

Chronic Kidney Disease Toolkit

Blue Cross Blue Shield of Michigan
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FEBRUARY 2024

None of the information included is intended to be medical advice and as such it remains the provider's responsibility to ensure that any services performed are done in accordance with but not limited to all applicable state and federal laws and regulations.

Click one of the boxes below to go directly to that section of the document.

Overview

Patient CKD education

Clinical guidelines

CKD interventions

Kidney assessment

Kidney Health Evaluation
for Patients with Diabetes
(KED)

Kidney Disease Improving
Global Outcomes (KDIGO)
Heat Map

References

Classification of CKD

Additional resources

Clinical evaluation of
patients with CKD



Overview

The Centers for Disease Control and Prevention estimates that approximately 35.5 million people in the United States have chronic kidney disease, or CKD. Individuals with diabetes, hypertension and obesity are at higher risk, and as many as nine in 10 adults who have CKD are unaware of their diagnosis.¹

Primary care providers play a crucial role in identifying patients at risk for chronic kidney disease. Understanding both modifiable and nonmodifiable risk factors is critical when screening patients who are at the highest risk for developing CKD.

Primary care practices are instrumental in monitoring and managing patients with chronic kidney disease and are pivotal in determining when a referral to a nephrologist is clinically appropriate.

National efforts have been initiated to increase CKD awareness among patients and primary care providers. Increasing awareness and screening rates can identify patients who are most at risk for CKD and CKD progression. If CKD can be detected earlier, interventions can be introduced sooner that could slow the progression of CKD. This can improve long-term outcomes by encouraging appropriately timed referrals to nephrologists, increasing access to home dialysis treatments and performing preemptive and early kidney transplants for those who continue to progress to end stage renal disease.

In addition, we must strive to eliminate the continued health inequities seen in the patients who have CKD. To accomplish this, initial screenings should include an evaluation for social determinants of health, such as transportation, housing instability and food insecurity.² These factors can affect access to health care and patient engagement in self-advocacy and health prevention.

Clinical guidelines

The National Kidney Foundation[®] has declared CKD as an unrecognized public health issue due to a lack of awareness surrounding CKD risk factors and prevention.

Individuals with risk factors for CKD, such as diabetes and hypertension, should be screened at least annually for albuminuria and estimated glomerular filtration rate, or eGFR. However, less than 10% of those with hypertension and less than 40% of those with diabetes are appropriately evaluated.³ Studies have also shown that individuals with both low eGFR and elevated urine albumin/creatinine ratio, or uACR, are at increased risk for a cardiovascular event.⁴

Kidney assessment

There are two important kidney tests — one to assess kidney function and one to assess whether the kidney has been damaged.

Kidney function is assessed using the eGFR. It's important to use the Chronic Kidney Disease Epidemiology Collaboration, or CKD-EPI, equation to calculate eGFR, because this equation eliminates race as part of the calculation. Reach out to your local laboratory or health system to verify that they've changed their internal calculation of eGFR when reporting results. It's no longer acceptable to see two different lab values based on race.

Kidney damage is assessed using a spot urine sample to measure the uACR. The uACR is recommended because it isn't affected by urine concentration variation, which can be an issue when testing albumin using a urine dipstick.⁵

Together, these tests provide key information about kidney health, including helping to determine the stage of CKD and the risk of CKD progression when lab values are trended.

Some laboratories offer the eGFR and uACR tests in a combined panel for ease of ordering; look for the "Kidney Profile."



KDIGO Heat Map

Recommendations:

- Review the patient’s medical record to ensure appropriate screening labs are complete (eGFR and uACR). Once you receive results, follow the KDIGO Heat Map and the guidance below.
- Identify underlying CKD risk factors, such as diabetes, hypertension, obesity, family history of kidney failure or kidney disease, race or ethnicity, history of smoking, history of acute kidney injury, or AKI, and age.
- Schedule a follow-up appointment with the patient as needed.
- If the patient is enrolled in care management, integrate this process into the care management program.

