WHITEPAPER

Advancing Care for Chronic Kidney Disease:

Using Care Gaps to Inform a Quality Framework

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Executive Summary

Chronic kidney disease (CKD) affects nearly 36 million adults in the U.S., yet it remains underdiagnosed and undertreated due to limited awareness on the part of providers and patients, inconsistent screening practices, fragmented care, and lack of access to medications that slow CKD progression. CKD is closely linked to cardiovascular and metabolic disorders, forming the basis of cardiovascular-kidney-metabolic (CKM) syndrome. Addressing CKD within this broader quality framework is essential to improving outcomes and slowing disease progression, an approach that emphasizes early detection, prevention of progression, and multidisciplinary care for people with impaired kidney function.

The National Committee for Quality Assurance (NCQA) recognized the challenges associated with CKD diagnosis and management, and their potential impact on future CKD measures, including recent advances in clinical evidence, drug development, health information and other technologies, as well as the ongoing push toward value-based care. To work toward a quality framework for CKD that is responsive to the evolving landscape, NCQA convened an expert panel of clinicians and patient advocates to discuss current challenges and future opportunities associated with the assessment, diagnosis, and management of patients with or at risk of CKD.

The panel emphasized that despite advances in medical treatment, significant gaps persist in CKD care—inconsistent screening guidelines, inadequate kidney function testing, insufficient patient education, sub-optimal evaluation and management of CKM risk factors, limited use of medications that slow CKD progression—and that expanded screening efforts, particularly among high-risk populations with diabetes and hypertension, can facilitate earlier intervention. The panel supported improved compliance with current guidelines that specify the use of medications such as SGLT2 inhibitors and GLP-1 receptor agonists, as well as hypertension control with ACE-1, ARBs and mineralocorticoid receptor blockers when relevant. These key evidence-based interventions slow CKD disease progression and reduce cardiovascular risk.

A multidisciplinary, patient-centered approach is crucial for improved CKD care. Coordinating the care delivered by primary care providers, nephrologists, cardiologists, endocrinologists, and allied health professionals can improve disease management and optimize treatment plans, including medication access and adherence. Fully leveraging electronic health records, AI-driven risk stratification, telehealth, and mobile technologies can enhance care coordination and patient engagement. These efforts will be optimized among patients who receive excellent education and support and are fully engaged in their care.

Although Medicare and Medicaid offer generous coverage for end-stage renal disease (ESRD), the same level of coverage is not provided for those at risk of milder forms of kidney impairment. Expanding Medicare and Medicaid coverage for preventive CKD services could help address this policy misalignment. Expanded coverage would incentivize value-based care models and drive systemic improvements that address impaired kidney function early in the disease course. Public health campaigns focused on increasing CKD awareness, particularly in underserved communities, are also necessary to bridge care disparities, as are efforts to expand broadband access to ensure that rural and underserved communities have access to telehealth services, patient portals, and other digital health care services and supports.

Part of these efforts involves developing and adopting quality measures that address CKD prevention, screening, and treatment. Although unclear guidance concerning certain aspects of CKD screening and monitoring may hinder the development of quality measures in these domains, best practices for use of medications that slow CKD progression, management of CKM risk factors, patient education, and patient-centered care planning may be ripe for measure development.

Addressing CKD requires a holistic, multidisciplinary approach that emphasizes early detection, prevention, monitoring, and treatment. Integrating CKD management within the broader CKM framework, enhancing provider and patient education, and leveraging technology will drive improved outcomes. Expanding policy support and aligning reimbursement models with prevention and better management of early-stage kidney disease are essential to making lasting improvements in CKD care, and development of quality measures will reinforce these efforts.

By prioritizing early detection, evidence-based treatment, and comprehensive care strategies, the health care system can significantly improve CKD outcomes, reduce its burden, and slow disease progression, reducing the number of people who live with ESRD. Addressing these challenges through coordinated efforts will help ensure that people with CKD receive the timely and effective care they need.

