AAHA Canine Life Stage Guidelines*

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ABSTRACT

Guidelines are offered to guide the veterinary practitioner in designing a comprehensive, individualized wellness plan for each stage of a dog's life. Life stages are defined by both age and breed characteristics for practical purposes. Each patient visit should use an individualized approach to patient handling, preventive care, and early disease detection. Environment, behavior, nutrition, parasite control, vaccinations, dental care, zoonotic disease control, safety, and reproductive health should be addressed. (*J Am Anim Hosp Assoc* 2012; 48:1–11. DOI 10.5326/JAAHA-MS-4009)

Introduction

In December 2010, the American Veterinary Medical Association (AVMA) added prevention of disease to the veterinary oath. With the companion animal bond being stronger than ever, this is a perfect time for a "guideline umbrella" for optimal wellness and preventive care for dogs at all life stages.

It is more important than ever to emphasize the value of routine wellness care. Whenever possible, encourage clients to select a primary care veterinary practice and to choose a primary care veterinarian for each of their pets. By so doing, a strong relationship can be formed between the veterinarian and the client. Familiarity with the patient, the client and the family unit, and their specific needs allows the veterinary team to guide pet owners in optimal preventive care and disease prevention starting at the puppy stage. With the growing use of veterinary specialists, the primary care veterinarian's role becomes increasingly more important to facilitate, coordinate, and manage overall care. A comprehensive approach promotes and enhances the human-animal bond. It includes individualized life stage and breed-specific wellness plans, and encompasses all aspects of providing excellent preventive healthcare for dogs.

Life Stages

For practical purposes, rather than attempt to calculate age equivalents to humans, this task force suggests that life stage should be defined not just by age, but also by characteristic (e.g., puppy, senior, geriatric) as described in **Table 1**. Life stage divisions are arbitrary; however, they do provide a framework for creating an individualized plan to allow preventive care specific to each dog's needs at the appropriate time. Life stages have been designated differently in various contexts. For example, nutrient profiles are broken down into two categories (or life stages) by the American Association of Feed Control Officials: growth and reproduction and adult maintenance.[1] Some authors have further divided the stages prior to adulthood with regard to behavior and development.[2]

This report's focus is on stages that might require different approaches to wellness care. The spectrum of life stages is affected by both the size and breed of the dog.[3–5] Recognition of predicted breed lifespan permits accurate targeting of life-stage-specific wellness care. The wellness plan tables (**Tables 2**, **3**) currently group some stages together. As evidence becomes more robust, the approach to each stage may be refined.

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AAHA *American Animal Hospital Association;* AVMA *American Veterinary Medical Association*

*These guidelines were developed by a panel of experts to help the practicing veterinarian create a comprehensive, individualized wellness plan for each stage of a dog's life. This document is intended as a guideline only. Evidence-based support for specific recommendations is cited whenever possible and appropriate. These guidelines were sponsored by a generous educational grant from Elanco Companion Animal Health, Hill's Pet Nutrition, Merial, and Pfizer Animal Health.

TABLE 1

Proposed Definition of Life Stages

Stage	Definition
Puppy	Neonate until reproductive maturity
Junior	Reproductively mature, still growing
Adult	Finished growing, structurally and socially mature
Mature	From middle up to approximately the last 25% of expected lifespan (a window of time around half life expectancy for breed)
Senior	From maturity to life expectancy (approximately the last 25% of expected lifespan)*
Geriatric	At life expectancy and beyond

*Based on the AAHA Senior Care Guidelines.[4]

Individualized Approach to the Veterinary Visit

Encourage clients to acclimate dogs to safe travel prior to the veterinary visit. Require all clients to restrain dogs on a leash or in a carrier upon entering the practice. Arrange the reception entrance to be dog friendly, and to allow clients to minimize encounters with other pets.

Plan appointments to minimize wait and create a quiet, calm environment. Create a strategy to manage timid and fearful dogs to reduce the stress for the patient, the client, and the veterinary team.

