



## AAHA Canine Life Stage Guidelines

# IMPLEMENTATION TOOLKIT



Supplement to Periodicals Publication

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### More Online at [aahanet.org](http://aahanet.org)

Model Protocol

Patient History Checklists by Life Stage

Wellness Exam Checklists by Life Stage

*Download these files and use them in your practice!*



### AT-A-GLANCE SUMMARY

- Life stage divisions offer a **framework** for individualized care.
- **Consider age, size and breed** when defining a dog's life stage.
- **Conduct a physical exam** and obtain a complete patient history, using the protocol, algorithm, and checklists in this toolkit.
- Evaluate the need for **parasite control and vaccination**.
- **Create individual recommendations** based on the dog's breed and circumstances.
- Routine tests are particularly important for **mature, senior, and geriatric patients**.
- Discuss normal **behavior and socialization**, problem behaviors, and lifestyle.
- Perform a **nutritional assessment**.
- Perform a **dental/oral exam**.
- Test for and provide preventive care for geographically relevant **zoonotic diseases**.
- Discuss **reproduction** and breeding.
- Conduct **breed-specific disease screening** and evaluations.
- **Review related AAHA Guidelines** for detailed information about nutritional assessment, vaccinations, dental care, senior care, and more.

## Why Guidelines Matter

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Veterinary practice guidelines, like the recent AAHA Canine Life Stage Guidelines, help ensure that pets get the best possible care. From medical director to veterinary assistant, guidelines keep your hospital staff on the cutting edge of veterinary medicine.

AAHA Guidelines review the latest information to help staff address central issues and perform essential tasks to improve the health of the pet. In addition, guidelines define the role of each staff member, so everyone on the healthcare team can work together to offer the best-quality medical care. Many guidelines intersect with the AAHA Canine Life Stage Guidelines, including the following:

- AAFP/AAHA Feline Life Stage
- AAHA/AVMA Preventive Healthcare
- Canine Vaccine
- Dental Care
- Diabetes Management
- Nutritional Assessment
- Pain Management
- Senior Care

Please go to [www.aahanet.org](http://www.aahanet.org) to see all of the guidelines in their entirety.

Guidelines are just that—a guide—established by experts in a particular area of veterinary medicine. Guidelines do not outweigh the veterinarian's clinical judgment; instead, they help veterinarians develop treatment plans that meet each patient's needs and circumstances.

Aligning your practice protocols with guideline recommendations is a key step in ensuring that your practice continues to deliver best quality care.

To support your dedicated efforts, AAHA is pleased to offer this toolkit. In this booklet and with its online complement, you'll find a protocol, algorithm, checklists, staff roles, talking points, client handout, and other tools you can use every day to implement the recommendations of the AAHA Canine Life Stage Guidelines.

Thank you for helping to advance our shared mission to deliver the best in companion animal medical care. Together, we can make a difference!



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# 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.

## 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 doing so, 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.<sup>1</sup> Some authors have further divided the stages prior to adulthood with regard to behavior and development.<sup>2</sup>

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.<sup>3–5</sup> 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.

## 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.<sup>6</sup> Pheromones may be helpful for their potential calming effect.<sup>7,8</sup> 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.<sup>9</sup> 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

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\*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. This implementation toolkit is sponsored by a generous educational grant from Elanco Companion Animal Health, Hill's Pet Nutrition, Merial, and Pfizer Animal Health.

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.<sup>10,11</sup>

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.<sup>12</sup> 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.<sup>13</sup> When possible, use a defined scoring system (e.g., body condition score, muscle condition score).<sup>13–18</sup> 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.<sup>19,21,23</sup>

Routine tests such as 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.<sup>4</sup> 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.<sup>5,24–27</sup> 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.<sup>28,29</sup> At least two-thirds of dog breeds have at least one recognized genetic disorder.<sup>30</sup> Various resources describe breed-specific normal values and disease predispositions. Understanding these can help guide decisions for testing.<sup>31–37</sup> 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).

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.<sup>38</sup> 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.<sup>39</sup> Measurement of blood pressure is discussed in detail elsewhere.<sup>40</sup> Thyroid disease screening is also described in many texts.<sup>41</sup>

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, dew-claw removal, and ownership of wolf-dog hybrids.