Introduction

Chronic kidney disease (CKD) affects nearly 36 million adults in the United States. Because ongoing kidney damage without intervention can ultimately lead to end-stage renal disease (ESRD), clinical practice guidelines emphasize early identification and staging of people with CKD and delaying CKD progression with appropriate lifestyle and pharmacologic interventions. Current guidelines define CKD stages by degree of kidney damage and decrements in kidney function, as measured by albuminuria and glomerular filtration rate (GFR), respectively. These measures not only identify people at risk for CKD, they also define CKD stages and guide treatment among people with established disease.[2] The U.S. Centers for Disease Control and Prevention (CDC) estimates that 14% of the adult population has CKD stages 1–4, but this may underestimate the true burden. Because early CKD is often asymptomatic, most patients are unaware of their condition until it has progressed to an advanced stage.[3] This lack of awareness is reflected by statistics showing that as many as 90% of adults with CKD, and 30% of those with severe CKD, do not know they have kidney disease.[1]

CKD, cardiovascular disease, and metabolic impairments are interconnected through bi-directional relationships. Patients with CKD often have cardiovascular disease, type 2 diabetes, obesity, and hypertension, which increase the risk of progressive kidney impairment—and progressive kidney impairment increases the risk of these cardiovascular and metabolic problems. The combination of these conditions has been termed "cardiovascular-kidney-metabolic (CKM) syndrome."[4] CKM syndrome is highly relevant to discussions of CKD care delivery, outcomes, and quality measures because of the mutually reinforcing interplay among CKM's component conditions and how they drive CKD progression and associated health outcomes.
The interplay is also relevant to defining how to best deliver high-quality care to patients with CKM. Historically, medical specialists—endocrinologists, nephrologists, cardiologists—have treated CKM patients in clinical silos, often ignoring the interactive effects of CKM's component conditions. These silos result in specialists missing opportunities for early risk factor intervention outside their specialty areas. There are also opportunities for improvement in how primary care clinicians approach CKM. These providers frequently manage high patient volumes presenting with multiple CKM comorbidities, each with disease-specific guidelines. Primary care clinicians may lack awareness of the importance of emerging kidney disease and how to treat it, or they may feel more comfortable focusing on managing other CKM elements such as diabetes and cardiovascular disease.

Although most experts agree that high-quality CKD care is a public health priority, an array of challenges hinder identification of patients and limit access to high-quality, evidence-based care.[5] Stubborn gaps in CKD care remain, driven in part by a dearth of measures to drive quality and accountability among providers and health plans who care for patients with this condition. The practical challenges are exacerbated by a long-standing underemphasis on the role of CKD as a risk factor for unfavorable cardiovascular and metabolic outcomes. As the U.S. health care system becomes increasingly digitized and turns more towards value over volume, the importance of identifying robust measures of high-quality kidney care will also increase.

Rationale and Methods

The National Committee for Quality Assurance (NCQA) recognized the challenges associated with CKD diagnosis and management, and their potential impact on future CKD measures, including recent advances in clinical evidence, drug development, health information and other technologies, as well as the ongoing push toward value-based care. To work toward a quality framework for CKD that is responsive to the evolving landscape, NCQA convened an expert panel of clinicians and patient advocates to discuss current challenges and future opportunities associated with the assessment, diagnosis, and management of patients with or at risk of CKD. Because the meeting focused on early-stage kidney disease and managing common risk factors that contribute to kidney impairment, it did not cover ESRD or rare diseases that cause kidney damage.

The purpose of the first meeting, in January 2025, was to identify features of high-quality kidney care that could be used to develop future CKD quality measures, standards, and NCQA Accreditation and Recognition programs. To begin the conversation, NCQA sought stakeholder input to:

Identify quality gaps in CKD care related to screening, prevention, monitoring, management, and slowing progression.

Recommend solutions for closing quality gaps and improving outcomes related to CKD.

Inform a framework for expanding the evaluation of quality of care, experience and outcomes related to CKD, while also considering how CKD contributes to CKM syndrome.

Panelists offered expertise in nephrology, primary care, pediatrics, cardiology, internal medicine, epidemiology, pharmacy, geriatrics, nutrition, gastroenterology, and endocrinology. The group also included two seasoned patient advocates who had personal experience with severe kidney disease. Federal officials from the National Institute of Diabetes, Digestive and Kidney Diseases (NIDDK), the Centers for Medicare and Medicaid Services (CMS), and the United States Public Health Service were scheduled to attend the meeting but did not. Please refer to the Acknowledgements for a list of panelists who attended that also includes these DHHS officials.