Train the veterinary team in low-stress handling techniques. As appropriate, use positive reinforcement (e.g., treats or toys) and minimize distractions. Use quiet, calm body language and a calm voice.[6] Pheromones may be helpful for their potential calming effect.[7,8] Providing sedation or antianxiety medication for the patient may be appropriate to reduce patient stress and fear, and to provide safety for the veterinary team.[9] Consider sending the patient and client home if undue stress or fear results. Reschedule the exam for another time, and provide positive reinforcement techniques instead of the exam.

Use relationship-centered client communication to establish trust. Recognize that the client, as the caregiver and final decision maker, is the most important member of the healthcare team. Clients provide important information regarding the pet's condition and frequently do the bulk of the work involved in performing prescribed care. Communication with empathy, reflective listening, and attention to body language improves the ability to gain relevant information, increases agreement to treatment plans, and improves outcomes in patient care, clinician effectiveness, and client satisfaction.[10,11]

In addition to standard body systems review, a thorough history includes asking about the items listed in Table 2, including the daily routine and using open-ended questioning techniques when appropriate. Inquire about behavioral, physical, or other changes since the last visit.

Include a veterinary exam and consultation at each of the routine puppy visits as well as prior to the spay/neuter surgery. Provide a wellness exam and consultation for adult dogs at least annually.[12] Consider semiannual wellness exams because a dog's health status may change in a short period of time. Pets age faster than humans and many medical conditions are not associated with clinical signs; therefore, earlier detection of items such as body weight changes, dental disease, and other concerns allows for earlier intervention. In addition, semiannual exams may allow for more frequent communication with the owner regarding behavior and preventive healthcare. Consider more frequent examinations especially for mature, senior, and geriatric dogs.

Perform a thorough exam including the five vital signs (temperature, pulse, respiration, pain, and nutritional assessment) as well as the items listed in Table 2.[13] When possible, use a defined scoring system (e.g., body condition score, muscle condition score).[13–18] The exam may also include the following: pain score; heart murmur grade; gait analysis; body mapping for skin masses and skin lesions; evaluation for breed-specific risks; and laboratory testing and/or imaging as appropriate for breed, age, and individual circumstances.[19,21,23]

Routine tests such as a the minimum database (Table 3) may be helpful for the wellness evaluation of any age dog, but are particularly important for the mature, senior, and geriatric patient, allowing early detection of disease or trends in clinical or laboratory parameters that may be of concern.[4] Performed early in life, these tests may also provide a baseline for interpretation of data obtained at subsequent visits and may establish trends that would be more specific to the individual patient than cumulative laboratory data from many individuals.

Table 3 shows a "±" sign for many tests because there is limited evidence about exactly when to begin testing for each item.[5,24–27] Create individualized recommendations based on current evidence, clinical experience, and the dog's specific breed and circumstances. Individualize the approach for each dog to ensure an effective plan for early disease detection and to maintain optimum health.

There are several hundred distinct canine breeds and many more mixed-breed dogs, each with different genetics and diverse lifestyles.[28,29] At least two-thirds of dog breeds have a least one recognized genetic disorder.[30] Various resources describe breed-specific normal values and disease predispositions. Understanding these can help guide decisions for testing.[31–37] Be aware of whether your diagnostic laboratory includes information about specific breed variations of "normal values." DNA testing in mixed-breed dogs may offer information to the veterinarian to be watchful for specific breed behavior tendencies or health concerns (e.g., orthopedic, cardiac, ophthalmologic, or drug sensitivity).