Working and service dogs not only provide companionship, but also important service roles. These dogs must

**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

**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 <sup>4</sup> |  |
|                  |   |  | 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; <sup>13</sup> 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 |        |   |  |  |
| Parasite Control | Year-round ectoparasite control per Companion Animal Parasite Council and CDC.<br><br>Year-round endoparasite control, including heartworms and zoonotic intestinal parasites based on Companion Animal Parasite Council and CDC recommendations; <sup>97</sup> 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   |        |   |  |  |

TABLE 2 (CONTINUED)

|                          | All  | Puppy   | Junior   | Adult | Mature | Senior | Geriatric |
|--------------------------|--|---|--|-------|--------|--------|-----------|
| Vaccinations             | See 2011 AAHA Canine Vaccine Guidelines; <sup>98</sup> 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 <sup>14</sup>   | 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 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., <i>Rickettsia</i> , Lyme)  |       |        |       | ±      |        |           |
| Heartworm screening based on the AHS and CAPC guidelines <sup>97</sup> (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 <sup>+</sup> , and Ca <sup>+</sup> |       | ±      |       |        | +      |           |
| 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.

maintain optimum health and specific physical abilities to be available to perform or provide their special use or assistance.<sup>42–44</sup> Clients with these high-performing dogs may opt for more frequent evaluations or specific preventive care.<sup>45</sup> 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.<sup>46</sup>
- **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 physical 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.<sup>47</sup> 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.<sup>13,17,48</sup>

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.<sup>13,17,49–53</sup> Dogs kept at their ideal weight from puppyhood through the senior life stages live an average of 15% longer.<sup>54</sup>

Advocate evidence-based nutrition.<sup>13,17</sup> An emerging body of evidence infers that certain nutrients may turn gene expression on and off and help prevent disease.<sup>55</sup> 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).<sup>13,17</sup> 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.<sup>14</sup>

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.<sup>14,56</sup>

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.<sup>57–60</sup> 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.<sup>61</sup> Attention to local outbreaks of canine disease may be the first indication of a new or emerging infectious agent that could impact humans as well. Immune-compromised individuals within the family unit are at even more risk of zoonotic disease from pets.<sup>62</sup> Common zoonotic diseases are described in many texts.<sup>63,64</sup> 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 toxocarasis 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.<sup>65</sup> Following Companion Animal Parasite Council and CDC guidelines can prevent pet and human health problems.<sup>66,67</sup>

Ingestion of contaminated food or food products can occur

with feeding either commercial or raw foods.<sup>68,69</sup> 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.<sup>70</sup> 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).<sup>74,75</sup>