HOW THIS REPORT IS ORGANIZED

This paper summarizes meeting discussions and is presented in six sections. The first three sections summarize panel input on CKD prevention, screening, and management. Key elements of high-quality care are described in each section, followed by challenges that hinder achieving goals. The fourth section addresses the role of CKD in CKM syndrome, and how evolving work on CKM may enhance CKD care in the future. The fifth section offers recommendations for closing CKD care gaps. The sixth section provides a framework for future quality measures for CKD prevention, screening, and management.

THE INFLUENCE AND LIMITATIONS OF GUIDELINES ON QUALITY MEASURE DEVELOPMENT

Development and deployment of quality measures is predicated on broad agreement about best practices for preventing, diagnosing, and treating disease. Ideally, measures enhance accountability of, and are harmonized across, health plans, providers, clinicians, and health systems, thereby driving improvements in CKD care on the individual and population levels. But insufficient scientific agreement about a particular care practice or element, controversy, or inconsistent guidelines about best practices hinder measure development. In CKD care, issues such as who should be screened, the nature and frequency of kidney function testing, what tests should be performed, and when referrals to nephrology should occur, are the subject of ongoing debate among experts. These unsettled CKD-related care issues are highlighted throughout the report.

Preventing CKD

ADDRESSING MODIFIABLE RISK FACTORS

Modifiable risk factors for CKD include diabetes, hypertension, cardiovascular disease, obesity, and smoking, and recent data show that 35% and 75% of people with CKD have diabetes and hypertension, respectively.[6] Primary prevention of CKD begins with prevention of hypertension, diabetes, and obesity, the most common CKD risk factors. Among people who develop hypertension and diabetes, managing metabolic dysfunction with antihypertensive and hypoglycemic medications reduces risk of kidney disease onset. Lifestyle interventions like dietary modification, smoking cessation, and increased physical activity can be enhanced by guideline-driven pharmacologic treatments that prevent CKD risk factors.

Social drivers of health also contribute to CKD risk, and addressing these factors can facilitate primary prevention. Financial and other barriers that hinder access to primary care and specialty care, as well as low health literacy and transportation challenges, impact patients' ability to access preventive services. These challenges drive disparities in patients' receipt of care, and ultimately contribute to persistently higher levels of CKD among certain groups such as Black Americans and people in rural areas.[5] However, the emergence of telehealth offers new opportunities for access to preventive CKD care among at-risk populations with broadband access and technology literacy.

PUBLIC HEALTH AND COMMUNITY-BASED PREVENTION STRATEGIES

Local venues like barbershops and faith-based organizations can harness the influence of trusted, community-based messengers to deliver health information on CKD risk factors and encourage screening for, and management of, these health conditions. Public education campaigns to improve CKD awareness, especially among at-risk populations, can also help increase knowledge and patient empowerment. These efforts can be supplemented by workplace education programs that educate employees about kidney health (similar to "heart health" programs) and the impact of diabetes and hypertension on CKD risk. Workplace programs like these not only benefit employees, they also help employers by reducing presenteeism and absenteeism costs associated with CKM-related conditions. Increasing access to primary care in underserved areas can help prevent CKD by improving management of diabetes and hypertension, conditions that disproportionately impact these communities. Finally, policy and community efforts to assure availability of healthy foods, greenspaces, clean water and clear air are clearly foundational to prevention of many conditions including CKD.

CHALLENGES IN CKD PREVENTION

Although strategies to prevent CKD are well recognized, numerous barriers hinder effective prevention efforts. In the U.S., there is a long-standing lack of investment in preventive care—including prevention of CKD risk factors like diabetes and hypertension—in favor of a focus on late-stage treatment. Moreover, because funding is allocated separately for prevention and treatment, there is limited interaction between health and wellness initiatives that aim to prevent CKD and clinical care that targets patients with established disease. There is also insufficient emphasis on encouraging effective lifestyle management strategies that address smoking, obesity, and physical activity levels, exacerbating inadequate patient communication about CKD and referrals to lifestyle modification programs.

> **Roundtable Participant:** *"It's a matter of knowing your audience and knowing how to communicate the importance of doing this, and the result of leading a healthier life."*

CKD prevention challenges extend beyond provider- and system-level factors. Patients who experience barriers to primary care access are poorly positioned to engage in CKD prevention efforts, and among many patients with adequate health care, adherence to pharmacologic and behavioral treatment regimens for CKD risk factors can be challenging due to cost, transportation requirements, complex or demanding regimens, and lack of health literacy.