TABLE 2

Canine Life Stage Guidelines: Items to Discuss, Review, Check, and Perform

	All	Puppy	Junior	Adult	Mature	Senior	Geriatric
General	Thorough physical exam (temperature, pulse, respiration, pain, nutritional assessment); microchip/permanent identification; travel advice; boarding/grooming advice/care; consult about any current medications and supplements, nutraceuticals, and herbs; discuss exam frequency	Evaluate congenital disorders				See AAHA Senior Care Guidelines[4]	
			Address the special needs of working/service dogs				
Environment	Exercise/mental stimulation/ enrichment; family unit/household members and their risk factors; other animals (wild/domestic); toxins/hazards; household and outdoor safety; housing, confinement, temperature, and sanitation; infectious disease risk assessment (e.g., boarding, grooming, dog parks, geographic location, travel)	Discuss and emphasize daily exercise needs appropriate to age					
		Increased awareness of hazards at this age			Evaluate necessary environmental adaptations for mobility, sight, and hearing		
Behavior	Discuss behavior; ask open-ended questions about changes and if there are any specific client concerns; advise that behavior recommendations and consultations are available	Begin socializing and handling from neonate; encourage puppy preschool and group socialization; address desensitization/grooming needs; discuss bite inhibition; discuss the benefits of crate training relative to housetraining, safety, and comfort	Address inappropriate behavior; recommend continued training classes for behavior, socialization, and well being			Cognitive evaluation/questioning	
Nutrition	See AAHA Nutritional Assessment Guidelines;[13] provide adequate water; regularly evaluate for needed change in nutrition/diet; modify diet based on body or muscle condition scores; discuss supplement use; evaluate metabolic needs based on reproductive status and health issues	Evaluate breed and size for targeted nutrition					
		Discuss establishing a feeding schedule and good feeding and watering habits	Evaluate the feeding schedule, food choice, and quantity; emphasize weight control and benefits to overall health; discuss the ideal weight and muscle condition for the patient				

(Table continued)

TABLE 2 (Continued)

	All	Puppy	Junior	Adult	Mature	Senior	Geriatric
Parasite control	Year-round endoparasite control, including heartworms and zoonotic intestinal parasites based on Companion Animal Parasite Council and CDC recommendations;[97] fecal evaluations based 2–4 times/yr	Discuss prevalence of parasites in puppies and zoonotic potential; early deworming based on Companion Animal Parasite Council and CDC recommendations (i.e., every 2 wk from 3 wk to 9 wk of age then monthly from 6 mo of age); fecal exams 2–4 times during the first year of life	Conduct fecal exams 1–4 times/yr depending on health and lifestyle factors				
Vaccinations	See 2011 AAHA Canine Vaccine Guidelines;[98] evaluate risk assessment and use of noncore vaccinations as indicated; evaluate current information about use of serology/vaccine titers, especially after primary immunizations in younger animals	Core vaccines finishing at 16 wk of age	Continue core and appropriate noncore vaccines based on current guidelines				
Dentistry	Evaluate the existence and adequacy of home care/daily dental hygiene; perform oral exam and document assessment of dental condition; see AAHA Dental Care Guidelines and AVDC recommendations[14]	Evaluate deciduous dentition, persistent deciduous teeth, and extra or incomplete dentition; assess oral development and occlusion; discuss acceptable chew toys for dental health/safety		Evaluate the progression of any periodontal disease; perform regular oral exam under anesthesia, including neoplasia screen; annual mouth radiographs, dental cleaning/polishing, charting, and scoring based on AAHA Dental Care Guidelines			
		Evaluate developmental anomalies, permanent dentition, and accumulation of plaque and calculus; consider first dental cleaning, oral exam, and dental charting, especially in dogs with malocclusions or unerupted teeth and in smaller breeds with crowded dentition		Increase frequency of oral exams under anesthesia as pets age and/or dental condition warrants.			
Reproduction	Examine genitalia of intact and neutered/spayed animals; verify neuter/intact status	Spay/neuter discussion or breeder planning/consult; review literature about advances in temporary contraceptive techniques; examine for tattoo or place tattoo after spaying					
		For intact animals, discuss hazards of roaming, appropriate breeding frequency, genetic counseling, and breeding ages (start and finish)					
		Consider Brucellosis testing; evaluate reproductive health, including prostate, testes, mammary gland; obtain history of female dog heat cycles					
Breed-specific screening	Consider screening for genetic/developmental disorders/diseases that occur at higher frequency in certain breeds (e.g., osteoarthritis, neoplasia)	Discuss inherited disorders for all dogs in which breeding is being considered					

