investigation as indicated. In these 2 examples, the Golden Retriever would make a more appropriate pet for a family with children than the Chihuahua (adapted from Hart and Hart⁵).

iors of the 56 breeds reveals a marked tendency for breeds of small body size to be more reactive and aggressive. To analyze this further, median decile rankings for excitability, snapping at children, excessive barking, and aggressive dominance over their owner(s) were obtained for the 8 breeds of smallest body size (up to 10 lb), the 8 breeds of somewhat larger body size (10 to 16 lb), and 8 breeds of medium body size (25 to 75 lb). In comparison with breeds of medium size, breeds of very small and small size are more excitable, more likely to bark for no reason, more likely to snap at children (especially very small breeds), and more likely to display aggressive dominance over their owner(s) (Fig 2).

The most common problem behavior for which veterinary assistance is sought is aggression of one type or another,¹¹ and the most common type of aggression is aggressive dominance over the owner.⁹ This problem often could be avoided by careful selection of breed. People should not select a very small breed dog believing that the smaller the breed, the less tendency toward aggressiveness; in general, the opposite is true. The tendency to snap (at children) is related more to reactivity than other types of aggressiveness, and small breeds are almost always more reactive than larger breeds. Therefore, small breeds are the least appropriate for a family with young children. In a household without young children, adults may bring a calming and authoritative influence to the human-canine relationship and can find rewarding companionship with dogs of small body size. Selecting a female also reduces the likelihood of problem aggression.

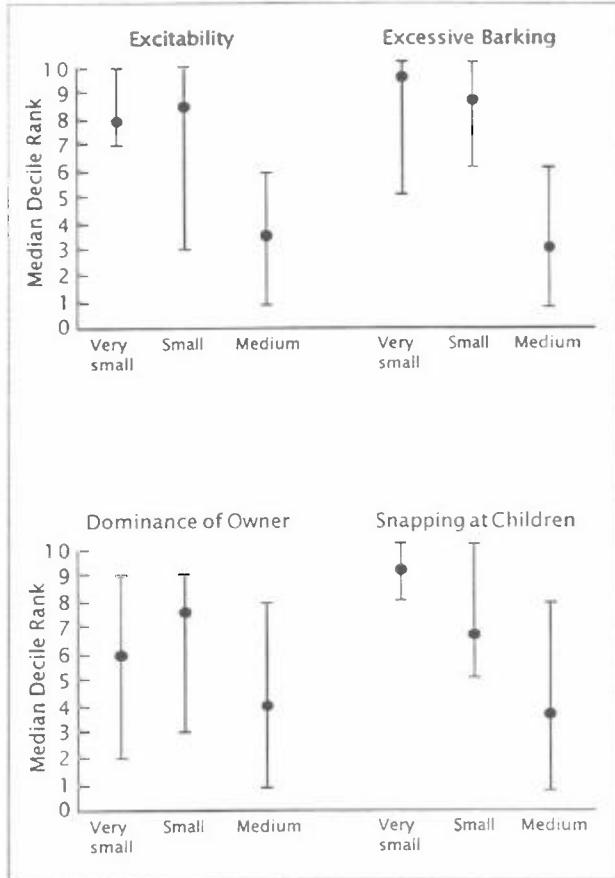


Figure 2—Median decile rankings of excitability, excessive barking, aggressive dominance over the owner, and snapping at children for breeds of very small body size (10 lb), small body size (10 to 16 lb), and medium body size (25 to 70 lb). Error bars indicate range above and below medians.

Although careful selection of the breed and gender of dogs can reduce the likelihood of a problem, there is no guarantee; aggression can develop in any breed and in both sexes.

The question often arises of whether to adopt a purebred or a mixed-breed dog. The claim that dogs from mixed breeds are calmer and less "high strung" has no empirical basis, although certainly one can find mixed-breed dogs that are calm and gentle and make excellent companions. However, if one is focusing on a particular behavioral profile, including degree of aggressiveness, there is more predictive power in choosing a specific breed.

Effects of Neutering on Canine Aggression

In a retrospective survey concerning 57 male dogs 2 to 10 years old, owners were asked about 9 difficult problem behaviors and to estimate the percentage improvement in those behaviors after castration.¹² Statistical analyses revealed significant improvement regarding marking in the house, mounting, aggression toward human family members, aggression toward other dogs in the household, aggression toward unfamiliar dogs, and aggression toward human territorial intruders. Significant reductions in fears of inanimate stimuli and aggression toward unfamiliar people (away from the

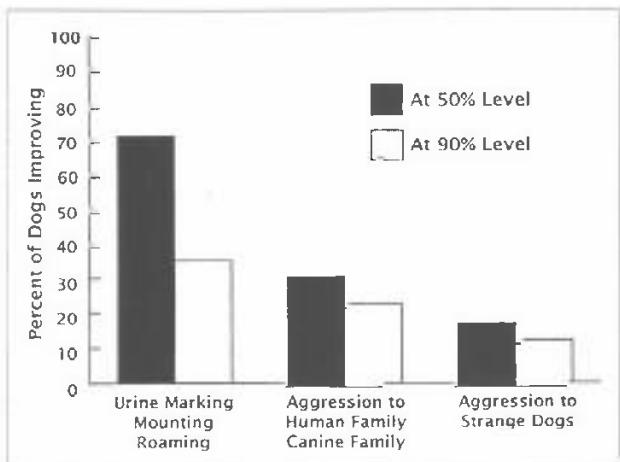


Figure 3—Improvement of problem behavior after castration according to client estimates of percentage improvement. Data are represented as improvement at the 50% level (improvement of $\geq 50\%$) or 90% level (improvement of $\geq 90\%$ or more). Bars for urine marking, mounting, and roaming are means of data for these 3 behaviors, and bars for aggression toward human and canine family members are means of data for these 2 behaviors.

home) were not evident. In agreement with an earlier survey,¹³ the 3 behavioral patterns with the greatest probability of improvement after castration were urine marking, mounting, and roaming. For these behaviors, 66% of dogs improved by at least 50% and 35% of dogs improved by at least 90%. An improvement of at least 50% in the various types of aggressive behaviors was seen in only about 30% of males (Fig 3). Although castration may affect a number of male-type behavioral patterns, the chance of altering the behavior varies depending on the behavior in question. A noteworthy finding was complete absence of any correlation between age of the dogs, or duration of the problem behavior, at time of castration, and degree of improvement (if any).

Gonadectomy of females is expected to have little influence on aggressive tendencies. However, if young female dogs are somewhat aggressive, spaying them prior to 12 months of age may predispose them to aggressiveness as adults.¹⁴

Raising Puppies to Avoid Problem Aggression

Almost immediately after adopting a puppy, attention should be paid to avoiding behavior problems. Optimally, raising puppies will contribute to their being good citizens within the household and the immediate community. Although puppy socialization classes and obedience training are strongly recommended, a few simple exercises can markedly reduce the chance of aggression toward human family members. It is important that all human members of the family, including children who are old enough to give commands, exert authority over the puppy so that it grows up assuming a subordinate role to people. This is especially important for the more assertive breeds and in dealing with males. Such assertiveness usually is ex-

erted by giving the dog a command and when the dog performs acceptably, giving it affection and often a food treat. Rewards, especially treats, should not be given unless the dog has obeyed a command. Clients with a puppy can be reminded of a concept revealed in animal social behavior, that dogs are just as "happy" being the subordinate member of the pack as they are in a more dominant role. If there is any sign of aggression, such as a growl or a snap, the young dog should be admonished or punished sufficiently so as to subdue the reaction, as long as the owners are safe from being bitten or injured. If aggressive tendencies become a problem, owners should seek assistance from their veterinarian or a veterinary behaviorist. Although obedience classes are useful to reinforce the dominance of family members, there is little correlation between having successfully finished an obedience class and the absence of problem behavior.¹⁵

Fear biting also has its roots in early experience. It is natural and adaptive for dogs to be fearful of strange stimuli and fear-related aggression functions to drive away stimuli that evoke anxiety or fear. If puppies are raised without exposure to children, for example, then children may produce a fear reaction in which the natural response is to threaten or snap when approached. It is quite easy to habituate young dogs to fear-evoking stimuli through repeated exposure or habituation. If a young dog appears to have a pronounced fear of children, children should be introduced in a nonforceful way. If habituation seems difficult, one should seek the advice of a veterinary behaviorist. The older the dog, the more difficult the habituation process. Behaviorists may prescribe antianxiety drugs for fear-related aggression, but giving a drug does not remove the cause of the behavior and there is always the risk of fear-driven aggressiveness overriding the medication.¹⁶ Families raising a puppy also should realize that this is the best time to habituate them to other fear-evoking stimuli such as vacuum cleaners, lawn mowers, leaf blowers, bicycle riders, thunder, fire crackers, automobile rides, and veterinary hospitals. For households in which the dog will be left alone all day, attention can be given to habituating the puppy to separation to avoid separation anxiety. Habituation is accomplished by leaving the puppy alone in staged short-term departures that can be made somewhat rewarding with food treats. Although enthusiasm on the part of human family members for conducting these training exercises may wane, training a puppy to avoid problem behaviors is much easier than correcting the problem in an adult dog.

