

TABLE 2

Diagnostic Approaches by Body System for Senior Dogs and Cats

Body System	Diagnostic Approach	Therapeutic Tip
<p>Integument</p>	<p>PE focus: Identify, describe, and map skin lesions, i.e., pruritus, alopecia. Do not forget nails, nail beds, and interdigital spaces.</p> <p>Baseline dermatology diagnostic evaluation should include:</p> <ul style="list-style-type: none"> • Senior blood profile with urinalysis • Skin scraping/impression cytology of any lesions • Dermatophyte testing if concerned about fungal disease • Measuring, mapping and aspiration of any growths • Other integument issues regarding nails, nail beds; ears may need different care • Evaluate for pain • For malignant conditions, consider thoracic and abdominal imaging as part of the clinical staging <p>The Guidelines task force encourages skin biopsy in senior pets presented with chronic dermatopathy if the baseline diagnostics are negative.</p> <p>Recommend referral to a specialist for chronic, progressive, or neoplastic cases.</p>	<ul style="list-style-type: none"> • Avoid steroid use if possible until a microscopic diagnosis is established. • Recognize that dermatologic issues may also have a pain component and should be treated for pain. • Use validated scales to monitor progression of treatment as appropriate.¹
<p>Oral</p>	<p>PE focus: Oral cavity, with particular focus on fractured, loose teeth, foreign bodies, oral ulcers, inflammation, masses. Make note of degree of dental disease and ability to prehend and swallow. Head and neck palpation.</p> <p>Baseline diagnostic evaluation should include:</p> <ul style="list-style-type: none"> • Senior blood profile with urinalysis <p>Additional diagnostic tests:</p> <ul style="list-style-type: none"> • Complete visual examination of the entire oral cavity with general anesthesia • Head and neck radiographs • Skull CT may be useful 	<ul style="list-style-type: none"> • Staging procedures is a viable plan.
<p>Hemolymphatic</p>	<p>PE focus: Mucous membrane color, capillary refill time, abdominal palpation, lymph node palpation.</p> <p>Baseline diagnostic evaluation should include:</p> <ul style="list-style-type: none"> • Senior blood profile with urinalysis • Lymph node aspiration if indicated <p>Additional diagnostic tests:</p> <ul style="list-style-type: none"> • CBC with pathology evaluation for cell morphology • Imaging to rule out secondary etiology for hematologic abnormality • Coagulation profile • Flow cytometry in select cases • Bone marrow aspirate 	

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<p>GI/Hepatic/ Biliary</p>	<p>PE focus: Abdominal palpation, noting enlargement of organs, thickening, masses. Color of mucous membranes, skin (inner ear pinnae), conjunctiva, noting if jaundice present.</p> <p>Baseline diagnostic evaluation should include:</p> <ul style="list-style-type: none"> ● Senior blood profile with urinalysis ● Thoracic radiographs ● Abdominal radiographs <p>Additional diagnostic considerations:</p> <ul style="list-style-type: none"> ● Abdominal ultrasound <ul style="list-style-type: none"> • Tip: If ultrasound shows thickened muscularis layer, then laparoscopic or surgical biopsies appear to be more diagnostic. ● Fecal sample examination ● Rectal examination ● Gastrointestinal panel ● Bile acids ● Endoscopy/colonoscopy 	<ul style="list-style-type: none"> ● Enzymes or probiotics may be useful based on the individual patient. ● Appetite stimulants and meat puree treats can be used for cats who are hyporexic or anorexic. ● Recommend medication for nausea, as well as appetite stimulants as indicated.
<p>Renal/ Urogenital</p>	<p>PE focus: Evaluate muscle condition score, body condition score, size and shape of kidneys, propensity for crystal or stone formation, indications of neoplasia.</p> <p>Baseline renal diagnostic evaluation should include:</p> <ul style="list-style-type: none"> ● Senior blood profile with urinalysis <ul style="list-style-type: none"> • Tip: Monitor and record early trends in SDMA, creatinine, and USG (making a chart of these indicators may be helpful) • If proteinuria present, UP:UC ratio ● Blood pressure ● Urine culture if indicated <ul style="list-style-type: none"> • Distinguish bacteriuria/pyuria from infection <p>For patients with renal disease identified with screening tests:</p> <ul style="list-style-type: none"> ● Abdominal imaging (radiographs and ultrasound may both be useful; however, ultrasound may be preferred for a solitary test) ● Monitor blood pressure more frequently in patients with chronic kidney disease ● Continued monitoring of bloodwork, SDMA, BUN, creatinine ● Continued monitoring for proteinuria <p>For patients identified with uroliths:</p> <ul style="list-style-type: none"> ● Surgery may be indicated ● Diet change may be indicated <p>For patients identified with neoplasia:</p> <ul style="list-style-type: none"> ● Additional staging recommended ● Referral to a veterinary oncologist should be considered 	<ul style="list-style-type: none"> ● Maintaining hydration is imperative. ● Provide daily fluid therapy for patients when indicated, recognizing this may be earlier for senior patients, and may include parenteral, subcutaneous, or intravenous fluid therapy. ● Adopt an antimicrobial approach to urinary tract infections.² ● Recognize renal failure may create pain and/or pruritus (this is recognized in humans).³