Identifying people with CKD

THE IMPORTANCE OF EARLY IDENTIFICATION

Early identification of CKD is critical because it allows patients and their care teams to initiate a treatment plan quickly, both addressing the increased risk of cardiovascular disease associated with CKD stages 1–4 and hindering CKD progression.[7] The importance of early detection is underscored by an extensive body of evidence demonstrating that late-stage CKD diagnosis is associated with markedly worse outcomes, including the need for renal replacement therapy and increased mortality. However, there is debate about whether population-level CKD screening or a case-finding approach is a more appropriate strategy to identify people with CKD. Box 1 shows the distinction between screening and case finding. The debate over how to approach identification of CKD is an example of a clinical debate that needs clarification to support future quality measurement.

BOX 1: The Distinction Between Screening and Case-Finding

SCREENING: Detect early disease or risk factors for disease in large numbers of apparently healthy people.

CASE FINDING: A strategy to concentrate resources on individuals or groups who are suspected at being at risk for a particular disease, often involving actively and systematically searching for at-risk individuals.

TOOLS AND GUIDELINES FOR IDENTIFYING PEOPLE WITH CKD

CKD is typically identified with two laboratory assessments: estimated glomerular filtration rate (eGFR), which measures kidney function, and urine albumin-to-creatine ratio (uACR), which assesses kidney damage. Together, these tests inform CKD staging, stratify CKD progression risk, monitor CKD severity, and define treatment plans.[8] Both together and independently, they are generally markers of CVD risk that may be modifiable by managing both CKD and other comorbidities, such as diabetes. Despite widespread availability and insurance coverage of eGFR and uACR, there is debate about not only who should receive these tests, but also how often, under what circumstances, and whether one or both tests should be ordered. Much of the debate stems from heterogeneity across professional societies and national task forces in recommendations and guidelines for identifying people with CKD. This is linked to broader questions about the best approach to identify people with CKD, and how it should be pursued in clinical practice.

In 2012, the U.S. Preventive Services Task Force (USPSTF) found no benefit or harm of population-level CKD screening for asymptomatic adults, concluding there was insufficient evidence to determine if routine screening should occur in this population.[9] The USPSTF is in the process of re-reviewing evidence for population-level CKD screening, however.[10]

For patients with CKD risk factors such as diabetes and hypertension, professional groups like the National Kidney Foundation (NKF), the American Society of Nephrology (ASN) and the American Diabetes Association (ADA) recommend CKD screening, although there is considerable variability across these recommendations.[11,12,13,14] For targeted screening/case finding for high-risk individuals, most guidelines fail to make direct connections between specific CKD risk factors and recommendations for obtaining CKD assessments, relying instead on provider discretion. Some guidelines acknowledge

CKD-related components of care for at-risk populations and urge kidney health monitoring as part of ongoing management, but do not specify the type of test or the frequency. Technology-enabled home urine tests for uACR are widely available and may help increase early identification of people with CKD.

Despite some different viewpoints, the major guidelines, NKF, ANS, ADA and KDIGO, all recommend testing with both eGFR and uACR among high-risk patients. The ADA recommends at least annual CKD screening with eGFR and uACR for patients with diabetes,[7,15] and the Kidney Disease: Improving Global Outcomes (KDIGO) guidelines, recommend calculating both eGFR and uACR among people with diabetes and hypertension, and repeating tests after observing decreased eGFR or elevated uACR,[16] but do not specify the testing interval. NKF and ASN currently recommend the 2021 CKD-EPI equation (https://www.kidney.org/ckd-epi-creatinine-equation-2021-0) to screen for CKD in adults, but this equation requires information on serum creatinine, sex, and age, and may also use cystatin C concentration if this measure is available.[17]

CHALLENGES IN CKD SCREENING AND DETECTION

Despite the availability of reliable laboratory determinations for uACR and eGFR, numerous challenges hinder early identification of CKD. Because CKD is largely asymptomatic in the early stages, detection can be challenging unless patients, their care teams, and health plans and systems prioritize risk assessment and engage in appropriate screening and/or case finding. Exacerbating these challenges is the ongoing debate about population-level CKD screening vs. case finding among high-risk people.