The Senior Years

With appropriate attention to selection of a puppy and the aforementioned training exercises, the middle years of a dog's life are often free of serious behavioral problems. As dogs enter their senior years, there may be age-related changes in aggressiveness that require understanding and sometimes intervention. Aside from behavioral changes that can be directly related to a loss of visual and hearing acuity, aging dogs have many of the same signs of aging as human beings, and in many dogs,

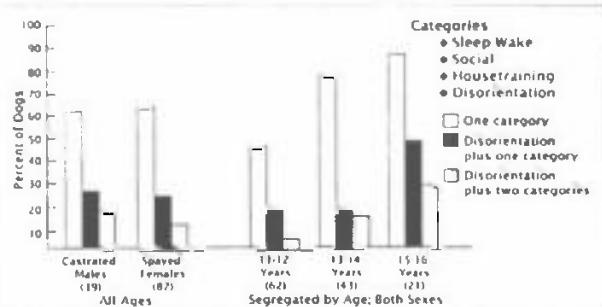


Figure 4—Percentage of dogs 11 to 16 years old determined to have behavioral senility. Represented are dogs with a positive score in 1 category of senile behavior, dogs with positive scores for disorientation and 1 other category of behavior, and dogs with positive scores for disorientation plus 2 other categories of behavior. Because there was not an apparent difference between castrated males and spayed females, data from the 2 sexes were pooled for age comparisons.

the cumulative signs are similar to cognitive deterioration in human beings (dementia of the Alzheimer's type). Results of a study in progress¹⁶ on spayed female and castrated male dogs indicate that most age-related behavioral changes (other than reductions in activity) can be assigned to 1 of the following 4 categories of behavioral senility: 1) changes in the sleep-wake cycle; 2) reduction in social interactions; 3) loss of house-training; and 4) disorientation. Signs of disorientation, such as getting lost in the house, staring into space, and going to the wrong door, would appear to represent the most severe type of cognitive impairment in dogs. Data collected to date reveal an age-related increase in percent of dogs with positive scores in at least 1 category of senility, from 45% of dogs at 11 to 12 years of age to 86% of dogs at 15 to 16 years of age (Fig 4). In this study, dogs having a positive score for disorientation and a positive score for 1 other senility category were considered cognitively dysfunctional. Dogs with a positive score for disorientation and positive scores for 2 other categories were considered as severely affected. These results are similar in many respects to those for human patients with advanced Alzheimer's disease.¹⁷ From 11 to 12 years of age through 15 to 16 years of age, the percent of dogs falling into the most severe category increased from 11 to 29%.

The relationship of late-onset aggressiveness (mostly irritable) to the development of signs of senility is interesting. Overall, only about 20% of older dogs have an increase in aggressiveness, and a decrease in aggressiveness is about as likely. However, in contrast to younger dogs in which aggression is more likely in males than in females, aggression in elderly dogs is more than twice as prevalent in females as males and a decrease in aggression is more likely in males than in females (Fig 5). Late-onset aggressiveness is 4 times more likely in dogs with a positive score for at least 1 category of senility than in dogs with negative scores for all categories of senility (Fig 5).

Naturally, caretakers of dogs feel compassion for an aging dog that has many of the same behavioral signs as a human relative, and often there is a good

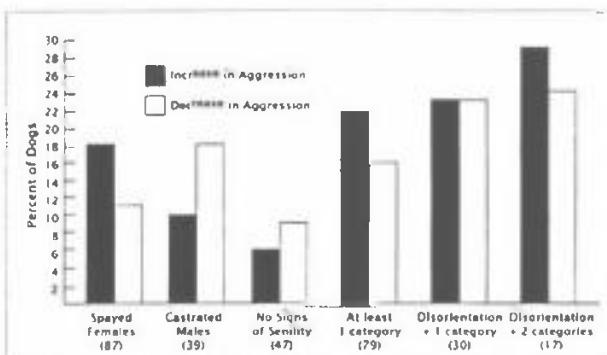


Figure 5—Relationship between gender and severity of behavioral senility to late onset of an increase or decrease in aggression. Notice aggression (irritable type) is more pronounced in females than males and more pronounced among dogs having signs of senility than in elderly dogs without signs of senility.

deal of tolerance for these behaviors, including aggressiveness, even though they may negatively impact the family. A reduction in learning ability, which is clearly responsible for many of the signs of senility, may play a role in late-onset aggressiveness. Learning in younger dogs is important in shaping and maintaining their role of subordinate; when aggressive tendencies such as irritable aggression are aroused, they are suppressed. Loss of memory and learning, evident in senile dogs, may interfere with maintenance of a subordinate role, and aggressiveness may not be suppressed and may emerge unexpectedly. The solution to this problem is to be assertive in reminding the dog of its subordinate role, much as one would a puppy.

Conclusion

The role of the family veterinarian in behavior counseling encompasses the dog's entire lifespan, beginning with puppy selection and training advice to reduce the likelihood of problem aggression. Through the dog's middle years, clients can be encouraged to seek behavioral consultation from a specialist for serious problems that may arise and to address problems before they become threatening to the bond between family members and dogs. Finally, during the dog's senior years, the family veterinarian can point out signs of senility and explain that sometimes old dogs, especially females, may become aggressive. Late-onset aggressive tendencies can be handled by judicious discipline while still showing compassion for the aging dog.

¹⁶Neilson JC, Hart BL, Ruehl WW, University of California, Davis, Calif. Unpublished data, 1996.

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Effects of aggressive behavior on canine welfare

Wayne Hunthausen, DVM

The Dog Bite Situation in the United States

In recent years, dog bite injuries have become a very serious health problem in the United States. An estimated 1 to 3 million dog bites occur each year¹; of these, 5,000 to 8,000 bites/y are serious enough to require medical attention.^{2,3} Most victims are male children^{4,5} less than 12 years old.^{1,6} Dog bite injuries result in approximately 18 deaths/y in the United States,⁷ and most fatalities are in extremely young or elderly victims.⁸ Numerous studies have addressed the effects that biting dogs have on the human population. In this report, I will address the effect that biting a human being has on the dog itself, as well as the dog population as a whole.

Consequences for the Dog

The consequences of a dog's bite are devastating not only for the person who has been bitten, but also for the dog. Owners often are compelled to take action when a dog causes injury to a human being. Handling this type of situation may be problematic for the owner, because dog bite incidents are typically complex situations that are easily misunderstood or misinterpreted. Owners often feel betrayed and confused when "man's best friend" injures a neighbor or family member. Lack of understanding of the dynamics of the situation, as well as poor advice, may result in the owners making decisions that are deleterious for their dog. The owner's first recourse usually is to punish the dog. Because many owners have a poor grasp of learning theory and behavior modification, the dog is likely to be punished inappropriately. When harsh or delayed punishment is

applied, the owner usually makes matters worse. The dog becomes anxious about human contact and may generalize the anticipation of pain associated with physical discipline to any hand movement toward it. The result is an increase in defensive aggression and the establishment of a vicious cycle of escalating aggression and harsher punishment. When extremely harsh punishment techniques are used, the result can be a serious injury or fatality. The whole correction process becomes dangerous for the dog and dehumanizing for the owner.

Another outcome of a dog bite that impacts the dog is isolation from the family and visitors. A dog that bites often is relegated to the backyard or basement where it receives limited social interaction. If the dog is young, isolation can affect the dog's behavioral development and the melioration of desirable social relationships, reducing the chances that the dog will ever be able to function acceptably in society. Isolation can lead to social frustration and misbehavior. When the dog has a rare opportunity to interact, the heightened arousal of the socially starved dog often results in vigorous, unruly behaviors such as jumping up on people, mouthing, and hyperactivity. Social isolation also can result in barrier frustration, and the pet may chew at doors or windows in an attempt to regain access to family members. This physical damage further erodes the relationship with the family and often results in more inappropriate punishment. Conflict caused by these types of situations may provide the basis for development of a variety of compulsive disorders including unusual motor patterns and self-mutilatory behavior.

In addition to injuries caused by harsh punish-

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ment, biting can indirectly affect a dog's health. When a dog injures someone, especially a family member, the bond between the dog and the family is weakened. The isolated dog is observed less closely, so medical problems may progress unnoticed to advanced stages. Owners who have a small emotional investment in the dog are less likely to make a financial investment in its care. Preventive medicine such as vaccinations, heartworm prevention, and intestinal worm surveillance may be ignored. When expensive medical problems arise, the owner may be more likely to choose euthanasia when faced with a large medical bill.

In some cases, especially when the aggression problem is severe or the frustration level of the owner is high, the decision may be made to remove the dog from the home and surrender it to a shelter. The pet then enters a situation where it will receive minimal health care and has increased exposure to parasites and disease. Ultimately, it may be euthanized when no one is willing to adopt it, and this is likely to be the case for a dog that has a history of biting. Pets that are given up to shelters still fare better than those that are abandoned in neighborhoods or along rural roads. Abandoned dogs do not receive health care and are at high risk for traumatic injuries, infections, and parasites.

Beside direct effects on the individual dog, biting can seriously impact the dog population as a whole. As bite incidents increase in frequency or severity, it is not unusual for cities to hurriedly pass restrictive and poorly thought-out dog control legislation. When specific breeds are selected to be excluded from a municipality, owners may attempt to keep their dogs by assuming a low profile so they are not forced to move to keep the dog with the family. This may mean that the dog is kept home more often, gets less exercise and social contact, is not registered, and is not examined regularly by a veterinarian. On the other hand, owners may choose to abandon the pet when legislation is too restrictive and "too much of a hassle" with which to deal. Dangerous dog laws that single out certain breeds may make prospective owners less likely to adopt dogs of these specific breeds from a shelter, even if individual dogs have good temperaments. This results in an increased chance of euthanasia for these dogs.

How Do We Reduce the Incidence of Dog Bites and Protect the Welfare of Dogs?

I believe the most important step in attempting to reduce the incidence of dog bites is education of the public. People in the pet care industry, including veterinarians, trainers, breeders, humane organizations, and corporate businesses, need to actively disseminate information. When it comes to normal dog development and behavior, many pet owners are woefully naive. Proper socialization of young dogs is often a hit-or-miss proposition. This is a tenuous situation, because inadequate socialization can cause asocial behavior and biting. Inadequate exercise, stimulation, and supervision leads to behavior problems that may be handled with harsh punishment and result in fear aggression.

Veterinarians and breeders need to get information into new owners' hands early in the game so fewer mistakes are made. Early socialization, training, and habituation to handling should be stressed. Participation in socialization and training classes, beginning when a puppy is 8 to 12 weeks old should be strongly encouraged. Appropriate use of punishment is another topic that is important to discuss with all dog owners. Too often, owners rely on poor advice from well-intentioned friends that includes poorly thought-out correction programs involving harsh or delayed correction techniques.

We need to ensure that owners don't take the relationship between dogs and children for granted. Close supervision and behavior shaping for dog and child is extremely important. New puppy owners without children at home need to know that they have to provide opportunities for the puppy to socialize with children in such a way that the outcome of the interactions is always positive. Dogs growing up without the experience of interacting with children often become adult dogs that are fearful of children, and fearful dogs are at a high risk of biting. Parents must be encouraged to teach children and dogs how to interact with each other. They also must provide the supervision necessary to ensure safe interaction between the dog and child.

Whenever possible, prospective owners should be helped through the pet selection process. Although much can be done through proper conditioning to mold a dog's behavior in the presence of children, breeds of dogs vary in their sociability and in their tendencies to bite children. Owners need to be aware of breed-associated behavioral tendencies so they can be guided away from a breed likely to present problems or, at the very least, be prepared to spend the extra time that may be required for training and socialization.