**TABLE 4: USEFUL RESOURCES FOR PROVIDING INDIVIDUALIZED PATIENT CARE AT ALL LIFE STAGES**

| Website  | URL  | Information on Website   |
|--|--|--|
| American Veterinary Dental College               | <a href="http://www.avdc.org">www.avdc.org</a>   | Dental information for veterinarians and pet owners  |
| American Animal Hospital Association             | <a href="http://www.aahanet.org/Library/Guidelines.aspx">www.aahanet.org/Library/Guidelines.aspx</a><br><a href="http://www.aahanet.org/Library/AnimalWelfarePS.aspx">www.aahanet.org/Library/AnimalWelfarePS.aspx</a>   | 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     | <a href="http://www.catvets.com">www.catvets.com</a>   | Feline life stage guidelines (and many other guidelines for cats)  |
| American College of Veterinary Nutrition         | <a href="http://www.acvn.org">www.acvn.org</a>   | List of board-certified veterinary specialists in nutrition who can provide nutritional consultation   |
| American Heartworm Society                       | <a href="http://www.heartwormsociety.org">www.heartwormsociety.org</a>   | Prevalence, diagnosis, and treatment of heartworm disease  |
| American Veterinary Medical Association          | <a href="http://www.avma.org/reference/default.asp">www.avma.org/reference/default.asp</a><br><a href="http://www.avma.org/petfoodsafety/recalls/default.asp">www.avma.org/petfoodsafety/recalls/default.asp</a>   | 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   | <a href="http://www.avsonline.org/avsonline/index.php?option=com_content&amp;task=view&amp;id=80&amp;Itemid=366">www.avsonline.org/avsonline/index.php?option=com_content&amp;task=view&amp;id=80&amp;Itemid=366</a>   | Position statements (e.g., on puppy socialization)   |
| Canine Inherited Disorders Database              | <a href="http://ic.upei.ca/cidd/">ic.upei.ca/cidd/</a>   | Disorders by breed/inheritance   |
| CDC  | <a href="http://www.cdc.gov/parasites">www.cdc.gov/parasites</a><br><a href="http://www.cdc.gov/parasites/ascariasis">www.cdc.gov/parasites/ascariasis</a><br><a href="http://www.cdc.gov/parasites/animals.html">www.cdc.gov/parasites/animals.html</a><br><a href="http://www.cdc.gov/ticks/">www.cdc.gov/ticks/</a> | Guidelines for veterinarians: prevention of zoonotic transmission of ascarids and hookworms of dogs and cats; and information about ecto and endo-parasites  |
| CAPC   | <a href="http://www.ccapvet.org">www.ccapvet.org</a>   | Internal parasite guidelines   |
| FDA Center for Food Safety and Applied Nutrition | <a href="http://www.fda.gov/AboutFDA/CentersOffices/OrganizationCharts/ucm135675.htm">www.fda.gov/AboutFDA/CentersOffices/OrganizationCharts/ucm135675.htm</a>   | Regulatory and safety issues, adverse event reporting, meetings, industry information  |
| FDA Pet Food Site                                | <a href="http://www.fda.gov/AnimalVeterinary/Products/AnimalFoodFeeds/default.htm">www.fda.gov/AnimalVeterinary/Products/AnimalFoodFeeds/default.htm</a><br><a href="http://www.fda.gov/AnimalVeterinary/NewsEvents/CVMUpdates/default.htm">www.fda.gov/AnimalVeterinary/NewsEvents/CVMUpdates/default.htm</a>         | Information, links, food safety issues, recalls, pet food labels, selecting nutritious foods, handling raw foods   |
| University of Cambridge                          | <a href="http://www.vet.cam.ac.uk/idid/">www.vet.cam.ac.uk/idid/</a>   | 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.

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.<sup>69</sup>

## 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.<sup>73</sup>

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.<sup>74,75</sup> Readable, current identification increases the chance of recovering lost dogs.<sup>76,77</sup>

## 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.<sup>78–80</sup> Any sterilization procedure has potential behavior and health benefits and concerns that should be completely discussed with owners.<sup>81–83</sup> 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).<sup>84–86</sup> Some sex-associated unwanted behaviors may be prevented with spaying/neutering.<sup>85,87,88</sup>

Shelter and rescue groups promote early spay and castration prior to adoption to reduce pet over-population.<sup>89,90</sup> Neutering of pediatric animals has been endorsed by the AVMA as a means of reducing the numbers of unwanted cats and dogs.<sup>91</sup> 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.<sup>92–95</sup>

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.<sup>11,96</sup> 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.<sup>48</sup> 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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# Model Protocol

## AAHA Canine Life Stage Care Protocol Template

To help you write the protocol, a detailed model protocol with detailed checklists for every life stage, is available at [aahanet.org](http://aahanet.org).