Another challenge involves misconceptions about USPSTF findings indicating there is insufficient evidence to recommend population-level CKD screening. Because USPSTF was charged with assessing screening for all asymptomatic adults, the beneficial effects of CKD screening for high-risk populations were diluted by large numbers of healthy adults. In addition, even though USPSTF findings are evidence-based recommendations, not guidelines, they cause confusion among clinicians who do not pursue CKD screening in primary care because they interpret the USPSTF findings as guidelines.

A third challenge to identifying people with CKD involves limited ordering of uACR testing despite strong evidence supporting the value of this determination. Although 80%–90% of people with diabetes or hypertension receive annual eGFR testing, only about 40% of people with diabetes, and less than 10% of those with hypertension, receive annual uACR testing.[18] Without both measures, it is not possible to fully define CKD risk and monitoring recommendations. Barriers include less clinician awareness of uACR testing compared to eGFR, a perception that eGFR is sufficient to identify CKD, and lack of inclusion of uACR in routine lab panels.[14] Inconsistent recommendations and guidelines from organizations with a stake in kidney health—USPSTF, the National Kidney Fund, ASN, ADA, and the American Heart Association—add to confusion about best practices. Inconsistency across disciplines is relevant to evolving discussions of CKM because of the ongoing need to align patient care practices across medical specialties, an issue that is also relevant to insurance plans, health systems, and other stakeholders. The value of promoting use of uACR is reflected by data showing that only 10.6% of U.S. adults had CKM stage 0 (no risk factors), indicating that most Americans are at risk of CKM.[19] Increased use of uACR would identify more patients and facilitate early intervention.

Lack of integration of EHRs across providers and limited clinical decision support at the point of care—including standing orders and prompts for uACR testing for kidney assessment—hinder identification of people with CKD. Systemic factors such as limited insurance coverage, transportation, and availability of primary care services, and physician-level factors such as bias, contribute to disparities in CKD outcomes. Racial disparities persist in CKD management and treatment, with Black patients with CKD being more likely to have a delayed referral to a nephrologist and less likely to receive a transplant than White patients.[20,21] There is a need to address systemic barriers and to improve CKD education for health care providers to reduce disparities caused by gaps in care delivery that may delay diagnosis or treatment.[22]

Although home urine tests offer convenience, and empower some patients, they also have drawbacks. Concerns include test accuracy and impact on overdiagnosis of CKD, disparities in access to home testing that may exacerbate long-standing inequities in CKD care, and lack of professional oversight that may lead to misinterpretation of results and lack of follow-up with health care professionals after a home test.

A final challenge to identifying people with CKD is what happens after a patient is found to have abnormal kidney function. There is copious evidence that positive CKD screening findings do not flow effectively into follow-up care, appropriate diagnostic evaluation of the cause of the CKD, or adherence to treatment plans, raising a question about the fundamental purpose of CKD screening: If people are identified as having CKD, shouldn't there be a clear path to follow-up care, and excellent communication about the value of diagnosis and adhering to treatment plans, why medications are prescribed for CKD, and their related risk factors? However, a systematic review of 19 studies of people with CKD showed there is much room for improvement on these issues.[23]

> **Roundtable Participant:** *"If you're going to do the test, you must communicate the result to the patient. If the test is normal, does the patient know that they're at risk for developing kidney disease? Should they have repeat testing? With proper communication, the patient can start to get involved."*

CKD Management and Monitoring

KEY TREATMENT STRATEGIES

CKD management centers on excellent patient and caregiver communication, understanding the etiology of diminished kidney function, medical and behavioral health co-morbidities, disease staging, and defining a treatment plan to monitor and slow CKD progression. Once CKD is identified, various guidelines recommend lifestyle, dietary, pharmacologic, and other interventions to manage the condition and reduce the risk of progression—efforts that should be conducted in a patient-centered context that promotes empowerment and self-management skills.[24]

Lifestyle and dietary interventions include weight loss, exercise, smoking cessation, and limiting sodium intake. Some patients may be referred to smoking cessation programs and nutrition specialists. Among people with comorbidities that are common in the CKM syndrome, pharmacologic interventions are often prescribed to reduce risk of CKD progression. Medications include statins to reduce cardiovascular disease risk, ACE inhibitors and angiotensin receptor blockers (ARB), which treat hypertension and have renal protective effects, glucose-lowering drugs like SGLT2 inhibitors and GLP-1 receptor agonists, as well as renal protective drugs for people with hypertension like non-steroidal mineralocorticoid receptor agonists (nsMRA). Importantly, SGLT2 inhibitors and GLP-1 receptor agonists have renal and cardiovascular protective effects in addition to lowering blood glucose.