The following information is adapted from the KDIGO Heat Map.⁶ It includes general parameters based on expert opinions. Consider any underlying comorbid conditions and disease states, as well as the likelihood that a change in management will be required for any individual patient.

Within the color-coded cells:

- “Refer” means a referral to a nephrologist is recommended.
- The number at the bottom of the cell shows the number of times per year the patient should be monitored.

				Albuminuria categories		
				Description and range		
				A1	A2	A3
				Normal to mildly increased	Moderately increased	Severely increased
				<30 mg/g <3 mg/mmol	30–299 mg/g 3–29 mg/mmol	≥300 mg/g ≥30 mg/mmol
CKD is classified based on:						
• Cause (C)						
• GFR (G)						
• Albuminuria (A)						
GFR categories (mL/min/1.73 m ²) Description and range	G1	Normal or high	≥90	Screen 1	Treat 1	Treat and refer 3
	G2	Mildly decreased	60–89	Screen 1	Treat 1	Treat and refer 3
	G3a	Mildly to moderately decreased	45–59	Treat 1	Treat 2	Treat and refer 3
	G3b	Moderately to severely decreased	30–44	Treat 2	Treat and refer 3	Treat and refer 3
	G4	Severely decreased	15–29	Treat and refer* 3	Treat and refer* 3	Treat and refer 4+
	G5	Kidney failure	<15	Treat and refer 4+	Treat and refer 4+	Treat and refer 4+



Classification of CKD

CKD is classified using both the eGFR and uACR to appropriately assign a stage. CKD can be diagnosed if there is evidence of decreased kidney function (eGFR), kidney damage (elevated uACR) or both for **at least three months**.

It's important to use the appropriate ICD-10 code to classify CKD based on severity and to avoid using the CKD unspecified code when possible. Coding a specific CKD stage can help:

- Guide appropriate treatment and decision-making for all patients
- Capture the proper hierarchical condition category, or HCC, coding used for risk adjustment purposes for Medicare patients with chronic conditions.

CKD stage	ICD-10 code
Stage 1 (G1)	N18.1
Stage 2 (G2)	N18.2
Stage 3 (G3)	N18.30
Stage 3a (G3a)	N18.31
Stage 3b (G3b)	N18.32

CKD stage	ICD-10 code
Stage 4 (G4)	N18.4
Stage 5 (G5)	N18.5
ESRD/ESKD	N18.6
CKD unspecified	N18.9

Note: The terms “end stage renal disease” and “end stage kidney disease,” also referred to as ESRD and ESKD, can be used interchangeably when a patient is on dialysis, has received a kidney transplant or both.

Clinical evaluation of patients with CKD

Clinical evaluation includes:

- Determining a probable cause of CKD, which begins with taking a detailed personal and family medical history
- Reviewing the patient’s current medications and previous chronic use of medications, such as NSAIDs
- Identifying patient support needs related to social determinants of health
- In some cases, completing additional serologic tests and imaging studies, such as ultrasound (kidney or bladder), to assist with determining the cause of CKD

Patient CKD education

It's important to increase patient awareness of CKD. This happens by educating and engaging patients to play an active role in their care.

Thanks to education, many patients are aware of issues related to their blood pressure, weight and cholesterol numbers. By taking a similar approach and focusing patient education about CKD around knowing their kidney numbers, health care providers can help to increase understanding — rather than creating fear — along with increasing transparency and knowledge about CKD.

The National Kidney Foundation has developed the following materials for patients:

- The Know Your Numbers: Two Simple Tests teaches patients about the eGFR and uACR tests, so they can get a clear picture of their kidney health.
- The “Are you the 33%?” quiz helps patients determine if they may be at risk for kidney disease.
- The CKD Heat Map teaches patients what their lab results mean.

There are links to these and other valuable resources in the “Additional resources” section at the end of this document.