One group of individuals is not going to be able to prevent dog bites on its own—not veterinarians, nor trainers, nor animal welfare groups, nor animal rights groups, nor teachers, nor animal control commissions, nor legislators. It's going to take the combined efforts of all of us. Passing restrictive laws is the easy way out for us, but it does not provide the optimal solution for our dogs. We owe dogs more than that, because they give so much to us. Everyone must become involved. As has been said in the environmental movement, "Think nationally and work locally." Be aware of what needs to be done at the national level to curb the dog bite problem and go for it at the local level. Provide behavioral educational information in your veterinary practices, shelters, boarding facilities, and training businesses. Make a commitment to talk to a class of school children at least once a year. Volunteer to serve on the local animal control commission. Pay attention to dog bite legislation and be heard in your communities. Volunteer at a shelter and encourage implementation of an adoption counseling program or assist on a postadoption hot line. Do what you want, what you're comfortable with, what you're good at, but do some-

thing! The more people we have involved, the bigger the difference we can make.

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Effects of dogs on human health

David T. Allen, MD, MPH

This was my first opportunity, as a physician, epidemiologist, and frequent speaker at conferences on health and health policy, to speak to a group with a major focus on veterinary medicine or a primary interest in the effects of animals on human health. My background is complimentary to, but different than, that of most attendees, so it was hoped that I could bring a fresh viewpoint to the subject.

When You Study the Question of the Effect of Dogs On Human Health, Is the Glass Half-Empty or Half-Full?

There are more than 1,000 citations concerning pets and health in the literature databases of medical care, nursing, psychology, and veterinary medicine. With assistance, I did literature searches from 1986 through the present, using 4 databases. To search the medical literature, I used MEDLINE^a; for nursing and allied health literature, CINAHL^b; for health administration literature, Health-Star^c; and for psychology literature, PsycLit.^d Those searches yielded 80 recent citations. I could obtain 20 of those articles in the library at the second largest teaching hospital in Louisville, and a few more were found at the medical school library. Colleagues at the AVMA forwarded me several more articles. Finally, I had a friend at the newspaper do a search of recent news articles on the subject. Keywords that were helpful in these searches were: a) bonding; human-pet, b) pet therapy, c) pet-assisted therapy, and d) pet-facilitated therapy.

You can find in the anecdotal and scientific literature anything you want to find. I was amazed at the breadth of articles dealing with the roles of dogs in society today! If you are a strong supporter of pets, for any reason, there are articles that reinforce all kinds of positive positions. For instance, there is a growing body of articles about the potential role of dogs in building

bonds with the therapeutic community.¹⁻⁸ If you believe that dogs pose great health threats to people, there is a wealth of literature that asserts dogs can be harmful. Dog bites, for example, are a major cause of morbidity, and sometimes result in mortality, with approximately 1 million human beings bitten/y in the United States.⁹⁻¹² The literature is overflowing with clinical reports citing good and bad events, so in that sense the glass is at least half-full. I have included references in the bibliography of this report that, in turn, contain extensive references to a wealth of reports on human-canine interactions.

But where is the balance in the equation of benefit versus harm? It depends on whom you ask. There were not many articles that purported to give dispassionate, third party views, with data to back them up, regarding the merits versus demerits of dog ownership. Almost all the reports I identified were single case reports or described a case series. As an epidemiologist, I look for rate studies (eg, birth, death, and disease rates). To understand the impact of a phenomenon or event, I want to know the rates of consequences—positive and negative—in addition to the outcome of single instances. I was not able to find a study that described gains versus losses in the health status of society as the result of human-canine interactions; in other words, I did not find articles that compared the magnitude of the effects of the case or cases cited with a nonexposed control group or with the universe. Therefore, the glass of knowledge and understanding about human-canine interactions is half-empty, as well.

What Is Health, and What Is the Continuum From the Art to the Science of Medicine?

First, good medical care is not an equivalent term for good health. In the news today, these concepts are sometimes difficult to differentiate, but medical care is actually only a small contributor to general health status. We prefer to believe that if we get instant medical

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care, we also will get instant good health. That is a delightful fantasy—but a fantasy nonetheless.

Perhaps the first order of business is a common understanding of what the definition of human health should be, at least for the purposes of this forum. It is fair to say that the debate still rages over the proper definition. Since the beginning of time, and certainly through the turn of this century, good health was equated with being able to stay alive. But during the last 50 years, there has been an interesting evolution in the definition of health:

- **World Health Organization, 1947¹³**—Health is a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity.
- **Oberteuffer, 1960¹⁴**—Health is the condition of the organism which measures the degree to which its aggregate powers are able to function.
- **Dubos, 1965¹⁵**—Health can be regarded as an expression of fitness to the environment, as a state of adaptation.
- **Lalonde, 1974¹⁶**—Health is a state of well-being sufficient to perform at adequate levels of physical, mental, and social activity, taking age into account.

For the purpose of this report, let me state that the best definition of health is one crafted by the **Health Futures Institute in 1993¹⁷**:

- *A healthy life* means a fulfilling life, one in which we can use our energy and talents to contribute to ourselves, our families and society, and can enjoy meaningful connections to other people through work and play.
- *Vitality* is the capacity to grow and develop physically, intellectually, socially, and spiritually with energy and enthusiasm for living.
- *Contribution* is the ability and motivation to use talents in employment, volunteering, and familial capacity for betterment of self, family, community, and society.
- *Connection* means involvement in caring, respectful relationships and affiliation through family, friends, and institutions.

Continuing disintegration of family structure and increasing loneliness and isolation are among the greatest perils in the maintenance of health today. These are particularly difficult problems for the elderly. Connection and networking are the missing ingredients for the maintenance of optimal health for a substantial number of individuals in our society. Dogs can provide a caring interaction, and they can serve as a bridge to other human connections for people who could not network as effectively without them. Therefore, for the person interested in human-canine interactions, the rewrite of the last statement in the Health Futures Institute definition of health could be:

- *Connection* means involvement in caring, respectful relationships and affiliation through family, friends, PETS, and institutions.

Table 1—The 10 leading causes of death in the United States in 1900*¹⁸

Cause of Death	Rate/100,000
Pneumonia and influenza	202.2
Tuberculosis	194.3
Diarrhea, enteritis, and ulceration of the intestines	142.7
Diseases of the heart	137.4
Intracranial lesions of vascular origin	106.9
Nephritis	88.6
All accidents	72.3
Cancer and other malignant tumors	64.0
Senility	80.2
Diphtheria	40.3

*Includes data from 10 states (ICDA-5th revision).

Table 2—The 10 leading causes of death in the United States in 1975*¹⁹

Cause of Death	Rate/100,000
Diseases of the heart	336.2
Malignant neoplasms	171.7
Cerebrovascular diseases	91.1
All accidents	48.4
Influenza and pneumonia	26.1
Diabetes mellitus	16.5
Cirrhosis of the liver	14.8
Arteriosclerosis	13.6
Suicide	12.7
Certain causes of mortality in early years	12.5

*Includes data from 50 states (ICDA-8th revision).

A few individuals are not predisposed to benefit from human-canine interactions because of fear, allergies, or dozens of other reasons, and one should not try to force a positive construct where it would be highly improbable. However, for the subset of the population that responds in a positive manner to pets, the potential for dogs to contribute to overall health is real.

One should carefully define the benefits of human-canine interactions in terms of quality of life (ie, a sense of well-being) and not in terms of a treatment like a pill or a procedure. The role of pets for health should be in disease prevention and health promotion.^{18,19} Unfortunately, America does not have a love affair with prevention—we are in love with machines that go ping and heroic last minute interventions.

What Is the Big Picture of Health in America—What Is Really Killing Us?

In 1900, 4 of the top 10 killers were infectious diseases (Table 1). The entire medical care system has evolved with a focus on episodic illnesses, based upon the infectious disease model. The lessons we have learned as we have essentially conquered these infectious diseases have been valuable, but they have created an approach to health that does not serve us well as we near the turn of this century and face chronic illnesses as the major cause of loss of health, function, and vitality. By 1975, there was only 1 infectious disease included in the list of the 10 leading causes of death, and that was the combination of pneumonia with influenza (Table 2). Influenza and pneumonia are certainly important, but they are primarily a cause of

mortality for individuals who already have multi-system failure—pneumonia is the straw that breaks the camel's back. Clearly our attention must be directed toward chronic conditions like heart disease, cancer, and stroke. These are diseases that evolve primarily as the result of lifestyle choices. The effects of pets on health are not reflected on the aforementioned charts.

When I was in medical school, we were taught that death is the enemy, and we all went about our studies dutifully trying to learn how to stamp out death. The medical care model was designed on the basis of the popular belief that if a patient went to the right doctor and took the right pill, the patient would be well in the morning. This fascination with the instant cure has been with us for many generations, and the new scientific wonders seem to reinforce the fantasy.

What is really killing us is the bill! The health care cost spiral is out of control. Just in case a few of you may have missed it, the medical care marketplace is driven primarily by money. Anything that is pushed hard into the marketplace has a group of believers behind it, and many of those believers feel that they are well rewarded by pursuing their beliefs. That is a good news/bad news story. In many ways, the American public is enjoying the greatest measurable well-being of any population in the history of man. But, we are paying dearly for it.

Our goal should be to put more life into each day, not more days into each life. The quality of each day should be our focus, not the number of days. And it is in the enhancement of quality of life that human-canine interactions may play the greatest role.

Within the Ivory Halls of Academic Medicine, How Is the Scientific Basis of Any Preventive or Treatment Action Measured?

Reports of medical studies fall into many different categories. Medical articles of a century ago were all descriptive, and most articles I found regarding the effects of dogs on human health followed that model. There is a substantial jump in complexity when moving from the descriptive data of the past to data that can predict the future. It is the area of prediction that offers a great challenge for all of us. Even if we know what happened in several instances in the past, can we determine what the causative factors were? In many circumstances what we believed to be a causal relationship was found later to be only a casual, or temporal, relationship.