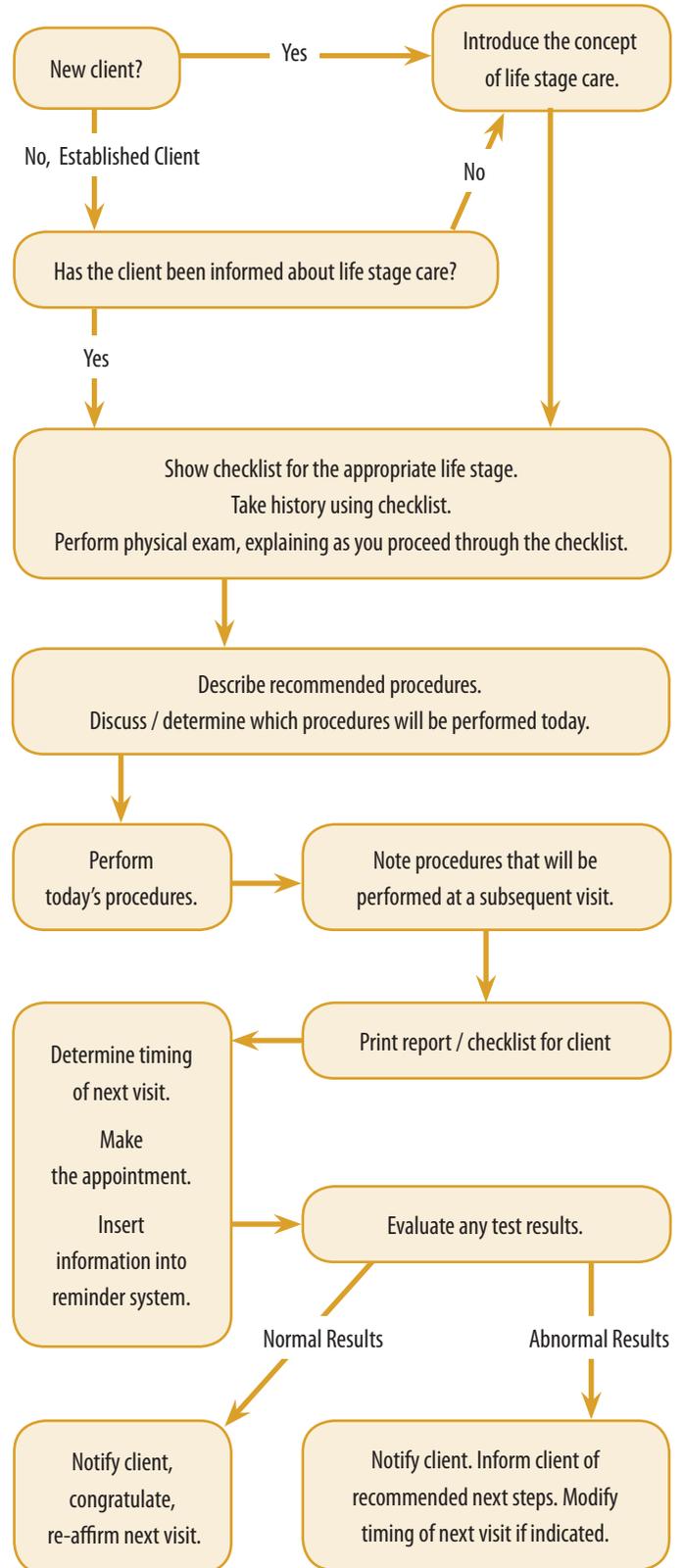
|   |                                     |
|---|-------------------------------------|
| Hospital name   |                                     |
| Date created or updated   |                                     |
| Implementation date   | Date to review/update this protocol |
| AAHA Guidelines referenced: <i>List the relevant AAHA guidelines.</i>   |                                     |
| Purpose: <i>Outline the purpose of this protocol and how it furthers your practice's mission.</i>   |                                     |
| Training: <i>Specify who is trained, on what topics, and when; who provides training; how often training will be refreshed or repeated.</i> |                                     |
| Team member(s) responsible: <i>Adapt this from the Staff Roles and Responsibilities (page 16)</i>   |                                     |
| Supervisor/Point person: <i>List the practice team member(s) responsible for managing the implementation of the protocol.</i>               |                                     |

### Areas to Address

|   |
|---|
| General: <i>This protocol is driven by algorithm checklists. Download and customize the algorithm and checklists to create the foundation of your protocol.</i>   |
| Practice management software: <i>Describe how your practice management software will be used to store information, prompt staff, or remind clients or otherwise promote recommended care.</i>                                     |
| Follow-up: <i>Describe the process for following up with clients when life stage wellness exams reveal conditions or diseases that require additional diagnostics or treatment.</i>   |
| Communication and client education: <i>Describe how the practice team will explain and persuade clients to adopt life stage health care. List handouts or other materials that will be used to promote life stage healthcare.</i> |
| Inventory: <i>List core items the practice must keep in stock to sell or distribute to clients to support life stage care.</i>  |
| Staff motivation: <i>Describe how you will incentivize or motivate staff to maintain consistency and momentum over time.</i>  |
| Other: <i>Add additional areas relevant to your protocol.</i>   |



## Model Algorithm



# Staff Roles and Responsibilities

## It takes a practice team.

### Doctors

- Discuss the guidelines and toolkit at a doctors' meeting.
- Using the model provided (online), write your practice's protocol.
- Decide responsibilities for completing specific tasks and assign to doctors and technicians.

#### *During the wellness exam:*

- Review the appropriate life stage checklist with the client.
- With the client, review the pet's history.
- With client agreement, perform indicated procedures.
- Share educational materials with the client.
- If test results are abnormal, follow up with the client and recommend a plan for next steps.

