Early detection, early action: advancing renal care in cats and dogs

Regular diagnostic screening of patients during veterinary visits is widely recommended as a means of establishing baseline values during health or for monitoring and updating patient status. However, one major barrier to regular testing is a common misperception that testing is unnecessary in patients without overt clinical signs of illness.[1] Two IDEXX studies challenge this belief and illustrate that identification of early stages of renal disease in cats improves outcomes, and inclusion of SDMA in wellness testing provides medically meaningful differences.

Study 1: Early CKD intervention improves outcomes

Chronic kidney disease (CKD) is among the most common metabolic disorders in cats, with prevalence ranging 1%–3% overall and up to 35%–80% in geriatric cats.[2–4] Once diagnosed, treatment focuses on slowing progression, maintaining nutrition, and managing complications.[1,3,4]

Study overview

Medical records of cats born 2010–2014 that had been given a diagnosis of chronic kidney disease by their veterinarian were reviewed. Cats falling into International Renal Interest Society (IRIS) CKD Stage 1 and 2 categories[3] that had blood work performed at IDEXX Reference Laboratories, including hematocrit, SDMA, and creatinine results, every other year starting at age 7 were included. Cats were divided into two groups: those that were prescribed a renal diet at the time of diagnosis and annually thereafter and those that were not prescribed a renal diet. Renal diets included any commercial diet that required veterinarian approval for purchase, including both wet and/or dry diets and prescription of more than one brand. Cats with incomplete or unclear medical or dietary history and cats eating a home-cooked renal diet were excluded.

A total of 1,430 cats met the study criteria, and of these, 839 cats were continuously prescribed a renal diet and 591 were not.

Key findings

- Cats diagnosed with early-stage CKD and treated with a renal diet had an approximately 1-year delay in progression to a later IRIS CKD stage and a 45% lower risk of progression.
- Treated cats had a 30% lower risk of all-cause mortality in the first 3 years after diagnosis.
- Cats that died during the first 3 years after diagnosis lived an average of 20% longer when they received treatment.

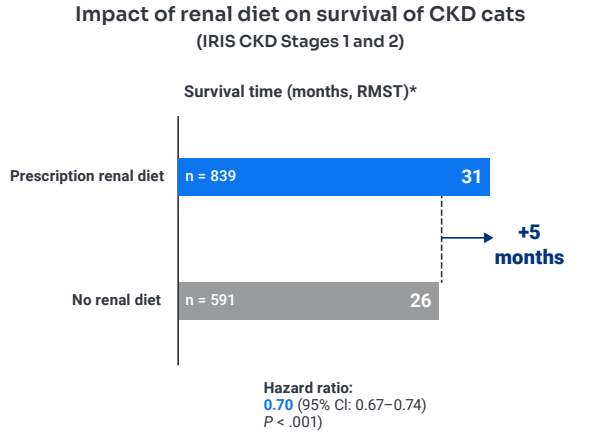
Conclusion

Early diagnosis and dietary intervention in IRIS CKD Stage 1 or 2 significantly improves longevity and slows disease progression in cats. Cats in these early stages of CKD are often asymptomatic, and routine wellness blood work is key to detection of disease prior to the onset of clinical signs. Cats with early-stage CKD being transitioned to a renal diet should be monitored according to IRIS guidelines to ensure the selected diet is well tolerated.

Table 1: Time to CKD progression in cats: renal diet vs. no renal diet

IRIS CKD stage	Treatment group	Time to progression (months)
1	Renal diet	20
	No renal diet	9
Early 2	Renal diet	28
	No renal diet	9
Late 2	Renal diet	21
	No renal diet	12

Figure 1: Survival time in CKD cats: renal diet vs. no renal diet



*Increased survival time is calculated using restricted mean survival time (RMST). RMST is the area under the survival curve up to a specific time point, which is a 3-year period in this study. Mortality from any cause was measured for survival analyses.