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<p>Neurologic</p>	<p>PE focus: Full neurologic examination with checklist.^{4,5}</p> <p>Baseline diagnostic evaluation should include:</p> <ul style="list-style-type: none"> • Senior blood profile with urinalysis • Full neurologic examination <p>Additional diagnostic tests to consider:</p> <ul style="list-style-type: none"> • SOD-1 testing for degenerative myelopathy • MRI • DISHAA or other questionnaires for cognitive dysfunction syndrome⁶ • Ultrasound, chest radiograph <p>Diagnostic tips:</p> <ul style="list-style-type: none"> • Rule out syncope vs. seizure • Palpate axillae for pain from a nerve sheath tumor • Evaluate client video for all conditions • Evaluate toenail wear <p>Consider referral to a neurologist for further workup/MRI:</p> <ul style="list-style-type: none"> • Include any client video with referral materials 	<ul style="list-style-type: none"> • Use multimodal therapy.
<p>Endocrine</p>	<p>PE focus: General body appearance, palpation of thyroid, abdominal palpation, concern for hair loss, distended abdomen, redistribution of fat, and eye changes, including corneal, anterior chamber, lens, pressures, tear production, retina.</p> <p>Baseline diagnostic evaluation should include:</p> <ul style="list-style-type: none"> • Senior blood profile with urinalysis <p>Additional diagnostic tests to consider:</p> <ul style="list-style-type: none"> • Special hormonal assays depending on suspected disease • Regional imaging and advanced imaging with CT is often necessary <p>Additional testing for chronic disease:</p> <ul style="list-style-type: none"> • Hyperthyroid/Hypothyroid: Monitor T4, calcium levels • Hyperadrenocorticism: <ul style="list-style-type: none"> • ACTH stimulation test or low-dose dexamethasone suppression test • Monitor adrenal size with ultrasound • Hypoadrenocorticism: ACTH stimulation test • Diabetes: periodic or continuous glucose monitoring, fructosamine, urinalysis to monitor for ketones, urinary tract infection, hematuria • Hyperparathyroidism: Monitor calcium, phosphorus levels, urinalysis for urinary tract infection • Hypoparathyroidism: Monitor calcium levels 	<ul style="list-style-type: none"> • The FreeStyle Libre sensor can provide continuous monitoring for diabetic animals for up to 14 days (see the <i>2018 AAHA Diabetes Management Guidelines for Dogs and Cats</i>).⁷