TABLE 3

Minimum Database by Age Group for the Apparently Healthy Animal*

	Puppy	Junior	Adult	Mature	Senior	Geriatric
Fecal flotation	+					
Arthropod-borne disease (e.g., *Rickettsia*, Lyme)	±					
Heartworm screening based on the AHS and CAPC guidelines[97] (i.e., at least annually and always postadoption)	N/A	+				
CBC (hematocrit, RBC, WBC, differential, cytology, platelets)	±			+		
Chemistry screen. At a minimum, include: TP, albumin, globulin, ALP, ALT, glucose, BUN, bilirubin, creatinine, potassium, phosphorus, Na^+, and Ca^+	±			+		
Urinalysis, including specific gravity, sediment, glucose, ketones, bilirubin, protein, and occult blood	±			+		

*See section in text titled "Individualized Approach to the Veterinary Visit." Conduct testing based on signalment and findings on physical exam and in history.

There are too many examples to list them all here; however, one example of a breed-specific test would be performing a urine protein-to-creatinine ratio in breeds predisposed to glomerulopathy.[38] As other examples, blood pressure measurement or thyroid disease screening may be part of a wellness exam if the breed (or other findings) warrants monitoring these parameters.[39] Measurement of blood pressure is discussed in detail elsewhere.[40] Thyroid disease screening is also described in many texts.[41]

Work closely with clients who are involved with breeding programs. Promote responsible breeding practices, and encourage collaboration among breed associations, dog breeders, and university-based canine research programs. Using the current references on breed-specific disorders can reduce perpetuation of disease and promote wellness through careful selection of individuals used for breeding programs. See the current position statements of the AVMA and AAHA regarding procedures such as ear cropping, tail docking, dewclaw removal, and ownership of wolf-dog hybrids.

Working and service dogs not only provide companionship, but also important service roles. These dogs must maintain optimum health and specific physical abilities to be available to perform or provide their special use or assistance.[42–44] Clients with these high-performing dogs may opt for more frequent evaluations or specific preventive care.[45] For optimizing wellness in these valuable service animals, it is vital to share the latest knowledge available.

Behavior Awareness

Developmental periods do not start and end abruptly, but rather phase in and out gradually. Table 2 provides a checklist of items to discuss with each client based on life stage. Educate clients regarding their dog's appropriate behavior and development, including normal and problem behaviors as described below.

Normal Behavior

Socialization

- Discuss with breeders critical behavior development in the first 2–3 wk. Research shows gentle handling increases the neonate's ability to cope with stress later in life.
- Discuss the socialization period (2–12 wk). Demonstrate handling, nail trimming, bite inhibition, and safe exposure to novel sounds, textures, and objects. Explain appropriate exposure to other dogs, species, adults, and children. Encourage clients to attend group classes prior to 4 mo of age to promote socialization behavior.[46]
- Discuss puppy anxiety issues. Puppies experience a fear period around 8–10 wk of age, which often coincides with joining a new family and the first veterinary visit. Some puppies may start to show anxiety at this time and remain fearful even in the absence of any trauma. Use positive reinforcement with treats or toys during transport, exams, vaccinations, and handling. Avoid aversive events because those may have lifelong effects on anxiety, fear, reactivity, and aggressiveness.
- Discuss adult dog phobias (e.g., thunderstorms, fireworks) and how to prevent them.

Exercise and environment

- Discuss appropriate exercise, avoiding temperature extremes, and damage to physeal plates. Encourage exercise routines both at home and in novel environments, including walking on a leash, and activities that also provide mental stimulation (e.g., fetch training or agility training). Such exercise helps with desensitization to stimuli and facilitates socialization, decreases arousal and reactivity, and reduces anxiety and the risk of owner-directed aggression.
- Advise clients about puppy-proofing the home. Provide information about crate training to help with house training and to

help habituate the dog for possible future crate confinement (e.g., for transportation or hospitalization).

- Discuss interactive toys and games, food-dispensing toys, rotating the toys so they maintain novelty, and appropriate play, which all serve to enrich the environment and provide mental stimulation. Humane obedience training (e.g., lure training, clicker training) provides predictable, consistent, and stress-free interaction and an opportunity for the dog to act on the environment with predictable outcome.
- Discuss breed-specific behaviors (e.g., predilection of terriers to dig, herding breeds to herd). Variance within breeds can be profound, and dogs may need environmental enrichment and activities specific to their natural tendencies to expend energy.