In my opinion, the single best description of data-driven rules of evidence for comparative evaluation of health interventions is presented in the methods section of the *Guide to Clinical Preventive Services*.²⁰ This overview places all research studies into a hierarchy ranked in decreasing order of importance as follows: randomized controlled trials, nonrandomized controlled trials, cohort studies, case-control studies, comparisons between time and places, uncontrolled experiments, descriptive studies, and expert opinion. The ranking system operates on the basis of the quality of

evidence that can be collected by each approach. The apparent statistical strength of any given outcome may be a reflection of a systematic bias inherent in the mechanisms for the collection of the data and not the result of a purported effect of the intervention in question. "Impressive findings, even if reported to be statistically significant, may be an artifact of measurement error, the manner in which participants were selected, or other design flaws rather than a reflection of a true effect on health outcome. In particular, the *P* value, which expresses the probability that a finding could have occurred by chance, does not account for bias. Thus, even highly significant *P* values are of little value when the data may be subject to substantial bias."²⁰

Most reports describing the effects of human-canine interactions fall into categories at the bottom of the hierarchy ladder (ie, descriptive studies and expert opinion). Because the human-canine relationship is believed by supporters to be facilitatory, rather than curative, it will be difficult to obtain research dollars to support a study of human-canine interactions alone as a major contributor to patients' well-being. However, it may be possible to piggyback an investigation of the facilitatory role of dogs onto a study of therapeutic agents being tested by investigators interested in hypertension, depression, recovery from myocardial infarction, etc. By doing this, the effects of human-canine interactions could be validated at least at the case-controlled level.

Where Is Human-Canine Interaction's Piece In the Health Status Puzzle, and Where Do We Go From Here?

As previously mentioned, the weakest form of medical evidence is expert opinion, and with that caveat, I will share my expert opinion with you on the role of human-canine interactions in the health care puzzle. That dogs can negatively impact the health of human beings through dog bites and zoonotic diseases²¹ cannot be disputed; however, when canine companionship is offered to the appropriate subgroup of the population, the potential health benefits of human-canine interactions may outweigh the risks.²² Since their domestication, dogs have performed utilitarian roles, from sheepdog to watchdog, that are unrelated to the bodily health status of the owner, and these roles will continue as long as the utility of dogs is appreciated.

However, there are indications that dogs, through their role as companions, may help to prevent loneliness, high blood pressure, obesity, and depression and that dogs may assist owners in obtaining, restoring, or enhancing physical fitness—all cost effectively. The optimal points of intervention for human-canine interactions are in 3 of the 4 phases given in the medical intervention chart: during prevention, restoration, and maintenance.^{21,22} Dogs should never be put forward as a cure or as a medical intervention; however, they can be a great means of facilitation and as such they have a role as an adjunct to a long list of interventions.

Although most of the literature is currently in the

expert opinion or descriptive stage, canine contributions to human health can be validated by studies that identify and quantify specific disease prevention and health promotion roles. We must see that the role of pets is made part of longitudinal studies on health effects.

*Medline, OVID Technologies Inc, New York, NY.

*CINAHL, Glendale Adventist Hospital, Glendale, Calif.

*Health-STAR, National Library of Medicine and the American Hospital Association, Bethesda, Md.

*PsycLit, American Psychological Association, Washington, DC.

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Canine legislation: Can dogs get a fair shake in court?

Marianna R. Burt, JD

Several news stories appeared the month before the Animal Welfare Forum that illustrate a dilemma often expressed during the meeting. On Nov 1, 1996, the *Sarasota Herald Tribune* carried a graphic account of a 10-year-old boy killed by a neighbor's Rottweilers,¹ and on November 27, a press conference in Pound Ridge, New York credited Abby the Rottweiler with foiling a baby's kidnapping by biting the perpetrator as he tried to flee.² It is a troubling paradox that the ca-

nine qualities we value so highly in many contexts are so horrifying in others.

In the Florida story, a neighbor was quoted as saying that these dogs had gotten loose several times in the past and that people were uneasy about them. "I wanted to report it to somebody, but I didn't know who to report it to, and I thought they wouldn't do anything, anyway," he said.¹ Here we have another paradox. It is easy to react to the statement with disbelief, citing the availability of animal control services, but it

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points to a broader need, not simply for access to such services but for genuine outreach to areas of the community where calling law enforcement may not be a familiar or socially accepted practice.

Defining the Problem

Are certain types or breeds of dogs like assault rifles, so inherently dangerous that they should be banned altogether? A few people believe this, and they say so to their lawmakers. Assault rifles are mechanical devices, designed to perform in a certain way. Aren't dogs far more complex and individualized—and able to be modified?

Does it even make sense to try? In reading Vicki Hearne's *Bandit: Dossier of a Dangerous Dog*,³ a remarkable account of the rehabilitation of a dog with a serious biting history, one cannot help wondering if many dogs designated as dangerous are not euthanized unnecessarily. Yet in her preface to the 1994 edition of *Adam's Task*,⁴ Hearne acknowledges that "... if a very serious dog and a very serious handler are lucky enough to walk into a serious world together, then there is, say, no biting problem. [But] In a different world with a different handler, that's a different dog...." The reality is that there are too few supremely gifted handlers; such work is labor-intensive and costly, and local government, with its limited resources and high volume of animal-related problems, is unlikely to be interested in making exceptions. The question, though, is whether current accepted methods of dealing with dog bites simplify matters too much, gloss over the complexities of unacceptable behavior and thereby limit their own effectiveness.

Dog Laws and Dog Owners

Government, by its very nature, thinks more in terms of groups or categories than of individuals in their uniqueness. There is a tension between this feature of government and the aspect of law that is concerned with the exercise of individual rights. Those who dislike the idea of animals as property may be reassured to realize that their right to the "use and enjoyment" of the dogs they own is protected from improper government interference by the Fifth Amendment to the US Constitution, which provides that no one may be deprived of life, liberty, or property without due process of law.

This means that property rights are not absolute; they may be restricted for the good of the community, as we see with local ordinances that limit the number of dogs that may be kept or treat excessive barking as a nuisance. But these rights may not be restricted arbitrarily, or capriciously, or vaguely, or too broadly, because of the established principle that any intrusion on constitutional rights must be as narrowly tailored as possible to achieve its intended purpose. Therefore, legal challenges to breed-specific bans or to severe limits on the number of dogs that may be kept usually focus on vagueness in classification (ie, the impossibility of scientifically defining which animals are to be banned

or on the unreasonableness of declaring that a particular number of dogs constitutes a nuisance, irrespective of the qualities of the individual animals involved).⁵ Although in recent years a few of these bans and restrictions have been upheld, they have often been found unconstitutional.⁶

Such bans and limits are preemptive, attempting to prevent problems with dogs before they develop. In contrast, 41 states have enacted dangerous dog laws as mechanisms for uniform handling of incidents of canine aggression that have already happened. Many counties and towns enact separate ordinances of their own, and sometimes the state law contains a provision that it does not preclude or preempt such local schemes.

Consider the following example, an excerpt from a letter of notification in a county that did not have a leash law:

"Dear Mr. ____:

We have received four reports of your animals attacking people when unprovoked. According to the authority invested in me as ____ County Health Director and defined in Public Health Law Section ___, I notify you that your dog has been defined as dangerous as of this date....

This letter serves as notification to you that these animals must be confined to your property and only permitted to be unconfined when accompanied by a responsible adult and restrained on a leash.

If the dog is found to be unconfined, it will be ordered confined for observation by the Animal Control Officers. The owner will be responsible for costs of confinement.

If you have any further questions, please feel free to contact me at ____."

Although the requirement of confinement will hardly seem excessive to those who recognize the necessity of leash laws, there are several legal difficulties in this letter. First, the offending animal is not identified or even described, and because the writer alternates between using the words 'dog' and 'animals,' it is impossible to determine with any degree of specificity which (or even how many) animals are affected by the directive.

Second, the owners are not offered an opportunity for a hearing as provided by the constitutional principle of due process. In a community where there is no leash law and custom tolerates free-roaming canines, an individualized confinement requirement is a substantial limitation on an owner's rights. Those at risk for losing the free use and enjoyment of their dogs are entitled to a full and fair hearing on the matter. The courts have been scrupulous in reasserting due process requirements in dangerous dog cases when they have not been observed at the local level.⁷

On the other hand, it has proven very difficult to challenge the wording of dangerous dog laws on grounds of vagueness in areas other than breed-specific bans. A recent appellate case centered on the phrase, "approach in a vicious or threatening manner, in an apparent attitude of attack," which is one criterion for a finding of

potential dangerousness in a number of statutes. Appellants introduced current findings on common misinterpretations of canine behavioral signals⁸ and argued that the definitions portion of the statute should include a list of behavioral correlates against which a "vicious or threatening manner" and "apparent attitude of attack" could be measured. Nevertheless, the statute was not found to be impermissibly vague.⁹

A Role for Behaviorists

It is safe to say that most dangerous dog laws indicate little awareness of advances that have taken place in our understanding of canine behavior in the past few decades. Only the most rudimentary distinctions are made (eg, between unprovoked and provoked attacks or between aggressive acts occurring on and off the owner's property). The behaviors that cause a dog to be classified as dangerous or vicious are outlined with surprising brevity, often in broad, sweeping phrases that are obviously problematic. In Montana, for example, a vicious dog is defined as one that bites or attempts to bite any human being without provocation or that harasses, chases, bites, or attempts to bite any other animal.¹⁰ There is no explanation of what constitutes an attempted bite, nor is there room in this scheme for the normal exploratory behavior of young canines. In Colorado, one way that a dog may be designated as dangerous is to demonstrate "tendencies which would cause a reasonable person to believe that the dog may inflict injury upon or cause the death of any person or domestic animal"; however, these tendencies are not specified.¹¹

On the other hand, a few ordinances are disturbingly specific. In Omaha, Neb the term "dangerous" may be applied to "any dog or other animal that snaps, bites, or manifests a disposition to snap or bite."¹² The ordinance provides that the court may order dangerous animals destroyed, presumably even animals in the "snapping" category, and it further states that if a dangerous animal is found at large, the city shall be under no duty to attempt to confine or capture it rather than kill it, nor shall the city be under a duty to notify the owner prior to killing it.

Thus, dangerous dog laws may, if taken literally, pose many problems with interpretation and enforcement. The input of behaviorists clearly would be helpful in drafting or amending these pieces of legislation in the future.