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Cardiac/ Respiratory	<p>PE focus: Auscultation of heart and lungs, identify normal and abnormal rhythm, breath sounds, muffled chest sounds, location of abnormality.</p> <p>Baseline cardiac/respiratory diagnostic evaluation should include:</p> <ul style="list-style-type: none"> • Senior blood profile with urinalysis • Thoracic radiographs • Echocardiogram • Blood pressure • NT-proBNP <p>Additional diagnostic considerations:</p> <ul style="list-style-type: none"> • Abdominal imaging if necessary • Respiratory: Infectious disease evaluation (PCR methods preferred) 	<ul style="list-style-type: none"> • Dogs with pacemakers often do well. • Consider working with a rehabilitation specialist for therapy options. • Owner education is key to therapeutic management.
Musculoskeletal	<p>PE focus: General body palpation with focus on spine, limbs, joints, muscular condition score, movement examination, full orthopedic examination, evaluation of pain level.</p> <p>Baseline diagnostic evaluation should include:</p> <ul style="list-style-type: none"> • Senior blood profile with urinalysis <p>Additional diagnostic tests:</p> <ul style="list-style-type: none"> • Regional radiographs • Arthrocentesis 	<ul style="list-style-type: none"> • Consider a diagnostic round of pain control. • Use multimodal pain management when possible. • Make recommendations for clients interested in using harnesses, slings, etc. • Encourage clients to video their pets when they are monitoring pain and mobility as this can provide valuable insight to guide treatment.

¹ Olivry T, Saridomichelakis M, Nuttall T, et al. Validation of the Canine Atopic Dermatitis Extent and Severity Index (CADESI)-4, a simplified severity scale for assessing skin lesions of atopic dermatitis in dogs. *Vet Dermatol.* 2014;25(2):77-e25. doi:10.1111/vde.12107

² See Frey E, Costin M, Granick J, Kornya M, Weese JS. 2022 AAFP/AAHA Antimicrobial Stewardship Guidelines. *J Am Anim Hosp Assoc.* 2022;58(4):1–5. doi:10.5326/1547-3317-58.4.1. Available at aaha.org/antimicrobials.

³ O'Connor NR, Corcoran AM. End-stage renal disease: symptom management and advance care planning [published correction appears in *Am Fam Physician.* 2012 May 15;85(10):950. Dosage error in article text]. *Am Fam Physician.* 2012;85(7):705–710.

⁴ Averill DR Jr. The neurologic examination. *Vet Clin North Am Small Anim Pract.* 1981;11(3):511–521. doi:10.1016/s0195-5616(81)50056-8

⁵ Chrisman C. Step-by-step: the neurologic examination. *Clinician's Brief.* May 2018. Available at <https://www.cliniciansbrief.com/article/step-step-neurologic-examination>.

⁶ O'Brian ML, Herron ME, Smith AM, Aarnes TK. Effects of a four-week group class created for dogs at least eight years of age on the development and progression of signs of cognitive dysfunction syndrome. *J Am Vet Med Assoc.* 2021;259(6):637–643. doi:10.2460/javma.259.6.637

⁷ Behrend E, Holford A, Lathan P, Rucinsky R, Schulman R. 2018 AAHA Diabetes Management Guidelines for Dogs and Cats. *J Am Anim Hosp Assoc.* 2018;54(1):1–21. doi:10.5326/JAAHA-MS-6822/

ACTH: adrenocorticotropic hormone

BUN: blood urea nitrogen

CBC: complete blood count

CT: computed tomography scan

NT-proBNP: N-terminal pro B-type natriuretic peptide

PCR: polymerase chain reaction

PE: physical examination

SDMA: symmetric dimethylarginine assay

SOD-1: superoxide dismutase

T4: thyroxine

UP:UC ratio: urine protein to creatinine ratio

USG: urine specific gravity

The 2023 AAHA Senior Care Guidelines for Dogs and Cats are available at aaha.org/senior-care.

These guidelines were prepared by a Task Force of experts convened by the American Animal Hospital Association (AAHA) and were subjected to a formal peer-review process. This document is intended as a guideline only, not an AAHA standard of care. These guidelines and recommendations should not be construed as dictating an exclusive protocol, course of treatment, or procedure. Variations in practice may be warranted based on the needs of the individual patient, resources, and limitations unique to each individual practice setting. ©2023 AAHA.