Problem Behavior

- Encourage consultation early if behaviors emerge that concern the client. Inappropriate or nuisance behaviors can be corrected with greater ease during the puppy and junior stages than if they are allowed to persist or are dealt with inappropriately. Young dog behaviors often break the human-animal bond at this phase.
- Recognize and address any biting or aggressive tendencies with behavioral counseling, training, and/or referral to a behaviorist. Emphasize safety of the community at large and prevention of dog bites to family members. It is the role of veterinary team to counsel the client when safety is an issue.
- Recognize behaviors that reflect cognitive decline using a questionnaire for senior pets.[47] Answers can be used to help distinguish cognitive from sensory impairment/degradation (especially hearing and vision) or disease.

Nutrition

The veterinary team is the preferred source of nutritional information and has a key role in advising clients about the quality and safety of food and supplements, especially with recurrent food safety issues and misinformation about canine diets. Discussions about nutrition are appropriate at every visit to strengthen the veterinarian's role and provide sound nutritional advice including all of the items in Table 2. AAHA and the World Small Animal Veterinary Association Nutritional Assessment Guidelines provide excellent discussions of comprehensive nutritional plans that can be individualized for each dog.[13,17,48]

With more than 40% of dogs in the United States considered overweight or obese, the primary care veterinary team is in a pivotal position to detect abnormal body condition scores and provide tools for clients to routinely make appropriate adjustments beginning at the dog's first visit.[13,17,49–53] Dogs kept at their ideal weight from puppyhood through the senior life stages live an average of 15% longer.[54]

Advocate evidence-based nutrition.[13,17] An emerging body of evidence infers that certain nutrients may turn gene expression on and off and help prevent disease.[55] Monitor the emerging body of knowledge with regard to supplements, implementing those if and when peer-reviewed evidence-based studies support these potential benefits (e.g., probiotic support of the immune system, the role of eicosapentaenoic acid in inflammation).[13,17] Additionally, use and refer to veterinarians who are board-certified through the American College of Veterinary Nutrition to answer questions and provide nutritional consultations (**Table 4**).

Dental Care

With appropriate care, oral and dental disease and the associated pain may be either prevented or minimized. With so many dogs affected, dental care must be incorporated into each dog's wellness plan and discussed at every visit (Table 2). The oral examination performed on an awake patient allows the practitioner to design a preliminary treatment plan. Only when the patient has been anesthetized can a complete and thorough oral examination be performed and an accurate dental score assigned.[14]

The incorporation of "before and after" dental cleaning photographs (using intraoral cameras, if available) and dental scoring may help motivate clients to take action either before irreversible damage is done to periodontal tissues or repair becomes extensive.[14,56]

Each breed and life stage presents new dental needs and concerns. Certain breeds and sizes of dogs have a higher incidence of dental conditions than others.[57–60] For breeds predisposed to certain oral conditions (e.g., small breeds, brachycephalics, and dogs with malocclusions), evaluate the need for early intervention with either increased frequency of recommended dental procedures or with interceptive orthodontics (e.g., orthodontic management of deciduous malocclusion with select and careful extractions).

Client education is paramount to ensure proper dental care throughout the dog's life. Discuss and demonstrate dental home care options at routine wellness visits, providing visual, verbal, and written information of the benefits and simplicity of effective home care. Discuss avoidance of hard toys that could damage teeth, and provide recommendations for safe products. Comprehensive dental care is described in the AAHA Dental Care Guidelines.