The opinion of behaviorists was useful to the US District Court in Alaska in a 1994 dog bite liability case¹³ as it struggled with the defense that prior biting incidents were the result of "natural instincts, not dangerous tendencies" (ie, that they were within the range of normal canine behavior). Yet the court concluded: "It is the act of the animal and not the state of mind of the animal from which the effects of a dangerous propensity must be determined If Anchor did have a dangerous propensity, then it is immaterial whether this propensity was driven by anger, playfulness, affection or curiosity." Does this mean that the aforemen-

tioned Pound Ridge, New York hero dog should now be designated as dangerous?

The stimulus may be immaterial if one is looking solely at the physical effects of an incident, but identifying the triggers for a dog's actions is highly relevant for a determination of its temperament and whether the offending behavior can be corrected. Conspicuously absent from almost all dangerous dog laws is any consideration of how a dog may be rehabilitated and the label of "dangerous" removed. A great deal of attention is given to how the dog must be confined and controlled, but no attention is focused on how its behavior may be evaluated, modified, and certified as corrected. In California, the law¹⁴ provides that the dangerous label may be removed after 36 months if there are no additional incidents, or sooner if there is a mitigating factor such as training; however, it does not make specific provisions for how this second alternative will work.

To achieve their objectives, dangerous dog laws should be reworked to reflect the current state of knowledge about canine behavior so that it will be possible to assess the real importance of transgressions and act accordingly. They must reflect the fact that a dog's behavior is not static and periodic reassessment is needed to be fair to everyone involved.

Other Legal Remedies

Unfortunate incidents involving direct action against dogs by the police or animal control have resulted in a number of noteworthy lawsuits under the civil rights law¹⁵ that implements the application of the Bill of Rights to the states under the Fourteenth Amendment. This law forbids any deprivation of constitutional rights by persons "acting under color of state law" (ie, with governmental authority). In 1995, the US District Court for the Western District of Michigan applied this law, finding that shelter workers engaged in a public-private conspiracy to deprive plaintiffs of their Fourth Amendment rights when they sold impounded dogs to a laboratory before the expiration of the statutory holding period.¹⁶

A 1987 Georgia case¹⁷ illustrates the pitfalls into which local governments can fall when conducting searches and seizures involving animals, even when a search warrant has been obtained. Cobb County Animal Control, the veterinarian with whom it contracted for services, and the county attorney were all sued under the civil rights law¹⁵ after a raid on a pet shop exceeded the scope of the authorized search and a number of animals, mostly purebred dogs, were seized. The individual defendants were sued for defamation because of comments made to the press about allegedly inhumane conditions in the shop at the time the animals were removed. The animals were taken to the local shelter "to be made well" and when the pet store refused to pay the impoundment fees they were adopted out. The court found that the store had been deprived of its property in violation of the Fourteenth Amendment; at one stage, an award was granted for loss of

business reputation as well as actual worth of the animals, but, later, this was reversed.

A very disturbing line of cases involves the shooting of dogs by police in the line of duty, often during the course of an entry for the purpose of search and seizure. Sometimes these cases have failed because they have not been pled correctly, but a 1993 Texas case¹⁸ that went to the US Supreme Court yielded a landmark decision about the requirements for stating a civil rights claim successfully. This case involved a mother and son who were stopped by police and informed that their home had been the subject of a drug raid and that their 2 dogs had been killed. When they arrived home, they found their Doberman Pinscher shot dead in the driveway and their Miniature Schnauzer dead in the master bedroom. Drugs were not found during the raid.

In a noteworthy 1989 case,¹⁹ Manitowoc County, Wis officers were granted a search warrant to locate 4 stolen pressure cookers and 4 ounces of marijuana. While one served the warrant, the others, moving through the house to secure it, encountered the family dog, a German Shepherd Dog. "After the house was 'secured' the dog was dead, the children and adults were screaming, and the officers found no pressure cookers or marijuana." One officer claimed that he shot the dog in self-defense, but forensic evidence introduced by a veterinarian indicated otherwise. On appeal, the court did not reverse the jury and trial judge's finding that the officer acted unreasonably. This and other cases raise the issue of failure to train police properly in the execution of search warrants when a dog is present, and it is to be expected that similar costly suits will be brought under the civil rights law¹⁵ in the future.

Conclusions

Despite the many criticisms of existing statutes and ordinances affecting dogs, the answer does not lie in eliminating such laws, but in reworking them. We can look to other areas of the law for innovative approaches to the problems discussed at this Animal Welfare Forum.

Keeping of highly aggressive dogs perhaps should be classified as an ultrahazardous activity, comparable to blasting or manufacture of chemicals, for which permits and inspections are required. Just as someone who wishes to drive a commercial vehicle must obtain a different type of license than someone who operates a passenger car, perhaps the keepers of such animals

should be required to obtain a special license to be earned only after testing and certification.

It is tempting to respond to problems such as dog bites with sweeping statutes and ordinances that cover the largest possible number of cases. Yet this broad approach sacrifices the precision and clarity needed to analyze individual incidents and work out solutions that are fair to the public and dog owners alike. The input of behaviorists in drafting and implementing dog-related legislation could make a big difference.

The phenomenon of costly civil rights suits against police and animal control agencies is a growing one. The Fourth Amendment guarantee against unreasonable searches and seizures should logically extend to constraints on harming animals encountered during the search. Again, some training in animal behavior could enable police to avoid deadly force unless absolutely necessary.

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Dogs and insurance

Dan Hattaway

Public opinion polls indicate the insurance industry is not very popular with the American public. I believe this perception is caused largely by a lack of knowledge about insurance issues and the negative atmosphere that often exists when people have to deal with personal insurance matters. For example, the insurance consumer has to pay what seems to be an ever increasing premium for insurance, which is an intangible product. All the policyholder appears to receive for his/her money is a piece of paper. The value of the insurance contract is not well understood. If policyholders need to use their insurance, it is because their home burned down or they are being sued because the family dog bit the neighbor. This negative situation is compounded if there is a problem with insurance coverage or the insurer indicates a policy will be terminated. A basic understanding of what insurance is and how it affects our daily lives is necessary to properly examine the issue of dogs and insurance.

Modern Society and Insurance

Insurance is enormously important in modern society. Most people would not be able to own homes or automobiles without insurance. Businesses would not be able to operate and expand under constant threat of ruin from financial risks. Insurance permits people to plan for the future with a greater degree of certainty than would otherwise be possible. Thus, the insurance industry performs a valuable service for society.

The Insurance Mechanism

Insurance is, with few exceptions, a business, and like all businesses, it must make a profit to endure. Simply stated, the money held by most insurance companies is the sum of the premiums paid by their customers plus any investment income the company can generate. Policyholder's claims and administrative expenses are paid from these funds. If expenses continually exceed income, the insurer can go bankrupt as would any other business. Insurance companies are in the business of paying claims. If chance of loss did not exist, no one would buy insurance and there would not be a need for insurance companies. Every time an insurance company issues a policy, it enters into a contract with the policyholder.

Risk is the driving force that creates a need for insurance. Most people do not think about risk even though they encounter it on a daily basis. We are at risk riding in a car, flying in an airplane, crossing the street, or sitting at home watching television. But what

is risk and how does it relate to insurance? The dictionary defines risk as "the chance of injury, damage, or loss; dangerous chance; hazard . . ." For insurance purposes, this definition is expanded to include the chance of loss, the degree of probability of loss, the amount of possible loss to the insuring company, a person or thing with reference to the risk involved in providing insurance, or the type of loss that a policy covers (eg, fire, windstorm, negligence). As risk varies, so do approaches to the reduction of risk—the appropriate remedy depends on the situation. In general, people manage risk in 4 ways: avoidance, prevention, assumption, or transfer.

Avoiding risk involves not engaging in an activity or choosing not to own something that could cause injury to people or damage to the property of others. Bodily injury or property damage can be caused by operating an automobile or owning a home. To avoid the risk that a dog will injure someone or cause property damage, a person may choose not to own a dog. Obviously, dog owners do not consider avoidance a reasonable approach to this risk.

Prevention, when possible, is one of the better solutions to the problem of risk. Prevention reduces or removes the possibility of adverse consequences. Keeping an automobile in good condition and driving defensively reduces the possibility of accidents. A fire extinguisher in the kitchen makes it possible to put out a grease fire before it gets out of control and causes serious damage to a home.

Another option is to assume a particular risk. When jumping from a bridge or an airplane, one assumes the risk of injury or death if the bungee cord or parachute does not work correctly and effectively. However, most people would not fail to insure their home or automobile. Even wealthy individuals, who could afford to replace their home or pay a large court judgment, do not want their assets depleted by such adverse events. How much and what kind of risk a person assumes is a matter of individual choice.

Transfer of risk involves shifting part or all of the risk to another party. Insurance is a financial risk transfer mechanism in which individuals pool their money by paying premiums to an insurance company. In return for the premium, the individual reduces the uncertainty of an unknown future loss. If, for example, a mail carrier falls and is injured on a home or business owner's ice-covered sidewalk, the insurance company assumes the owner's obligation for payment of the medical bills. Without insurance, the home or business owner would be personally responsible for payment of medical bills. If a homeowner's dog injures the mail carrier, the homeowner's insurance company will

From State Farm Fire and Casualty Co, 1 State Farm Plaza, D-1, Bloomington, IL 61710.

pay the medical bills. If the homeowner is sued because of the injury, the homeowner's insurance company will defend him or her and pay (up to the limits of the insurance policy) a judgment against him or her.

Dogs and Insurance

There are approximately 56 million dogs in the United States. It is virtually impossible for an insurance company to write homeowners' insurance policies without insuring homes with dogs. State Farm estimates that it insures more than 5 million such homes. In 1995, the company received more than 11,000 claims and paid \$70 million for injuries caused by dogs. These numbers have increased dramatically in recent years and the money paid on these claims comes from policyholder's premiums. State Farm has an obligation to its policyholders to try to reduce these losses, but the manner in which the company responds to this situation is equally important. Any action the company takes must be effective and reasonable.

Each application for insurance must be judged on its own merits. An application should not be accepted or rejected solely on the basis of there being a dog in the household, nor should the breed of the dog be a determining factor. If the dog has bitten previously, questions are asked regarding the circumstances of the bite so that the probability of the dog biting again can be assessed. The answers to these questions are important to the insurance underwriter, but there are other factors to be considered.