CKD interventions

Health care providers should tailor individual interventions based on the patient's CKD stage and risk level. Interventions include some or all of the following.

Note: For information about tailoring individual interventions, see the *Treatment Considerations for Chronic Kidney Disease (CKD)* document, which is published by the National Kidney Foundation and included at the end of this toolkit.

- **Manage comorbid diseases** such as diabetes and hypertension by keeping up with routine preventive screenings and age-appropriate vaccinations.
- Encourage patients to make **lifestyle changes**, including:
 - Managing their weight and increasing physical activity
 - Improving education about appropriate diet for kidney health⁷
 - Participating in a tobacco cessation program
- Patients with CKD are at **risk for medication-related adverse events**. To help patients avoid these events:
 - Use evidence-based medication therapies (diabetes, hypertension and cardiovascular protection).
 - Ensure appropriate dosing of medications such as antibiotics and bisphosphonates, especially with an eGFR lower than 30 ml/min/1.73 m².
 - When possible, avoid NSAIDs and nephrotoxic agents such as contrast (CT and MRI) when a patient's eGFR is lower than 30 ml/min/1.73 m² and discuss appropriate imaging studies with a radiologist.
 - When possible, refer patients to pharmacists who can conduct medication reviews for patient safety.
- Examples of indications for **referral to a nephrologist**⁸
 - Acute kidney injury, or AKI, or abrupt sustained fall in eGFR
 - eGFR lower than 30 ml/min/1.73 m²
 - Planning renal replacement therapy in those at risk for kidney failure within one year
 - Persistent albuminuria (uACR greater than 300 mg/g)
 - Rapid CKD progression defined by a 25% or greater decrease in eGFR from baseline, rapid decline of more than 5 ml/min/1.73m²/year, or both
 - Urinary red cell casts, RBC greater than 20 per high power field, or HPF, sustained and reason unknown
 - Hypertension refractory to treatment with four or more antihypertensive medications
 - Persistent abnormalities of serum potassium
 - Recurrent or extensive nephrolithiasis
 - History of a hereditary kidney disease
- Use a **team-based care approach** to create optimal support for the patient during treatment. A team-based care approach could include the following team members:
 - Primary care provider and advanced practice provider
 - Specialists — for example, nephrologist, cardiologist, endocrinologist
 - Care manager
 - Community health workers and community resources
 - Social worker or counselor
 - Pharmacist
 - Registered dietitian



Kidney Health Evaluation for Patients with Diabetes, or KED, Effectiveness of Care HEDIS measure

KED is an Effectiveness of Care HEDIS®* measure. It assesses whether patients ages 18 to 85 who have a diagnosis of diabetes (Type 1 or Type 2) received a kidney health evaluation — which includes testing to determine an eGFR and a uACR — during the measurement year. The measure is scored as follows:

- Numerator: Members who received an annual kidney health evaluation including both eGFR and uACR
- Denominator: Members 18 to 85 years of age who have diabetes (Type 1 and Type 2)
- Refer to HEDIS technical specifications for additional inclusion/exclusion value set information

Submit claims for the following lab tests and for both a quantitative urine albumin test and a urine creatinine test. The dates of service for the urine tests must occur within a four-day window.

CPT code	Laboratory test
**80047, **80048, **80050, **80053, **80069, **82565	Estimated Glomerular Filtration Rate Lab Test, or eGFR
**82043	Quantitative Urine Albumin Test
**82570	Urine Creatinine Test

