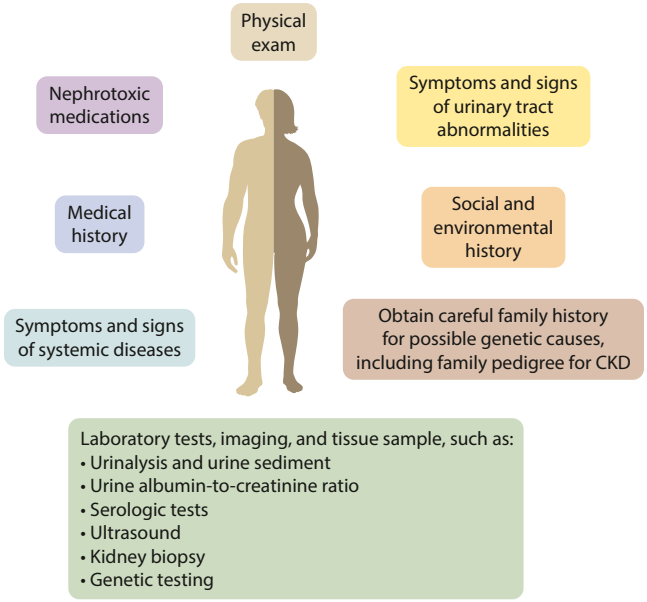

Figure 8| Evaluation of cause of chronic kidney disease (CKD).

Practice Point 1.1.4.2: Use tests to establish a cause based on resources available (Table 6[22,98-100]).

Table 6| Guidance for the selection of additional tests for evaluation of cause

Test category	Examples	Comment or key references
Imaging	Ultrasound, intravenous urography, CT kidneys ureters bladder, nuclear medicine studies, MRI	Assess kidney structure (i.e., kidney shape, size, symmetry, and evidence of obstruction) for cystic disease and reflux disease. Evolving role of additional technologies (e.g., 3D ultrasound)
Kidney biopsy	Ultrasound-guided percutaneous	Usually examined by light microscopy, immunofluorescence, and electron microscopy, and, in some situations, may include molecular diagnostics Used for exact diagnosis, planning treatment, assessing activity and chronicity of disease, and likelihood of treatment response; may also be used to assess genetic disease
Laboratory tests: serologic, urine tests	Chemistry including acid-base and electrolytes, serologic tests such as anti-PLA2R, ANCA, anti-GBM antibodies Serum-free light chains, serum, and urine protein electrophoresis/immunofixation Urinalysis and urine sediment examination	Refer to *KDIGO 2021 Clinical Practice Guideline for the Management of Glomerular Diseases*[22] Increasing recognition of the role of light chains in kidney disease even in the absence of multiple myeloma (monoclonal gammopathy of renal significance [MGRS])[98] Presence of persistent hematuria or albuminuria is critical in determining differential diagnosis
Genetic testing	*APOL1, COL4A3, COL4A4, COL4A5, NPHS1, UMOD, HNF1B, PKD1, PKD2*	Evolving as a tool for diagnosis, increased utilization is expected. Recognition that genetic causes are more common and may present without classic family history[99,100]

ANCA, antineutrophil cytoplasmic antibody; *APOL1*, apolipoprotein 1; *COL4A*, type IV collagen alpha chain; CT, computed tomography; GBM, glomerular basement membrane; *HNF1B*, hepatocyte nuclear factor 1B; MRI, magnetic resonance imaging; *NPHS1*, congenital nephrotic syndrome; *PKD1*, polycystic kidney disease-1; *PKD2*, polycystic kidney disease-2; PLA2R, M-type phospholipase A2 receptor; *UMOD*, uromodulin.

Recommendation 1.1.4.1: We suggest performing a kidney biopsy as an acceptable, safe, diagnostic test to evaluate cause and guide treatment decisions when clinically appropriate *(2D)*.

1.2 Evaluation of GFR

1.2.1 Other functions of kidneys besides GFR

Practice Point 1.2.1.1: Use the term "GFR" when referring to the specific kidney function of glomerular filtration. Use the more general term "kidney function(s)" when dealing with the totality of functions of the kidney.