Zoonotic Disease/Pet Sentinel

Veterinarians play a crucial role in protecting dogs, their families, and the public. Routine testing to screen healthy pets for zoonotic disease or shared disease (e.g., tick-borne illness) may allow early detection in people by acting as a sentinel for family health.[61] Attention to local outbreaks of canine disease may be the first indication of a new or emerging infectious agent that could

TABLE 4

Useful Resources for Providing Individualized Patient Care at all Life Stages

Website	URL	Information on website
American Veterinary Dental College	www.avdc.org	Dental information for veterinarians and pet owners
American Animal Hospital Association	https://www.aahanet.org/Library/Guidelines.aspx https://www.aahanet.org/Library/AnimalWelfarePS.aspx	Anesthesia guidelines; Dental care guidelines; Nutritional assessment guidelines; Pain management guidelines; Senior care guidelines; Vaccination guidelines; Position on frequency of veterinary visits; and Animal welfare/position on microchipping
American Association of Feline Practitioners	www.aafp.org	Feline life stage guidelines (and many other guidelines for cats)
American College of Veterinary Nutrition	www.acvn.org	List of board-certified veterinary specialists in nutrition who can provide nutritional consultation
American Heartworm Society	www.heartwormsociety.org	Prevalence, diagnosis, and treatment of heartworm disease
American Veterinary Medical Association	http://www.avma.org/reference/default.asp http://www.avma.org/petfoodsafety/recalls/default.asp	Position statements (microchip, dog bite prevention, animal welfare, travel with animals); and Recalls and alerts issued regarding pet and animal feeds
American Veterinary Society of Animal Behavior	http://www.avsabonline.org/avsabonline/index.php?option=com_content&task=view&id=80&Itemid=366	Position statements (e.g., on puppy socialization)
Canine Inherited Disorders Database	http://ic.upei.ca/cidd/	Disorders by breed/inheritance
CDC	http://www.cdc.gov/parasites http://www.cdc.gov/parasites/ascariasis http://www.cdc.gov/parasites/animals.html http://www.cdc.gov/ticks/	Guidelines for veterinarians: prevention of zoonotic transmission of ascarids and hookworms of dogs and cats; and Information about ecto and endo-parasites
CAPC	www.capcvet.org	Internal parasite guidelines
FDA Center for Food Safety and Applied Nutrition	http://www.fda.gov/AboutFDA/CentersOffices/OrganizationCharts/ucm135675.htm	Regulatory and safety issues, adverse event reporting, meetings, industry information
FDA Pet Food Site	http://www.fda.gov/AnimalVeterinary/Products/AnimalFoodFeeds/default.htm http://www.fda.gov/AnimalVeterinary/NewsEvents/CVMUpdates/default.htm	Information, links, food safety issues, recalls, pet food labels, selecting nutritious foods, handling raw foods
University of Cambridge	http://www.vet.cam.ac.uk/idid/	Inherited diseases in dogs database

AHS, American Heartworm Society; ALP, alkaline phosphatase; ALT, alanine aminotransferase; BUN, blood urea nitrogen; CAPC, Companion Animal Parasite Council; CBC, complete blood count; RBC, red blood cell; TP, total protein

impact humans as well. Immune-compromised individuals within the family unit are at even more risk of zoonotic disease from pets.[62] Common zoonotic diseases are described in many texts.[63,64] Be aware of diseases that occur in your region, and ask clients about travel that might have exposed their pets to regional diseases from other parts of the country or world. Remain alert to news about changes in geographic distribution of disease as the incidence and prevalence are continually monitored and updated.

A recent study of human ocular toxocariasis cited a total of 68 new cases over a 1 yr period and recommended good hygiene practices, timely disposal of pet feces, and the routine deworming of pets as strategies in prevention.[65] Following Companion Animal Parasite Council and CDC guidelines can prevent pet and human health problems.[66,67]

Ingestion of contaminated food or food products can occur with feeding either commercial or raw foods.[68,69] Keep up-to-date with pet food recalls and warnings via the AVMA and FDA websites (Table 4). Dogs being fed or offered raw foods or treats should be precluded from participating in therapy programs for at least 1 mo or longer.[70] Dogs should not be fed raw food or treats in households with immune-compromised individuals (e.g., elderly, children under 5 yr of age, diabetic individuals, and those receiving immunosuppressive drugs).[74,75]

Recommend safe food handling and good food hygiene habits, including hand washing, cleaning food scoops, and bowls in a sink other than the bathroom or kitchen, and avoiding feeding pets in the kitchen to avoid cross-contamination of pet and human foods. Encourage clients to check and save the packaging of all pet food products, including the date code and product code, in case of food contamination.[69]