References

1. Centers for Disease Control and Prevention (CDC). Chronic Kidney Disease in the United States, 2023 www.cdc.gov/kidneydisease/publications-resources/ckd-national-facts.html ***
2. National Kidney Foundation Social Determinants of Kidney Disease www.kidney.org/atoz/content/kidneydiscauses ***
3. National Kidney Foundation Chronic Kidney Disease Change Package www.kidney.org/contents/chronic-kidney-disease-change-package ***
4. Matsushita K, Coresh J, Sang Y, et al. Estimated glomerular filtration rate and albuminuria for prediction of cardiovascular outcomes: a collaborative meta-analysis of individual participant data. *The Lancet Diabetes & Endocrinology*; 3:514-25
5. Quick Reference on UACR & GFR In Evaluating Patients with Diabetes for Kidney Disease www.niddk.nih.gov/health-information/professionals/advanced-search/quick-reference-uacr-gfr ***
6. Diabetes Management in Chronic Kidney Disease: A Consensus Report by the American Diabetes Association (ADA) and Kidney Disease: Improving Global Outcomes (KDIGO) diabetesjournals.org/care/article/45/12/3075/147614/Diabetes-Management-in-Chronic-Kidney-Disease-A ***
7. Region 3 Kidney Dietitians sites.google.com/view/ckdrd/home/region-3#h.87x5tb584p92 ***
8. KDOQI Commentary on KDIGO Guideline for the Evaluation and Management of CKD www.kidney.org/sites/default/files/docs/inker_et_al_ajkd_ckd_commentary_epub.pdf ***



Additional resources

The National Kidney Foundation

Are you the 33%? quiz

www.kidney.org/kidney-quiz ***

Know Your Numbers: Two Simple Tests

www.kidney.org/atoz/content/know-your-kidney-numbers-two-simple-tests ***

Additional information about the "Are you the 33%?" campaign

www.nkfm.org/areyouthe33 ***

Kidney Numbers and CKD Heatmap Patient Education

www.kidney.org/content/kidney-numbers-and-ckd-heatmap-educate-your-patients ***

eGFR calculator

www.kidney.org/professionals/kdoqi/gfr_calculator ***

Nutrition in CKD

www.kidney.org/professionals/guidelines/guidelines_commentaries/nutrition-ckd ***

Clinician Tools

www.kidney.org/professionals/tools ***

Regional Kidney Dietitians

sites.google.com/view/ckdrd/home/region-3#h.87x5tb584p92 ***

National Institute of Diabetes and Digestive and Kidney Diseases

Explaining Your Kidney Test Results: A Tool for Clinical Use

www.niddk.nih.gov/health-information/professionals/advanced-search/explain-kidney-test-results ***

Centers for Disease Control and Prevention

Take Care of Your Kidneys and They Will Take Care of You

www.cdc.gov/kidneydisease/prevention-risk/take-care.html ***

The Centers for Medicare & Medicaid Services

ICD-10-CM Official Guidelines for Coding and Reporting

www.cms.gov/files/document/fy-2023-icd-10-cm-coding-guidelines-updated-01/11/2023.pdf ***

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Treatment Considerations for Chronic Kidney Disease (CKD)

PATIENT SAFETY

- eGFR < 60 = Patient Safety Risk
 - Drug dosing consider eGFR
 - Reduce risk of AKI volume depletion
- eGFR 45 to < 60
 - Avoid prolonged NSAIDs
 - Continue metformin use
- eGFR 30 to < 45
 - Avoid prolonged NSAIDs
 - Use metformin with close monitoring at 50% dose
 - Iodinated contrast-induced AKI prevention; consider isotonic saline infusion before, during and after intra-arterial procedure
 - Dose adjust DOAC
 - Consider avoiding PICC lines; use single and double lumen central catheters instead
- eGFR < 30
 - Avoid any NSAIDs and metformin
 - SGLT-2i - Review FDA package insert for current guidance:
 - Iodinated contrast-induced AKI prevention; consider isotonic saline infusion before, during and after intra-arterial procedure
 - Dose adjust DOAC or avoid depending on the agent
 - Gadolinium contrast risk of nephrogenic systemic fibrosis
 - Radiology and nephrology consider dose and macrocyclic agent
 - Avoid PICC lines, use single and double lumen central catheters instead
 - Monitor PT INR closely given increased risk of warfarin anticoagulation bleeding

