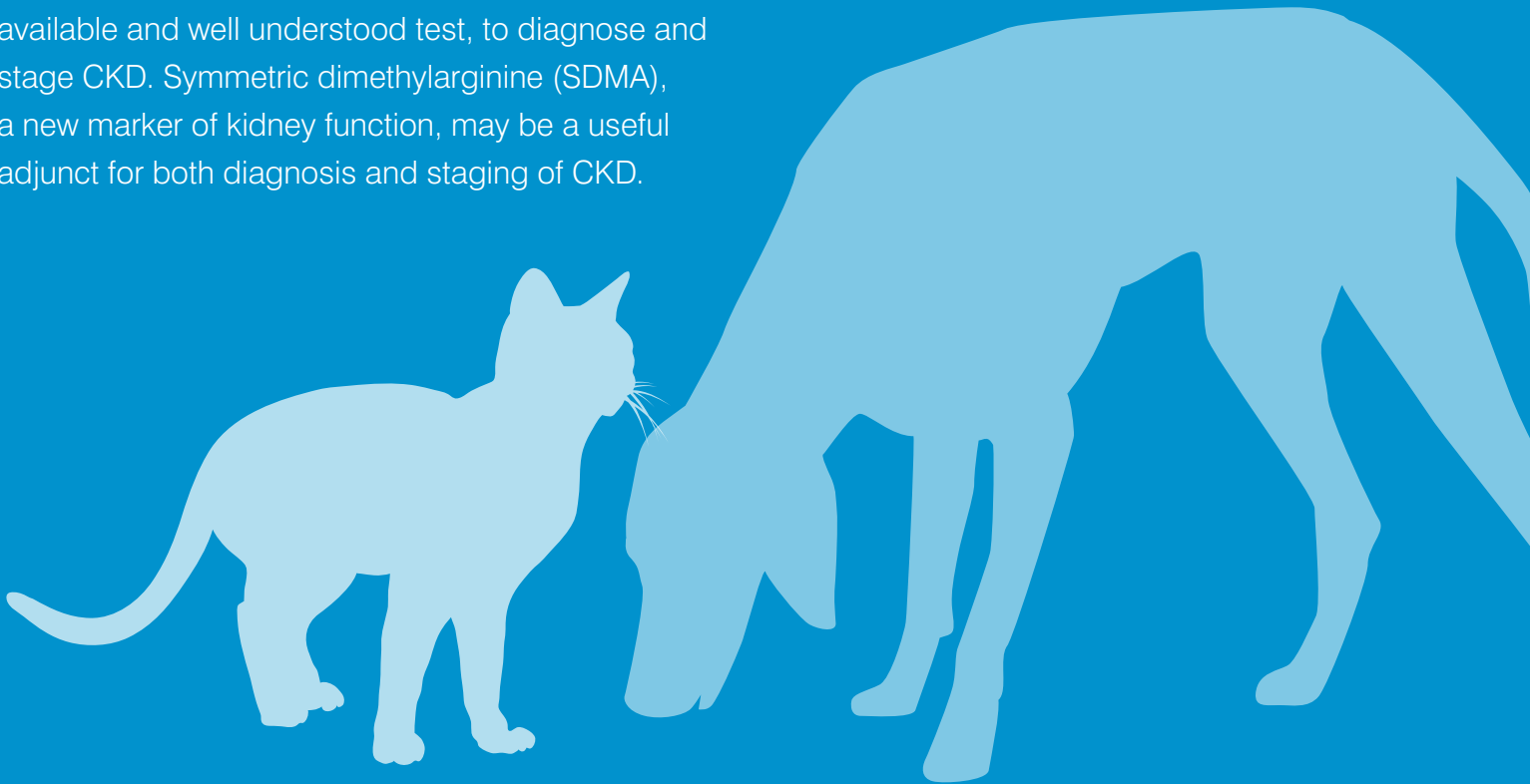


Diagnosing, Staging, and Treating Chronic Kidney Disease in Dogs and Cats

Chronic kidney disease (CKD) is diagnosed based on evaluation of all available clinical and diagnostic information in a stable patient. The IRIS Board continues to recommend using creatinine, a widely available and well understood test, to diagnose and stage CKD. Symmetric dimethylarginine (SDMA), a new marker of kidney function, may be a useful adjunct for both diagnosis and staging of CKD.



