IRIS
International Renal Interest Society

Diagnosing, Staging, and Treating Chronic Kidney Disease in 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.

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.
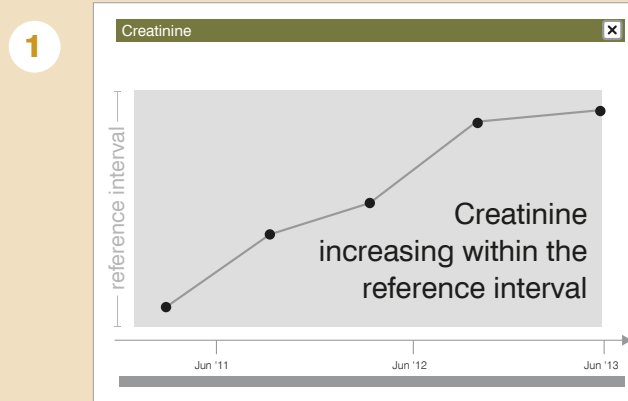
Physical examination findings

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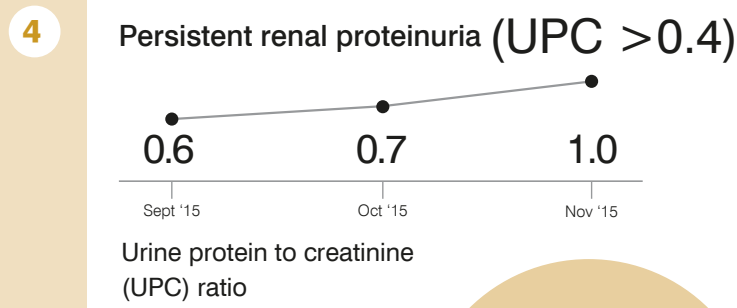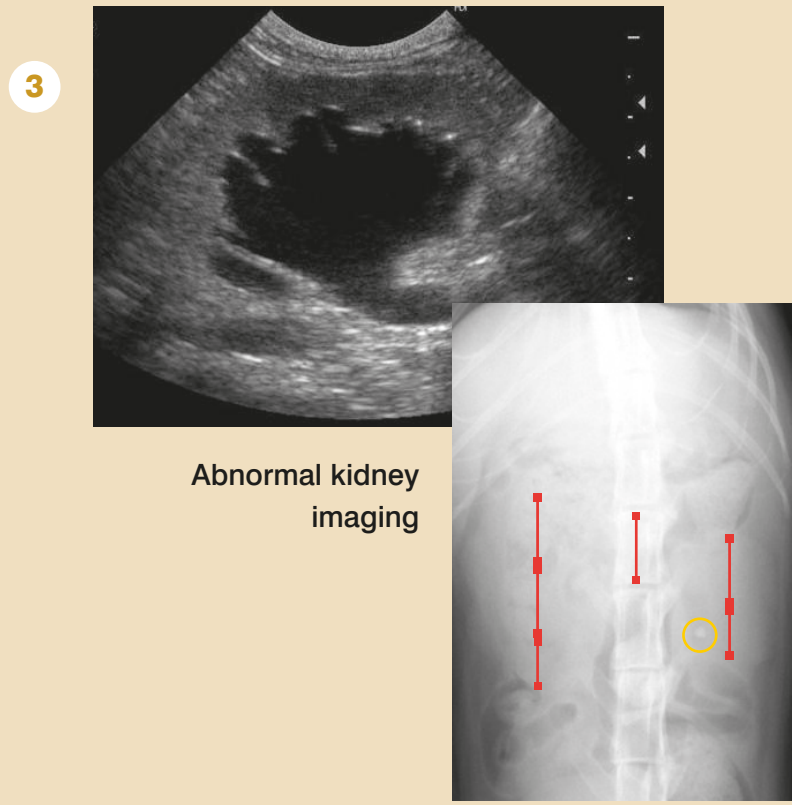
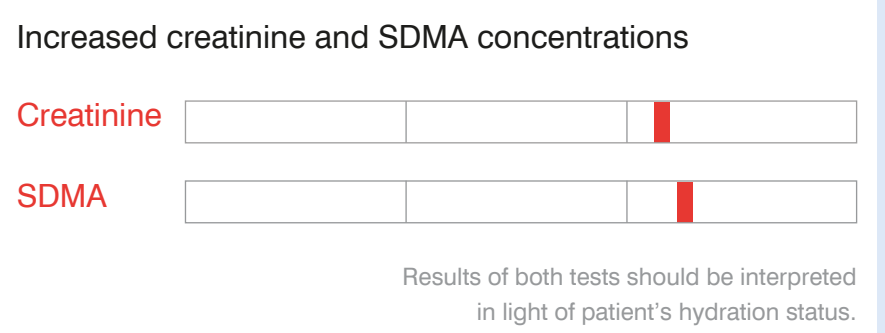Clinical signs and physical examination findings worsen with increasing severity of kidney disease