PREVENTING CKD PROGRESSION

- Consider BP goal < 130/80 for CVD risk reduction and if uACR >300
 - ACE-I or ARB for HTN if uACR > 30
 - Avoid ACE-I and ARB combination in general.
 - Consider SGLT-2i for HTN if uACR > 300 mg/g
 - Diuretic usually required; chlorthalidone may be effective even at low eGFR
 - Dietary sodium < 2000 mg/day
- DM—Target HbA1c ~7%
- T2DM - consider SGLT-2i and/ or GLP-1 RA
- Vaccination for influenza + pneumococcus and COVID-19
- Nephrology Referral
 - eGFR < 30 or uACR > 300
 - 25% decrease in eGFR (AKI or progressive CKD may be difficult to distinguish)
 - Progression of CKD with sustained decline in eGFR of more than 5 per year
 - 2° hyperparathyroidism
 - Consistent finding of significant albuminuria
 - Persistent unexplained hematuria
 - Persistent hyperkalemia/ metabolic acidosis
 - Recurrent kidney stones
 - Hereditary or unknown cause of CKD

CKD AND CARDIOVASCULAR DISEASE

- CKD = CVD risk
- Consider BP goal < 130/80 for CV risk reduction
- Type-2 DM considered SGLT-2i for heart failure and GLP-1 RA for atherosclerotic CVD
- Consider statin-based therapy
 - All > 50 years
 - 18-50 years at high CVD risk
 - h/o CAD, DM, h/o ischemic CVA, 10 yr risk of MI >10%
- ASA for secondary prevention unless bleeding risk outweighs benefits

Abbreviation

ACE-I, angiotensin-converting-enzyme inhibitor; AKI, acute kidney injury; ARB, angiotensin receptor blocker; ASA, acetylsalicylic acid (aspirin); BP, blood pressure; CAD, coronary artery disease; CKD, chronic kidney disease; CVA, cerebrovascular accident; CVD, cardiovascular disease; DM, diabetes mellitus; DOAC, Direct Oral Anticoagulant; eGFR, estimated glomerular filtration rate; GLP1-RA, glucagon-like peptide 1 receptor agonists Hb, hemoglobin; HTN, hypertension; MI, myocardial infarction; NSAIDs, nonsteroidal anti-inflammatory drugs; PICC, peripherally inserted central catheter line; PT INR, prothrombin time, international normalized ratio; SGLT-2i, sodium-glucose cotransporter-2 inhibitors; uACR urine albumin-creatinine ratio. HEDIS (Healthcare Effectiveness Data and Information Set)

References

1. Vassalotti JA, Centor R, Turner BJ, Greer RC, Choi M, Sequist TD. Practical Approach to Detection and Management of Chronic Kidney Disease for the Primary Care Clinician. *The American Journal of Medicine* 2016;129:153-62.e7.
2. Choosing Wisely Recommendation for Chronic Kidney Disease Testing. 2018. [at bit.ly/2SFSz3u](http://bit.ly/2SFSz3u)
3. Inker LA, Astor BC, Fox CH, et al. KDOQI US commentary on the 2012 KDIGO clinical practice guideline for the evaluation and management of CKD. *Am J Kidney Dis* 2014;63:713-35.
4. Pharmacologic Approaches to Glycemic Treatment: Standards of Medical Care in Diabetes—2020. *Diabetes Care* 2020;43:S98-S110.
5. Go AS, Chertow GM, Fan D, McCulloch CE, Hsu C-y. Chronic Kidney Disease and the Risks of Death, Cardiovascular Events, and Hospitalization. *New England Journal of Medicine* 2004;351:1296-305.
6. Matsushita, K., et al., Estimated glomerular filtration rate and albuminuria for prediction of cardiovascular outcomes: a collaborative meta-analysis of individual participant data. *The Lancet Diabetes & Endocrinology*. 3(7): p. 514-525.