### Practice manager

- Meet with doctors and technicians to discuss how the guidelines and the toolkit will be used.
- File the completed protocol and schedule periodic reviews/updates of it.
- Maintain an adequate supply of materials required to implement the guidelines in each exam room and at the reception desk.
- Based on the practice protocol, determine which checklist(s) will be used for each patient.
- Ensure that checklists are completed for every client visit.
- Give a copy of the relevant checklist(s) to each client.
- Plan team meetings for training and motivation.
- Track scheduling and follow up on reminders and appointments.

### All practice team members

- In a team meeting, discuss the AAHA Canine Life Stage Guidelines and toolkit.
- Discuss how you will use the tools.
- Clarify each team member's roles.
- Discuss ways to educate and motivate clients to participate as your partner in their pet's care.
- Follow the guidelines with your own pets.

### Technicians

- With doctors, determine which tasks and procedures will be performed by technicians and which by doctors.
- With the client, review the pet's history.
- With the client, review the tests, assessments and procedures that will be performed.
- Show the client relevant training tools.
- After procedures, follow up with the client to check the pet's status or report normal laboratory test results.

### Client service representatives

- Answer client questions, or to let clients know who will be able to do so.
- Give clients relevant printed information on check out.
- Review procedures that were performed, explaining the value of wellness care.
- Schedule the next appointment at check out.
- Emphasize that regular care promotes the pet's quality of life and longevity.
- Send reminders at appropriate times using the client's preferred method (e-mail, telephone, or mail).

## Use these examples to create talking points for your team.

### **Introduce or remind the client about the importance of life stage wellness and preventive care.**

**Example:** “Preventive care gives your dog the best chance for a long and healthy life. At our hospital, we recommend care based on the life stage of your dog. Based on your dog’s age and breed, your dog falls into the [ ] stage.”

**Suggestion:** When the client makes the initial appointment, describe life stage wellness care and mention the procedures that might be recommended for their pet.

### **Show the client the specific checklist you will use for their dog, and explain how you will use the checklist.**

**Example:** “Preventive care also varies based on your dog’s lifestyle and the part of the country where we live. So that we can tailor your dog’s health care to his needs, I’d like to ask some questions about his lifestyle. When we’re finished we’ll discuss a plan for today and for subsequent visits. What are your questions so far?”

**Suggestion:** Provide the client with a history form to fill out prior to the appointment. The form should ask questions about all the categories in the life stage guidelines.

### **Begin going over the history questions on the checklist.**

**Example:** “We’ll start with questions about your dog’s medical history and lifestyle. Once we go over these questions, then I’ll [or, the doctor will] perform a physical exam. We consider you a partner in your dog’s care, and your input is really valuable. So thank you for taking the time to go over this with us. Let’s get started. . . [begin questions]”

**Suggestion:** If the client has filled out a history form, then review the questions with the client in the room, asking about ambiguous areas.

## Perform the physical exam.

### **Discuss any abnormal findings from the history or the exam, or congratulate the client on having a healthy pet.**

**Example:** “Your dog seems very healthy today. Congratulations on doing such a good job! His weight is good, so keep up the exercise and remember not to feed too many table scraps. From what you said about travel, we should discuss his vaccination program and parasite control, to be sure he’s protected against any diseases you may encounter. Also, his teeth show some buildup of tartar. He’s due for a dental exam and cleaning so we can schedule that today.” *Discuss additional recommended testing or procedures.*

### **Determine which items may be performed today and which might be performed at a subsequent visit.**

**Example:** “Because your dog is in the senior age group, we recommend doing blood and urine tests. These tests will hopefully show that your dog is healthy, but if there are any problems, we will have caught them early so we can take action to improve his chances of staying as healthy as possible.”

### **Perform today’s procedures and discuss any immediate findings.**

**Example:** “We’ll analyze the blood and urine samples and call you with the results. Since your pet’s exam was good, we don’t anticipate any abnormal results, but if we do find something, we will be able to address it immediately.”

### **Make an appointment for the next step, whether that is the next wellness exam or a procedure.**

**Example:** “We have a few openings next week where we could perform the dental cleaning. When is convenient for you?”



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# Canine Life Stages

## What to Expect at Your Dog's Exam

We approach your dog's care based on his life stage, rather than his age, because dogs mature at different rates, depending on size and breed.