Step 1: Diagnose CKD

Clinical signs and physical examination findings worsen with increasing severity of kidney disease

Clinical presentation

Consider age, sex, breed predispositions, and relevant historical information, including medication history, toxin exposure, and diet.

Can be asymptomatic in early CKD. Signs may include polyuria, polydipsia, weight loss, decreased appetite, lethargy, dehydration, vomiting, and bad breath.

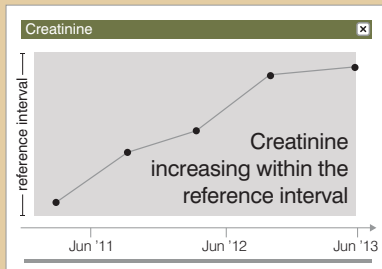
Physical examination findings

Can be normal in early CKD. Findings may include palpable kidney abnormalities, evidence of weight loss, dehydration, pale mucous membranes, uremic ulcers, evidence of hypertension, i.e., retinal hemorrhages/detachment.

To diagnose early CKD

One or more of these diagnostic findings

1

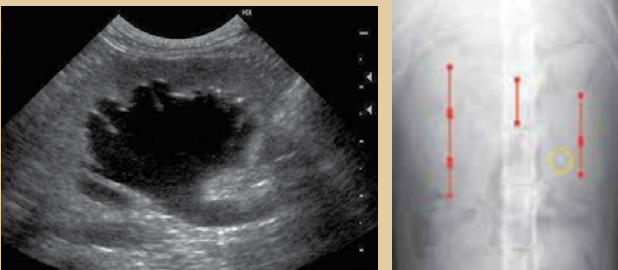


2

Persistent increased SDMA > 14 $\mu\text{g}/\text{dL}$

3

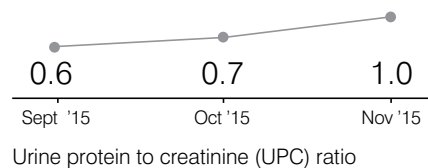
Abnormal kidney imaging



4

Persistent renal proteinuria

UPC > 0.5 in dogs; UPC > 0.4 in cats



OR

To diagnose more advanced CKD

Both of these diagnostic findings

Increased creatinine and SDMA concentrations

Creininine

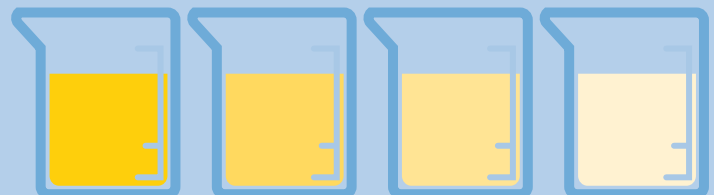
SDMA

Results of both tests should be interpreted in light of patient's hydration status.

plus

Urine specific gravity < 1.030

Urine specific gravity < 1.035



1.030

Canine

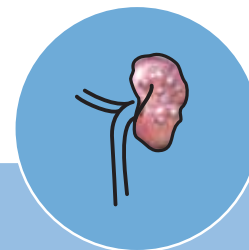
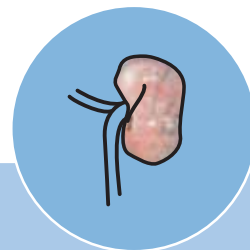
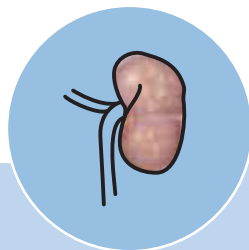
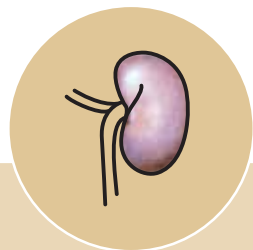
1.008