The most important factor is the dog owner. The owner chooses the dog initially. The owner selects the type of training the dog will receive, if any. The owner provides the dog's environment. The owner controls or influences, in varying degrees, everything in the dog's life and is, therefore, obligated to act in a responsible manner. If the owner does not act responsibly, there is an increased probability that the dog will injure a person or another animal. Mistreatment of dogs, allowing dogs to roam free, and inappropriate training are examples of irresponsible ownership.

Another important factor is the dog owner's understanding of how and where dog bites are likely to occur. Most experts agree that children are the most common victims of dog bites. My review of claims supported this fact and revealed that many bite episodes had characteristics in common:

- Most bites occurred inside homes
- The most common victims were children visiting in homes
- Most children were alone with the dog at the time of the bite

- Adults were present in the home at the time of the bite
- The dog involved was a family pet.

If this data is converted to risk factors, it appears that children are at greater risk of being bitten under the following circumstances:

- When visiting a home where there is an unfamiliar dog
- When adult supervision of interactions between children and dogs is lacking
- When a child has not been taught how to behave around unfamiliar dogs.

Reduction of risk requires the average dog owner to practice more responsible dog ownership. Most people consider themselves responsible dog owners. Although intentionally irresponsible behavior by owners is a problem, in many situations, irresponsible behavior is a result of inadequate knowledge.

What Is Responsible Dog Ownership?

A number of organizations, including the AVMA, have produced brochures addressing responsible dog ownership and many books have been written about dog ownership and training. Despite the availability of information, many of the most basic principles of responsible dog ownership do not seem to be well known or understood. Among these principles are:

- Selection of a breed that is appropriate for the family and home
- Socialization of the dog with all members of the family, people outside the family, and other animals.
- Proper training—basic obedience training is as important for the owner as it is for the dog
- Ensuring that the dog receives adequate health care—this is not only the right thing to do but also reduces bite responses caused by pain or irritability; neutering may reduce aggressive tendencies, especially in males
- Not placing a dog in a situation where it feels threatened or teased
- Obeying animal control, leash, and licensing laws. Dogs should not be permitted to roam.

Dog owners and parents of children can do much to prevent dog bites in the home. Supervision of children in a home where there is an unfamiliar dog and training children in the proper way to approach a dog are vital in preventing dog bites. It is possible to get and keep insurance AND be a pet owner at the same time. The key is being a responsible owner. I believe that of the insurance industry has a role in promoting responsible pet ownership, including education, to help reduce this national problem.

Dog bite prevention from animal control's perspective

Don Rieck, BS

Dog bites are the second most costly public health problem in the United States, exceeded only by sexually transmitted diseases.^a Animal control officers across the nation are called to emergency rooms every day of the week, at all hours, to obtain reports from victims of dog bites. Unfortunately, most of these conversations are with the parents of the victim—the victim being a child who is under the care of a plastic surgeon. In addition to injuries that can be severe and debilitating, a mean of 9 to 12 deaths result from dog bites annually.¹ Unfortunately, the dog bite problem is often ignored.

Animal control officers are required to deal with the victim of the bite, the animal, and the animal's owner. This unique perspective can be of benefit to everyone affected by dog bites. The owner of the dog may indicate that the victim was teasing the dog, whereas the victim, or parent of the victim, may complain about the irresponsible pet owner. The animal control officer must listen to both sides of the story and then separate the truth from what the individuals involved believe to be true. Often, the officer is required to separate the facts from outright fiction or fabrication.

From the animal control officer's point of view, the most serious bites (ie, bites that require extensive medical care or surgery) occur when an individual owns a "macho" dog. A "macho" dog is perceived as embodying power or strength. Statistics support this theory when one looks at the breeds of dogs responsible for most serious bites. In Lincoln, Neb, dogs with a history of having been bred and used for fighting are responsible for more than a third of the serious bite injuries reported, although compared with the population of dogs in Lincoln, their number is small. As might be expected, most dogs that are used for fighting are medium to large dogs and, therefore, capable of inflicting serious injury when involved in a bite.

Two large dogs, the Doberman Pinscher and the German Shepherd Dog, are responsible for a large percentage of bites and have been labeled as "aggressive" dogs. Before the television program "Magnum P. I." became popular, only the German Shepherd Dog was considered a leader in the guard dog realm. The Doberman Pinscher gained popularity because of its guard dog image portrayed on this show and in movies. Doberman Pinschers increased in number, and people found the dog to be intelligent and trainable. Unfortunately, not all breeders are responsible, and a few breeders started breeding for aggressive behavior. Because

of the Doberman Pinscher's intelligence and new-found reputation, people began using them as guard dogs. Around this time, animal control officers noticed the incidence of bites caused by Doberman Pinschers was increasing; this greater number of bites reflected the use of Doberman Pinschers as guard dogs as well as their popularity as pets for the "macho" owner. Eventually, the popularity of the Doberman Pinscher with "macho" dog owners diminished and was replaced by a fascination with pit bull-type dogs, and later, Rottweilers. As the Doberman Pinscher's popularity diminished, so did the number of bites caused by them—with the exception of bites inflicted by trained guard dogs. Separate statistics are not kept by most agencies for injuries caused by guard dogs, and bites inflicted by these dogs often are included as part of the statistics for the population of dogs in general. However, I believe that bites inflicted on the perpetrator of a crime by a dog trained to prevent that crime should be excluded from summary dog bite statistics. Although the reason dogs are selected for protection has much to do with the behavioral characteristics of their breed and these behavioral characteristics cannot be ignored, inclusion of injuries inflicted by guard dogs in summary dog bite statistics has the potential to overrepresent certain breeds when perhaps the individual dog and the origin of the aggressive tendency should be considered.

Statistics provided by the Lincoln Animal Control Division of the Lincoln-Lancaster County Health Department^b for the fiscal year 1994 to 1995 are a good representation of the dog bite problem across the nation. As a percent of reported animal bites, dogs are clearly the primary offender. Cats or dogs caused 93.3% of reported animal bites. Of this 93.3%, dogs were responsible for 73.6%. A closer look at these figures lends credibility to what most of us already know or suspect. Sixty-five percent of bites were caused by the male of the species. Of these male dogs, 55% were not castrated. The typical canine offender^b is an uncastrated male dog that is < 2 years old. It is likely to be a member of a working breed, such as a German Shepherd Dog or a Rottweiler, or a product of a puppy mill (eg, Cocker Spaniels, Chow Chows) in which dogs are bred for volume rather than with temperament or other desirable traits in mind.

Finding statistics for the worst case scenario, deaths caused by dog bites, is difficult. In the book *Crazy Dogs and Crazy People*,¹ it is reported that during 1989 and 1990 there were 35 deaths resulting from dog bites in the United States. When identifying the dogs responsible, animal control officers would not find any

From the National Animal Control Association, Sioux Falls Animal Control Department, 132 North Dakota, Sioux Falls, SD 57102.

surprises. Ten deaths were caused by erect-eared northern breed dogs such as Siberian Huskies, Alaskan Malamutes, and Samoyeds. Another 10 resulted from attacks by pit bull-type dogs. Bites from German Shepherd Dogs or German Shepherd Dog crossbreds caused 6 more deaths, 3 were caused by Doberman Pinschers, and 1 resulted from an attack by a Rottweiler. In other words, 27 of 35 (77%) fatalities were caused by a small and predictable representation of the many breeds of dogs kept by human beings today. There have been 3 deaths caused by dog bites in South Dakota since I became an animal control officer 14 years ago. The first was a 5-year-old girl playing in her yard who was killed by a Siberian Husky that lived 7 houses away. The second was a 6-year-old girl who wandered into her next-door neighbors' yard within reach of a wolf hybrid. The third was a 7-year-old boy who was killed by 6 pit bull-type dogs as he rode his bike down a gravel road past his neighbor's house; the neighbor was housing the dogs for a brother. These incidents are not part of the aforementioned statistics, but substantiate the problem.

Who is being bitten? Forty-eight percent of victims are < 15 years old.^b The typical victim of a dog bite is a male or female between 1 and 10 years old. Another 15% of victims are between 21 and 30 years old.^b Our children are bearing the brunt of our failure to educate parents and dog owners. Children are lead into a false sense of security by stuffed toys, television, movies, and cartoons that give animals human characteristics. Members of the 21- to 30-year-old agegroup are young adults who have left the nest and the restrictions imposed by their parents and have decided they need a dog. They do not always choose their canine companions wisely, and the statistics reflect this.

More than half of reported bites happen on the property where the dog lives.^b Twenty-nine percent occur in the house where the dog resides and 24% happen at another location on the property. This accounts for 53% of all dog bites. The experience of animal control officers is that most of these bites could have been avoided. In many cases, the owner of the dog knew the potential to bite was there and did nothing to prevent the aggressive action. In other situations, the dog performed as the owner wished. A large number of dog bites could be avoided if owners knew how to deal with the problem of aggression. Most owners don't have adequate knowledge and a few may not even have the desire to acquire such knowledge.

What can we do about the dog bite problem? There is not an easy solution, but I believe there are 5 distinct communities in a position to help. These are the humane groups, such as the Humane Society of the United States and the American Humane Association; the animal behaviorists; the veterinary community; the

public health sector; and the animal control community. Currently, a coordinated effort on the part of these 5 groups to alleviate this costly public health problem does not exist. The monetary costs are staggering, but the suffering endured by the victims of dog bites is even more reason to try and find solutions to this problem. Independently, each group is doing what it can to reduce the number of dog bites, but if these groups worked together and communicated more effectively, a tremendous difference could be made. For example, the South Dakota Animal Control Association is currently working on a dog bite tracking system. Data acquired thus far indicates that many dogs are repeat offenders. Anyone that owns a dog that has the propensity to bite is likely to continue to own that dog despite where they reside. It also appears that many people owning such dogs are quite mobile. If these individuals could be tracked as they move, bites caused by their dogs could be prevented. Pertinent information could be distributed to the veterinary community, humane societies, public health authorities, law enforcement, and other appropriate individuals.