STEP 1: DIAGNOSE CKD

Diagnostic findings:

One or more of the following findings

1. Creatinine

   Creatinine increasing within the reference interval

   Jun 11   Jun 12   Jun 13

2. **Persistent increased**
   SDMA >14 μg/dL

3. Abnormal kidney imaging

4. Persistent renal proteinuria (UPC >0.4)

   0.6   0.7   1.0

   Sept '15   Oct '15   Nov '15

   Urine protein to creatinine (UPC) ratio

Both of the following findings

Increased creatinine and SDMA concentrations

Creatinine

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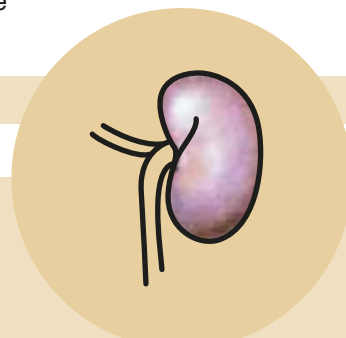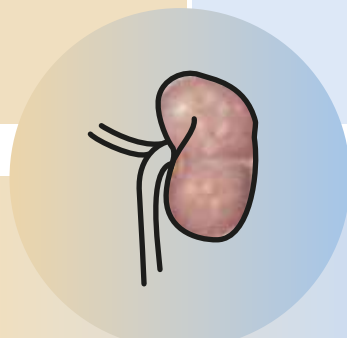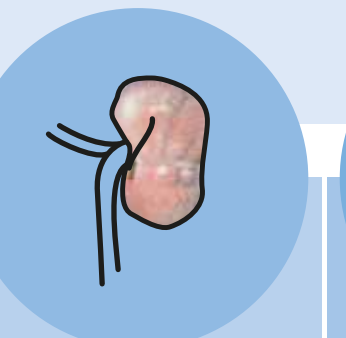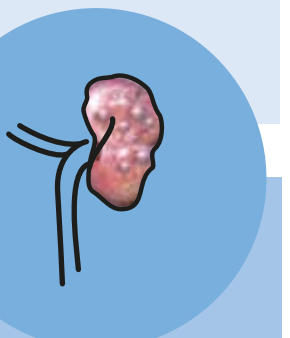
Results of both tests should be interpreted in light of patient's hydration status.

plus

Urine specific gravity

<1.035

1.035   1.008

STEP 2: STAGE CKD

	Stage 1 **No azotemia**	Stage 2 **Mild**	Stage 3 **Moderate**	Stage 4 **Severe**
Creatinine in μmol/L — Stage based on stable creatinine	<140	140–250	251–440	>440
SDMA in μg/dL — Supporting SDMA results	>14	>14 / ≥25	Moderately increased / ≥45	Markedly increased

Consider understaged based on creatinine

UPC ratio Substage based on proteinuria	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**

STEP 3: TREAT CKD

Treatment recommendations

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

Stage 1

Investigate for and treat underlying disease

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

Treat persistent proteinuria (UPC >0.4) with kidney therapeutic diet and medication

Keep phosphorus <1.50 mmol/L

If required, use kidney diet +/– phosphate binder

Use with caution potentially nephrotoxic drugs

Correct prenal and postrenal abnormalities

Fresh water available at all times

Stage 2

Same as Stage 1

Kidney therapeutic diet

Treat hypokalemia

Treat metabolic acidosis

If SDMA ≥25, consider treatment for Stage 3

Stage 3

Same as Stage 2

Keep phosphorus <1.60 mmol/L

Treat anemia if PCV <20%

Treat vomiting/appetite/nausea

Consider subcutaneous and/or enteral fluids to maintain hydration

If SDMA ≥45, consider treatment for Stage 4

Stage 4

Same as Stage 3

Keep phosphorus <1.90 mmol/L

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

SDMA=IDEXX SDMA™ Test

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

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