1.035

Feline

1.008

Step 2: Stage CKD



Stage 1
No azotemia

Stage 2
Mild

Stage 3
Moderate

Stage 4
Severe

Creatinine in mg/dL

Stage based on stable creatinine

Canine

<1.4

1.4–2.0

2.1–5.0

>5.0

Feline

<1.6

1.6–2.8

2.9–5.0

>5.0

 **SDMA** in $\mu\text{g/dL}$

>14

>14

Moderately increased

Markedly increased


Consider understaged based on creatinine

≥ 25 

≥ 45 

UPC ratio

Substage based on proteinuria

Canine

Nonproteinuric <0.2 Borderline proteinuric 0.2–0.5 Proteinuric >0.5

Feline

Nonproteinuric <0.2 Borderline proteinuric 0.2–0.4 Proteinuric >0.4

Systolic blood pressure in mm Hg

Substage based on blood pressure

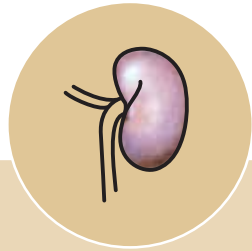
Normotensive <150 Borderline hypertensive 150–159

Hypertensive 160–179 Severely hypertensive ≥ 180

 SDMA = IDEXX SDMA™ Test

See iris-kidney.com for more detailed staging, therapeutic, and management guidelines.

Step 3: Treat CKD



Stage 1 No azotemia

Investigate for and treat underlying disease

Treat hypertension if systolic blood pressure persistently >160 or evidence of end-organ damage

Treat persistent proteinuria with therapeutic diet and medication

(UPC >0.5 in dogs; UPC >0.4 in cats)

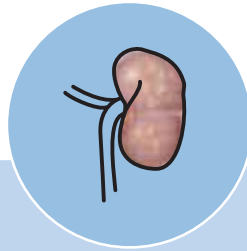
Keep phosphorus <4.6 mg/dL

If required, use kidney therapeutic diet +/- phosphate binder

Use with caution potentially nephrotoxic drugs

Correct prerenal and postrenal abnormalities

Fresh water available at all times



Stage 2 Mild

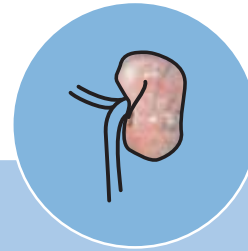
Same as Stage 1

Kidney therapeutic diet

Treat hypokalemia in cats

Treat metabolic acidosis

If 📌 SDMA ≥ 25, consider treatment for Stage 3



Stage 3 Moderate

Same as Stage 2

Keep phosphorus <5.0 mg/dL

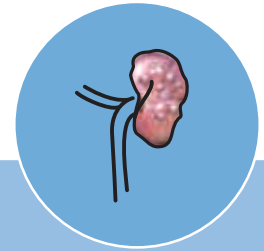
Treat anemia (PCV <25% in dogs; PCV <20% in cats)

Treat vomiting/inappetence/nausea

Consider subcutaneous and/or enteral fluids to maintain hydration

Consider calcitriol therapy in dogs

If 📌 SDMA ≥ 45, consider treatment for Stage 4



Stage 4 Severe

Same as Stage 3

Keep phosphorus <6.0 mg/dL

Consider feeding tube for nutritional and hydration support and for ease of medicating

Treatment recommendations

Consider treatment of next stage. Creatinine may underestimate degree of kidney dysfunction in patients with poor muscle mass.



International Renal Interest Society

📌 SDMA = IDEXX SDMA™ Test

See iris-kidney.com for more detailed staging, therapeutic, and management guidelines.