With the goals of healthy pets and more responsible pet owners in mind, I believe a three-pronged approach to the dog bite problem would be the most effective. First, people must be educated regarding the acquisition of a pet. Pets should be obtained from only reputable sources. This ensures that the proper pet is matched with the proper owner and that the owner has an idea of the responsibilities involved. Second, dog breeders must be encouraged to breed for temperament and not simply conformation to size, color, coat, or other physical standards. Many reputable breeders currently do this, but the importance of the breeder's role needs to be emphasized. Third, and probably most important, breeding and ownership of dogs having natural tendencies toward aggressive behavior should be discouraged. This may be difficult, as many individuals are quite adamant about the type of dog they desire to own or breed; however, an attempt should be made to inform owners and breeders about potential problems. Again, free flow of information between the groups involved in achieving these goals is important. When any of us is successful in any of these endeavors this information needs to be shared with everyone involved. All of us working together can make a difference.

^aToday's animal control. National Animal Control Association, Sioux Falls, SD. Unpublished data, 1982.

^bWeverka J. Animal control and bite report, 1995. Animal Control Division, Lincoln-Lancaster County Health Department, Lincoln, Neb. Unpublished data, 1995.

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Dog bite prevention: Responsible pet ownership and animal safety

J. Michael Cornwell, DVM

Statistics

Frequency—A survey¹ conducted by the American Pet Food Institute reports that we live with approximately 55 million dogs (in 38% of our homes). There are several sources of dog bite statistics available today; however, most authors agree that only a half to a quarter of bites are reported to the appropriate authorities, because many people who have been bitten do not seek medical attention. Therefore, the number of bites is likely higher than presented in this report.

On average, there are 2 to 3 million dog bites reported annually in the United States. Dog bites represent 75 to 80% of animal bites. The latest Humane Society of the United States survey¹ reports 4.7 million dog bites in 1995, with 2.8 million of those bites occurring in children. It is estimated that 30 to 50% of dog bites are provoked by the person bitten, usually over territorial issues.² Another report³ states that there are 300 to 700 bites/100,000 people annually. Approximately 70% of all dog bites involve children.⁴ In national surveys, 47% of school-age children report having been bitten at least once.⁵ Of the children bitten and for whom gender was reported, 55% were boys and 39% were girls. Dog bite injuries are the number 1 childhood public health problem reported, and the incidence is greater than the total number of cases of measles, mumps, and whooping cough combined.²

Children are overrepresented as a special group within dog bite statistics. Five percent of children 5 to 9 years old have been bitten by a dog.² That represents more than 30% of dog bites in < 9% of the population.² More recent studies claim that many dog bites may be inflicted by dogs that children know.⁶ Dog bites represent 5% of all emergency room admissions, and 585,000 dog bite wounds require medical care each year.⁷ There are 15 to 20 dog bite related fatalities annually in the United States.⁸

Recent studies within the insurance industry report that more than \$1 billion is expended annually for claims against homeowners' policies as a result of dog bite injuries.⁹ A few insurance companies refuse to insure households that have a dangerous dog residing in the home or charge a fee for insuring a household with such a dog.

In 1995, 2,851 letter carriers (about 10/d) were bitten on their routes.¹ The Humane Society of the

United States and the US Postal Service have declared the second week of June as National Dog Bite Prevention Week. The hope is to draw attention to the problem and encourage preventive measures.

Anatomic location—Statistics regarding anatomic location of dog bites provide valuable insight as to where, why, and how dogs bite human beings. In order of frequency, dogs bite people most often on the right arm, both arms, hands, and legs.¹⁰ Sixty-five percent of facial bites are inflicted on children < 10 years old.¹⁰ Dogs tend to bite bodies and body parts that move often and suddenly.¹⁰ It is instinctive for dogs to chase moving objects. Unfortunately, it is also instinctive for children to move or run and scream in fear when alarmed by dogs. This combination results in a potentially volatile situation.

Prevention

With the aforementioned information, what can we do to minimize or prevent dog bites? Preventive measures fall into 2 classifications. The first is dog intervention—the biter. The second is human intervention—the bitee.

The biter—Traditional methods of dog bite prevention include animal control, licensure, leash laws, obedience and socialization classes, and veterinary behavior consultation and treatment. Spaying and castration decreases the likelihood of dog bites. A spayed or castrated dog is a third as likely to bite as an unneutered dog.¹

The breed of choice to incriminate in dog bites changes with the popularity of breeds. A few municipalities and government agencies discriminate against certain breeds in their laws and ordinances. Others respond legally to the individual dog's behavior (eg, first, second, or third bite results in specific legal action against the dog's owner). Breeds change, but situations do not. The dog's behavior is usually the result of the owner's shortcomings in the aforementioned areas. In summary, neuter, train, and socialize!

The bitee—Human intervention to minimize dog bites centers around education. Children and adults should be taught not to provoke animals to bite. They should leave stray dogs alone and be taught to recognize and respect a dog's territory. My personal focus is to train children to avoid negative interaction with dogs. Simple rules provide guidelines for children and adults: (1) leave stray dogs alone, (2) report stray dogs to the nearest adult so that animal control authorities can be

From the Glencoe Animal Hospital, 3712 N High St, Columbus, OH 43214, and the Department of Preventive Medicine, College of Veterinary Medicine, The Ohio State University, Columbus, OH 43212.

notified, (3) if approached by a dog, "be a tree," and (4) "act like a log" if you are already lying down or if you are knocked down by a dog.

"Being a tree" is a neutral, nonthreatening posture that minimizes antagonism of dogs. It is performed by standing with the feet together and the fists folded under the neck with arms and elbows against the chest. This is a good posture to assume when approached by any dog that could be a biter or aggressor. Also, doing this is harmless when the dog is friendly. Because eye contact may incite aggression, one should look straight ahead, avoid eye contact with the dog, and speak in a soothing voice. Children are taught to say, "nice dog," "nice doggie," or "good boy." Wait for the dog to walk away. The dog will usually get bored and leave. Never run!

"Acting like a log" is appropriate if one is knocked down by a dog or already is lying down when approached by a potentially dangerous dog. This position involves lying face down with the fists folded behind the neck and the forearms covering the ears. The feet and legs are together. This, too, is a nonthreatening, neutral position. Most dogs will get bored and walk away. Children and adults should be advised not to be afraid if the dog sniffs around their bodies, because that can be a part of typical canine socialization and familiarization behavior.

Conclusions

The dog bite problem is largely a preventable epidemic.⁸ Our goals should be to educate the public concerning responsible pet ownership and to train children, at an early age, to avoid negative interactions with dogs.

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Human-canine interactions: A summary of perspectives

Bonnie V. Beaver, DVM, MS

The history of human-canine interactions in North America has been schizophrenic. We love dogs, hate them, nurture them, and abandon them. We build monuments to memorialize them and shelters to kill them. For many owners, money is no object in providing the best in nutrition and medical care. Others will deny ownership of a dog that is picked up for running loose, because it is cheaper to find another free dog. Or they are extremely mad if required to pay even the amount of a rabies vaccination to get the dog out of the pound.

The core idea for this Forum was conceived in 1993 by the AVMA's Committee on the Human-Animal Bond to address aggression in dogs as a negative and detrimental facet of the bond. From there, the idea progressed to a steering committee, composed of representatives of various professions impacted by canine aggression. This committee believed strongly that a

conference would not only be appropriate, but if carefully structured, its attendees could develop practical strategies to attack the problem. It was also considered to be an opportunity to bring together experts from human medicine, law, animal control, the insurance industry, animal welfare groups, dog breeders, service industries, and legislators, as well as veterinary medicine, to address the multidisciplinary aspects of dog bites. The dog bite problem as a whole is not preventable, but it is controllable. We could outlaw all dogs and eliminate all dog bites, but that is not a practical, realistic, or desirable solution. The AVMA's Animal Welfare Committee took the torch from the steering committee and added its collective enthusiasm to address the canine aggression problem through this Forum.

During the Animal Welfare Forum, leading authorities in various fields have provided a global perspective of canine aggression. We have learned that dogs are good for us. They keep us healthy—mentally and physically. Unfortunately, not all dogs are good. Usu-

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ally this is not the dog's fault, but is caused by human failure. Human beings contribute to the problem through indiscriminate breeding of poor quality dogs with behavioral or physical problems. Another human being then fails to raise the puppy appropriately. From socialization to obedience lessons, puppies need guidance. In addition, each puppy is an individual and needs a certain amount of special treatment for its unique personality. When owners fail to accept responsibility for what they have done or how they care for their dogs, society becomes the dumping ground. To cope with this situation, lawmakers try to mandate norms by passing legislation that targets a symptom rather than a cause.^{1,3}

There has been much written about working with dogs that bite. Information has come from various organizations and represents various viewpoints. Many reports present ideas for working with aggressive dogs,⁴ whereas others provide guidelines or laws to control them.⁵ A few express concern that homeowners' insurance policies may be canceled because of dog ownership.⁶ Still other reports present statistics about all aspects of the dog bite problem.^{7,9} It is not possible to cite completely accurate data on the extent of the dog bite problem because we lack a mandatory reporting system for animal populations, the number of animals in animal shelters, and dog bite injuries. In addition, there is not an accurate way to quantify the seriousness of injuries resulting from dog bites, and owners are less likely to seek medical attention for injuries to themselves.^{10,11} As a result, the incidence of these injuries can only be approximated from available information.¹² Available data, however, gives a bleak picture of what the actual numbers may be:

- 1 to 3 million people are bitten each year,^{13,15} that is approximately 1/200 people^{12,15,16} (being bitten) or 1/20 dogs (biting people)^{16,17}
- 500,000 people require medical attention yearly because of dog bites^{9,12,16,18-20}
- Almost 50% of all children are bitten by age 18
- 10 to 15 people die each year as a result of dog attacks^{14,22}
- More than \$1 billion in liability claims are filed each year⁴
- Expensive medical and worker's compensation claims also are filed each year^{15,23}
- 20 to 25% of the canine population is surrendered to shelters each year^{14,25}
- 25 to 50% of dogs surrendered to shelters are there because of behavior problems²⁶
- Euthanasia is the leading cause of death among companion animals²⁷
- 1,000 to 2,000 puppies are born each hour¹⁵; 3 to 4 puppies are born for every human birth¹⁸
- Animal issues generate more input to legislator than almost any other social issue.

These are not acceptable figures. They are also incomplete, because they do not represent many of the intangibles, such as physical and emotional suf-

fering, responsible pet ownership, realistic expectations of human-canine interactions, and animal welfare.