## Life Stages

**Puppy:** Newborn until reproductive maturity

**Junior:** Reproductively mature, still growing

**Adult:** Finished growing

**Mature:** From adult up to approximately the last 25% of expected lifespan (depends on the breed)

**Senior:** From maturity to life expectancy (depends on the breed)

**Geriatric:** At life expectancy and beyond

## Your Dog's Exam

During each exam, we will take your dog's temperature and check his pulse and respiration. We will also talk to you about his lifestyle, vaccinations, parasites, dental care and routine tests that may provide a baseline when your dog is young and allow early detection of disease when your dog is older. We will also discuss:

**Behavior:** Including obedience training, normal behavior and problem behaviors such as puppy anxiety issues or adult dog phobias.

**Nutrition:** We can provide tools for you to make good choices to keep your dog at a healthy weight, and we can advise you about the quality and safety of food and supplements.

**Dental care:** With appropriate care, dental disease and the associated pain may be prevented or minimized. We will discuss and demonstrate dental home care options. The oral examination performed while your dog is awake allows the veterinarian to design a preliminary treatment plan. Only when your dog has been anesthetized can a thorough oral exam be performed.

**Zoonotic and shared diseases:** These are diseases that can be transmitted or shared between animals and people. Routine testing for zoonotic diseases helps protect your dog and your family.

**Safety:** We will help you identify hazards, such as plants, medications, and human foods toxic to pets, and wildlife or other animals that could harm your dog.

**Reproduction and breeding:** You may have your dog spayed or neutered. We will explain the behavior and health benefits and concerns. We can also screen your dog for breed-specific disorders if you are considering breeding.



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For more information on care for each stage of your pet's life, visit [www.healthypet.com](http://www.healthypet.com).

# Exam Checklists for Dogs at Every Stage of Life

## Exam Checklists for Dogs at Every Stage of Life

**No need to reinvent the wheel. AAHA has created wellness-exam checklists for every life stage, based on the AAHA Canine Life Stage Guidelines.**

Download the checklists from [aahanet.org](http://aahanet.org). Customize them for your practice. Build your protocol around them. Use them for staff training. Run through the checklist for every patient at every visit. With checklists as your guide, every canine patient can receive the best individualized care.

| PHYSICAL EXAM AND HISTORY CHECKLIST: PUPPY<br>Neonate until reproductive maturity |   | COMMENTS/NOTES |
|---|---|----------------|
| <b>GENERAL</b>  | <input type="checkbox"/> Thorough physical exam <ul style="list-style-type: none"> <li>○ Temperature, pulse, respiration, pain, nutritional assessment</li> <li>○ Evaluate congenital disorders</li> </ul> <input type="checkbox"/> Microchip/permanent identification <input type="checkbox"/> Travel advice <input type="checkbox"/> Boarding/grooming advice/care <input type="checkbox"/> Current medications and supplements, nutraceuticals, and herbs <input type="checkbox"/> Exam frequency  |                |
| <b>ENVIRONMENT</b>  | <input type="checkbox"/> Increased awareness of hazards at this age <input type="checkbox"/> Discuss and emphasize daily exercise needs appropriate to age <input type="checkbox"/> Exercise/mental stimulation/enrichment <input type="checkbox"/> Family unit/household members and their risk factors <input type="checkbox"/> Other animals (wild/domestic) <input type="checkbox"/> Toxins/hazards; household and outdoor safety <input type="checkbox"/> Housing, confinement, temperature, and sanitation <input type="checkbox"/> Infectious disease risk assessment <ul style="list-style-type: none"> <li>○ Boarding, grooming</li> <li>○ Dog parks</li> <li>○ Geographic location, travel</li> </ul> |                |
| <b>BEHAVIOR</b>   | <input type="checkbox"/> Discuss behavior <ul style="list-style-type: none"> <li>○ Behavior changes</li> <li>○ Any specific client concerns</li> </ul> <input type="checkbox"/> Begin socialization <input type="checkbox"/> Encourage appropriate behavior <input type="checkbox"/> Address inappropriate behavior <input type="checkbox"/> Discuss behavior enrichment <input type="checkbox"/> Discuss behavior safety, and advise the available   |                |
| <b>NUTRITION</b>  | <input type="checkbox"/> Discuss exercise   |                |