Study 2: Adding SDMA improves detection of reduced glomerular filtration rate (GFR) compared to creatinine alone

Symmetric dimethylarginine (SDMA) is an indirect marker of glomerular filtration rate (GFR), and it is recognized as an early indicator of renal dysfunction in dogs and cats.[5–7] Renal biomarkers can exhibit variability among individual patients. For example, SDMA is less affected by lean body mass than creatinine, which is more susceptible to muscle mass changes.[8] Therefore, concurrent evaluation of SDMA and creatinine provides a more comprehensive assessment of renal function.

Study overview

The study analyzed records from approximately 47,000 dogs and 46,000 cats (ages 1–20 years) tested on IDEXX point-of-care platforms (e.g., ProCyte Dx™ Hematology Analyzer or Catalyst Dx™ Chemistry Analyzer) for visits occuring January 2021–July 2022. Data included complete hematology, biochemistry with SDMA, electrolytes, urinalysis in all animals, and a total T_4 for cats over 7 years of age. Patients were grouped by age (Young, Adult, Senior).[9] Decreased renal function was defined as having an SDMA, BUN, or creatinine value above the upper reference limit with a USG < 1.030 (dogs) or < 1.040 (cats).

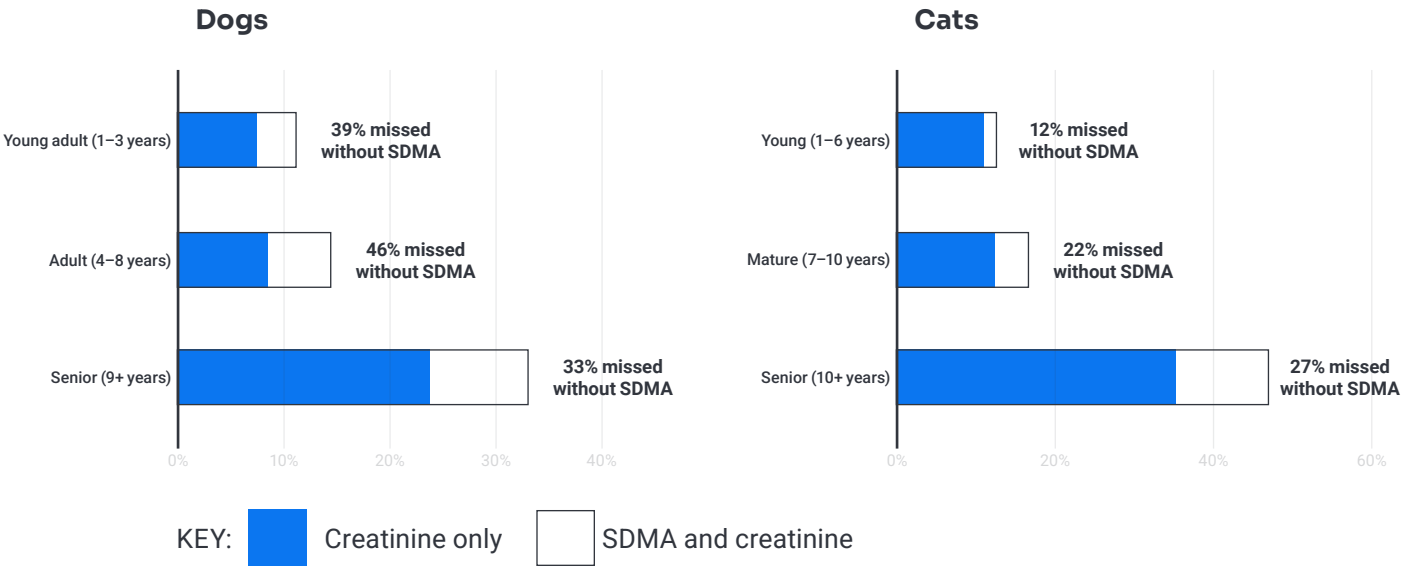
Key finding

Inclusion of SDMA in in-clinic chemistry profiles identified on average 30% more clinically significant renal changes than creatinine alone in dogs and cats.

Conclusion

Adding SDMA to chemistry profiles provides an early indicator of decreased renal function, prompting earlier investigation, closer monitoring, and timely follow-up that can support improved patient outcomes.

Figure 2: Detection of dogs and cats with decreased renal function with and without inclusion of SDMA



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