Because of this Forum, we have taken an important first step toward addressing the problem of canine aggression. It is crucial that the ideas discussed in the break-out sessions do not die with the conclusion of this meeting. Our efforts must not stop, and therein lies the challenge. Enthusiasm and new perspectives will go with Forum participants back to their communities to be shared. Hopefully, the multidisciplinary nature of this Animal Welfare Forum will serve as a model for brainstorming sessions that will advance the work begun with this meeting. It is a topic deserving of our collective attention.

Dogs have been an important part of our lives and always will be. The AVMA statistics indicate there are 52.5 million dogs in the United States.²⁸ That represents more than 50 million GOOD dogs.

¹Hattaway D. State Farm Fire and Casualty Co, Bloomington, Ill: Personal communication, 1994.

²Humane Society of the United States, Washington, DC: Personal communication, 1994.

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Break-out Sessions

Each break-out group was asked to identify the 2 most important issues or goals relating to their topic and to address the relationship of those issues or goals to the incidence of dog bites in the United States. After defining the issues, groups were instructed to design an action plan (for each issue) aimed at reducing the incidence of dog bites.

Pet Selection

Issue 1: Need for a joint and coordinated public education program on pet selection. Lack of an available coordinated and consistent source of information results in the public's failure to make the appropriate pet selection choice.

Target Audience: The public, including prospective pet owners, children in schools, pet providers, pet caregivers, educators, and the media

Action Plan:

- Develop a source of accurate information on canine behavior and breed type
- Bring together interested parties (breed clubs, pet store owners, veterinarians, prospective pet owners, humane society personnel, educators, etc) to share information and develop strategies to reduce dog bites via proper pet selection
- Create a distribution system for this information

Resources:

Development

- Speaker list for the public
- Bibliography of information sources—print and electronic
- Pet caregivers and their constituent organizations and publications as a resource to the public and each other

Media Exposure

- Electronic
- Print
- Media campaign, patterned after Mothers Against Drunk Drivers (MADD)

Financial Support

- Pet industry and animal health companies
- Constituent organizations, pet caregivers, pet providers, and public health groups

- Government groups and human health providers
- Grants
- Insurance companies

Issue 2: Household composition, lifestyle, resources, and expectations for the pet must be considered in pet selection. Failure to consider these factors leads to an increased likelihood of dog bites.

Target Audience: Pet owners

Action Plan:

- Fund research to determine how pets are selected
- Develop a questionnaire to help prospective pet owners choose the appropriate pet
- Develop and make available a list of information sources on pet and breed selection to prospective pet owners
- Consider a MADD-type model

Resources:

Development

- Bibliography of information sources
- Pet caregivers and their organizations
- Pet providers

Media Exposure

- Electronic
- Print
- Media campaign, patterned after MADD

Financial Support

- Pet industry and animal health companies
- Constituent organizations, pet caregivers, pet providers, and public health groups
- Government groups and human health providers
- Grants
- Insurance companies

The moderator for this session was John Hamil, DVM.

Puppy Socialization

Issue 1: Lack of understanding about canine nature. People misunderstand normal canine behavior, which can increase the risk of dog bites. To reduce the incidence of dog bites, people can be educated about normal canine behavior through puppy socialization classes.

Target Audience: State and local veterinary medical associations

Action Plan: Have veterinarians hand out resource material at first puppy visit

- Minimize anthropomorphic views
- Help people understand normal dog behavior
- Teach people what to expect as the dog develops (eg, house training, chewing, adult behavior patterns at sexual maturity)

Resources:

Development

- Behaviorists—veterinary behavioral specialists, applied animal behaviorists
- National associations—veterinary and humane organizations, breed and kennel clubs

Media Exposure

- Local, state, and national veterinary meetings
- Professional magazines and journals

Financial Support

- Manufacturers of pet products
- Insurance companies

The moderator for this session was Scott Lane, DVM, PhD.

Issue 2: Convincing owners to begin training their dog(s) at a very early age. If people don't begin training at an early age, aggressive behavior may be more likely to develop. If the dog hasn't been exposed to other people and dogs through early socialization classes, the risk of fear-motivated aggression and bites may increase.

Target Audience: State and local veterinary medical associations

Action Plan: Give handouts to owner at first puppy visit

- Emphasize positive training methods
- Encourage people to start training as soon as they get a puppy
- Minimize risk from contagious disease among puppies attending early socialization classes by appropriate vaccination and preventive health care

Resources:

Development

- Behaviorists
- Professional magazines and journals

Media Exposure

- Local, state, and national veterinary meetings
- AVMA Financial Support
- Manufacturers of pet products
- Foundation

Responsible Pet Ownership

Issue 1: Lack of basic knowledge on part of the general public as to the elements of responsible dog ownership may result in dog bites.

Target Audience: Children less than 14 years old (primary and secondary school children)

Action Plan: Public awareness/education campaign

Resources:

Development

- Local animal control personnel
- Humane societies
- Teacher's associations

The moderator for this session was Tom Lane, DVM.

Media Exposure

- Videotape
- Action-oriented print material

Financial Support

- Private industry
- Trusts and Foundations

Issue 2: Networking among members of the veterinary profession, animal control organizations, and humane organizations may reduce the incidence of dog bites. (An action plan for this issue was not developed by participants in this session, because most of their allotted time was spent discussing Issue 1.)

Forum continued on next page.

Treating Aggressive Dogs

Issue 1: Handling aggressive dogs.

Target Audience: General public—identify problem

Action Plan: Develop techniques for handling aggressive dogs

Resources:

Development

- Resource book
- Videotape instruction aid

Media Exposure

- Print ads—professional journals
- Local news stations

Financial Support

- Insurance companies
- Pet food companies

The moderator for this session was Benjamin Hart, DVM, PhD.

Issue 2: Treating dominance aggression.

Target Audience: Animal care professionals

Action Plan: Develop, establish, and implement protocol for treatment of dominance aggression, using behavior modification, pharmaceuticals, and alternative methods

Resources:

Development

- Develop criteria for diagnosis and develop description
- Workshops for animal care professionals

Media Exposure

- Publications of professional organizations
- Local news stations

Financial Support

- Drug companies
- Insurance companies

Dog Safety

Issue 1: Recognizing that children are the most common victims of dog bites, the more activity we can direct toward the education of children (preschool through 6th grade) the greater our effectiveness in reducing dog bites.

Target Audience: Children, preschool to 6th grade

Action Plan: Take bite prevention week into the schools through targeted demos and materials

Resources:

Development

- PTAs, veterinarians, humane societies, animal control organizations, breed clubs, pediatricians and other human health care professionals, obedience clubs, and trainers

Media Exposure

- Tag onto what is already there
- Local TV, public service announcements, and cable
- Solicit TV programming for children

Financial Support

- Pool existing materials, knowledge, and information (AVMA, Humane Society of the United States, American Animal Hospital Association)
- Potential support from PTAs, insurance agencies, and local volunteers

The moderator for this session was Jim Koschmann, DVM.

Issue 2: Community support and involvement must be garnered and directed toward education and prevention activities to effectively impact the incidence of dog bites.

Target Audience: Community, civic, and professional leaders

Action Plan: Spearhead the development of community councils on dog bite prevention through the use of existing national dog bite statistics

Resources:

Development

- Use preexisting community models such as those set up to address domestic violence, disaster preparedness, and hunger
- Elicit support of local leaders (civic, professional, service, and fraternal)

Media Exposure

- JAVMA and other professional journals
- Popular press dog magazines (*Dog Fancy*)
- Popular consumer magazines (*Parents and Modern Maturity*)

Financial Support

- Volunteers
- Local charities, businesses, and professional organizations

Public Health Issues

Issue 1: Dog bites are preventable through cooperative efforts of involved parties, such as dog owners, parents, children, government and private agencies, and health professionals.

Target Audience: Dog owners, parents, children, government and private agencies, health professionals, and others working with the dog population

Action Plan:

- Research: epidemiologic investigation of dog bites
- Educational materials: compile and disseminate information
- Media: enlist support
- Legislation/enforcement: AVMA monitor and support state and local efforts
- Guidelines: AVMA develop guidelines for dog training

Resources:

Development

- Human resources: veterinary medical associations, public health agencies, educators, schools, shelters

Media Exposure

- Public service announcements, magazines, television, newspapers, movies, Internet

The moderator for this session was Loren Will, DVM, MPH.

Financial Support

- Grants, gifts, foundations, pet industry, insurance companies, veterinary medical associations, dog training and breed clubs

Issue 2: The quality of life of all members of society will be improved by the reduction of dog bites through public education.

Target Audience: Children, parents, dog owners, educators, others

Action Plan:

- Incorporate animal behavior education in veterinary school curriculum
- Incorporate information as client education during puppy exams
- Provide educational materials to dog sources
- Develop resources for early school programs

Resources:

Development

- Human resources: veterinary medical associations, public health agencies, educators, schools, shelters

Media Exposure

- Public service announcements, magazines, television, newspapers, movies, Internet

Financial Support

- Grants, gifts, foundations, pet industry, insurance companies, veterinary medical associations, dog training and breed clubs

Model Legislation

Issue 1: Develop clear, standard definitions and criteria for model dog bite legislation, using behavioral language.

Target Audience: Those writing or enforcing legislation (eg, legislators, judges, attorneys, public health and animal control officials)

Action Plan:

- Identify and convene a multidisciplinary panel of stakeholder experts
- Identify language, survey and analyze existing language
- Prepare and submit agreed on behavioral definitions for iterative review
- Revise, secure approval, and publish definitions

Resources:

Development

- Personnel—experts, research and support staff

The moderator for this session was Adele Douglass.

- Equipment (eg, computers, network access, telephones) and funding

Media Exposure

- Before: Announcement of committee and purpose to stakeholder organizations
- During: Status and review reports to stakeholders
- After: Public announcements through national media

Financial Support

- Stakeholder organizations
- Foundations

Issue 2: Develop model dog bite legislation, using new definitions. Proper and adequate, enforceable control of dogs will prevent and reduce the frequency of dog bites.

Target Audience: Stakeholders and general public

Action Plan:

- Identify and convene multidisciplinary panel of stakeholder experts

- Survey and analyze existing legislation
- Prepare and submit draft legislation for iterative review
- Revise, secure approval, and publish model legislation

Resources:

Development

- Personnel
- Equipment and funding

Media Exposure

- Before: Announce committee and purpose to stakeholder organizations
- During: Status and review reports to stakeholders
- After: Public announcements through national media

Financial Support

- Stakeholder organizations
- Foundations