Safety

Safety hazards vary with life stage and lifestyle, as well as with impairments of mobility, hearing, or sight. Guide the client in identifying and evaluating the potential for hazards, including:

- Home and environmental toxins, toxic plants, and medications

- Electrical cords
- Potential foreign bodies
- Human consumables toxic to pets (e.g., xylitol, raisins)
- Temperature extremes
- Vehicle transport (e.g., restraint, temperature)
- Bodies of water (e.g., pools, ponds)
- Physical hazards (e.g., sharp objects, thorns)
- Wildlife or other animals (infectious disease transmission, attacks/fighting)

Discuss appropriate confinement and control (e.g., leash, collar, chest or head harnesses, crates) in the home, yard, car, and during travel to prevent the aforementioned dangers. Free-roaming dogs are at much greater risk for disease and injury. Appropriate confinement can save lives. Probing questions during history-taking may indicate whether the pet is at risk because of inappropriate confinement, dog fighting, or hoarding conditions. Follow through with appropriate authorities if any pet welfare violations or issues are identified.[73]

Safety also includes planning for care in the event of client or pet illness, accident, or natural or human-caused disasters. Discuss with the client healthcare financial planning, disaster preparedness, and estate planning. Encourage appropriate registration and identification, including discussing the value of microchipping, external identification tags, and licensing.[74,75] Readable, current identification increases the chance of recovering lost dogs.[76,77]

Reproductive Health

At the initial puppy visit, discuss the dog's reproductive future. Monitor older dogs for neoplasms of the reproductive organs.

Castration is the most common procedure for neutering male dogs. For females, ovariectomy has become the procedure of choice in most of Europe. Ovariohysterectomy remains the most common procedure in the United States, United Kingdom, and Canada.[78–80] Any sterilization procedure has potential behavior and health benefits and concerns that should be completely discussed with owners. [81–83] For example, hysterectomy with retention of ovaries may warrant further consideration as an alternative to complete ovariohysterectomy as it may be helpful to avoid certain conditions later in life (e.g., hormonally responsive urinary incontinence, transitional cell carcinoma).[84–86] Some sex-associated unwanted behaviors may be prevented with spaying/neutering.[85,87,88]

Shelter and rescue groups promote early spay and castration prior to adoption to reduce pet over-population.[89,90] Neutering of pediatric animals has been endorsed by the AVMA as a means of reducing the numbers of unwanted cats and dogs.[91] Spaying female dogs before 2.5 yr of age may reduce the risk of mammary tumors (the most common tumors in female dogs) and nearly eliminates the risk of pyometra.[92–95]

Coordinating surgical sterilization with permanent dentition eruption (particularly in small breeds prone to persistent deciduous teeth and unerupted first mandibular premolars) allows the identification and correction of dental abnormalities under a single anesthetic episode.

Implementation and Conclusion

The ultimate goal of wellness care is improved quality of life and longevity. Comprehensive life stage wellness care permits early detection and treatment or control of disease and cost-saving in long-term healthcare expenses. Clearly defined wellness plans encourage a unified approach from the entire veterinary team. The client is a crucial member of this team. A collaborative approach is generally linked to best outcomes.[11,96] Table 4 provides web-based resources useful to both the veterinary team and clients.

A strong, clear recommendation must always begin with the veterinarian and be followed up by the entire veterinary team. Incorporate individualized life stage guidelines into reminder and callback systems.[48] Strong, unified follow-up recommendations from the multiple members of the entire veterinary team will produce better compliance. Discuss future life stage recommendations beginning with the first visit to help set client expectations. Make it easy for the client to comply (e.g., consider types of or timing of preventive medications), advise clients of the risks and benefits, and provide encouragement in carrying out the patient's wellness care needs.

Discuss healthcare financial planning to help pet owners prepare for the costs associated with optimal healthcare. Discuss wellness plans, including the pros and cons of insurance and/or other forms of healthcare financial planning to help pet owners comply with an optimal wellness plan. Staging of procedures, multiple visits, and various payment options may help increase compliance and ensure that patients receive as many of the wellness recommendations as possible.

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