| PHYSICAL EXAM AND HISTORY CHECKLIST   |   |
|---|---|
| Thank you for providing this information, which will help make your visit more efficient and will help us to optimize your dog's health. Your veterinary team will review your replies and may have additional questions for you. |   |
| <b>GENERAL</b>  | <input type="checkbox"/> Does your dog have a microchip or other permanent identification (collar/ tag)?_ No/ Yes: _____ <input type="checkbox"/> Do you travel with your dog? If yes, to what states/countries? No/ Yes: _____ <input type="checkbox"/> Do you ever board your dog? _____ <input type="checkbox"/> Do you take your dog to a groomer? _____ <input type="checkbox"/> Please list any current medications and supplements, nutrients and/or herbs that you give to your dog. _____  |
| <b>ENVIRONMENT</b>  | <input type="checkbox"/> What kind of exercise does your dog do? _____ <input type="checkbox"/> Do you have any of the following person(s) in your home? Children; elderly; immune-compromised individuals, including those receiving chemotherapy? _____ <input type="checkbox"/> Please list any other dogs or animals kept by your household. _____ <input type="checkbox"/> Where does your dog spend the time during the day? _____ The night? _____ <input type="checkbox"/> Do you ever take your dog to dog parks, day care, organized competitions, or other activities with other dogs? _____ |
| <b>BEHAVIOR</b>   | <input type="checkbox"/> What are your questions about your dog's behavior? _____ <input type="checkbox"/> Does your dog have any behavior t _____ <input type="checkbox"/> Has your dog attended / is it attend _____  |
| <b>NUTRITION</b>  | <input type="checkbox"/> What kind of dog food do you feed _____ <input type="checkbox"/> How is water supplied to your dog? _____ <input type="checkbox"/> Does your dog have altered gastro describe: _____ <input type="checkbox"/> What kinds of snacks, treats, or tab _____ <input type="checkbox"/> Have you noticed any weight loss _____ <input type="checkbox"/> Have you noticed any change in yo _____  |

| PHYSICAL EXAM AND HISTORY CHECKLIST: ADULT<br>Finished growing, structurally and socially mature |   | COMMENTS/NOTES |
|--|---|----------------|
| <b>GENERAL</b>   | <input type="checkbox"/> Thorough physical exam <ul style="list-style-type: none"> <li>○ Temperature, pulse, respiration, pain, nutritional assessment</li> <li>○ Address the special needs of working/service dogs</li> </ul> <input type="checkbox"/> Microchip/permanent identification <input type="checkbox"/> Travel advice <input type="checkbox"/> Boarding/grooming advice/care <input type="checkbox"/> Current medications and supplements, nutraceuticals, and herbs <input type="checkbox"/> Exam frequency  |                |
| <b>ENVIRONMENT</b>   | <input type="checkbox"/> Discuss and emphasize daily exercise needs appropriate to age <input type="checkbox"/> Exercise/mental stimulation/enrichment <input type="checkbox"/> Family unit/household members and their risk factors <input type="checkbox"/> Other animals (wild/domestic) <input type="checkbox"/> Toxins/hazards; household and outdoor safety <input type="checkbox"/> Housing, confinement, temperature, and sanitation <input type="checkbox"/> Infectious disease risk assessment <ul style="list-style-type: none"> <li>○ Boarding, grooming</li> <li>○ Dog parks</li> <li>○ Geographic location, travel</li> </ul> |                |
| <b>BEHAVIOR</b>  | <input type="checkbox"/> Discuss behavior, ask open-ended questions <ul style="list-style-type: none"> <li>○ Behavior changes</li> <li>○ Any specific client concerns</li> </ul> <input type="checkbox"/> Address inappropriate behavior <input type="checkbox"/> Recommend continued training classes for behavior, socialization, and well being <input type="checkbox"/> Advise that behavior recommendations and consultations are available  |                |
| <b>NUTRITION</b><br><i>See AAHA National Assessment Guidelines and related tools, checklists</i> | <input type="checkbox"/> Adequate water <input type="checkbox"/> Evaluate the feeding schedule, food choice, and quantity <input type="checkbox"/> Emphasize weight control and benefits to overall health <input type="checkbox"/> Discuss the ideal weight and muscle condition for the patient <input type="checkbox"/> Evaluate for needed change in nutrition/diet   |                |

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This implementation toolkit was developed by the American Animal Hospital Association (AAHA) to provide information for practitioners regarding each stage of a dog's life. The information contained in this toolkit should not be construed as dictating an exclusive protocol, course of treatment, or procedure, nor is it intended to be an AAHA standard of care. This implementation toolkit is sponsored by a generous educational grant from Elanco Companion Animal Health, Hill's Pet Nutrition, Merial, and Pfizer Animal Health.

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