THE ROLE OF MULTIDISCIPLINARY CARE TEAMS AND INTEGRATED CARE MODELS

Once CKD is identified, there should be seamless coordination among primary care, nephrology, endocrinology, cardiology, nutrition, and pharmacy professionals, based on the patient's clinical profile.

> **Roundtable Participant:** *"If you're going to do the test, you must communicate the result to the patient. If the test is normal, does the patient know that they're at risk for developing kidney disease? Should they have repeat testing? With proper communication, the patient can start to get involved."*

Often, dietitians and diabetes educators are integrated into care teams to optimize patient education and drive favorable outcomes. Patient navigators and community health workers can further support treatment adherence by improving access to care, enhancing patient education and health literacy, serving as a bridge between providers and underserved communities, and by supporting chronic disease self-management skill building.

Integrated care models like accountable care organizations, patient-centered medical homes, and community-based integrated care are examples of care delivery approaches that facilitate coordination among providers, services, and health care sectors. Although these delivery systems do not eliminate stubborn challenges to CKD care, their focus on patient-centered care that addresses medical, behavioral, and social needs can help with care coordination and early detection and intervention.

RISK STRATIFICATION AND EARLY INTERVENTION

Staging kidney disease is important for guiding the intensity of interventions and identifying individualized treatment plans based on a patient's CKD severity and comorbidities. Tools like KDIGO, which uses eGFR to stage CKD and uACR to categorize kidney damage, help assess a patient's risk of CKD progression. The Kidney Failure Risk Equation (KFRE) identifies high-risk CKD patients who need urgent referral, but it is less useful for early-stage CKD.[25]

MONITORING

Long-term CKD monitoring is critical for understanding disease progression and guiding treatment decisions. Monitoring should include regular eGFR and uACR testing based on CKD stage, blood pressure and glucose control monitoring, and periodic medication review and management to avoid nephrotoxic drugs and optimize renoprotective therapies, as appropriate.

THE ROLE OF MEDICATIONS IN SLOWING PROGRESSION AND REDUCING CARDIOVASCULAR RISK

In addition to traditional antihypertensive and hypoglycemic medications that are used to manage CKM risk factors in CKD patients, newer medications have renoprotective effects, particularly in patients with diabetes, hypertension, and heart failure. SGLT2 inhibitors, GLP-1 receptor agonists, and nsMRAs are important tools for treating CKD because they help slow disease progression and reduce cardiovascular risk and mortality.

For example, SGLT2 inhibitors slow CKD progression, reduce risk of eGFR decline, lower albuminuria, and reduce cardiovascular risk. These medications are effective in people with and without diabetes who have CKD. GLP-1 receptor agonists reduce albuminuria and CKD progression, have meaningful cardiovascular benefits, and promote weight loss and reduce blood pressure. The choice of these medications—alone or in combination—depends in part on a patient's comorbidities and cardiovascular risk.

CHALLENGES TO MANAGING CKD AND SLOWING PROGRESSION

The complexity of managing CKD, and slowing its progression, has led to numerous challenges.

Inadequate risk factor management and patient engagement

CKD management is almost absent in primary care, stemming in part from a lack of provider knowledge about what to do for patients with early-stage CKD. Although most primary care physicians are familiar with stages 2, 3A, and 3B, many don't know how to translate these categories into diagnostic evaluations and relevant treatment plans. Lack of effective CKD care extends into late-stage disease. Among people with CKD stages 3–5, less than 50% have controlled hypertension, only 40% had controlled diabetes, 29%–31% received statin therapy, and less than 50% received an ACE inhibitor or ARB.[13] When CKD is identified in primary care, efforts to identify the etiology are rarely pursued, which has implications for care planning and risk stratification.

Other provider-level factors that impact the quality of CKD care include inadequate patient communication about the importance of CKM risk factor modification and adhering to medication regimens. Lack of attentiveness on the part of providers, limited availability of nephrologists and other specialists, lack of training in culturally competent care, a traditional emphasis on provider-focused goals, and limited shared decision making also work against delivery of high-quality CKD care.[26] For patients with CKD, complex treatment regimens involving multiple medications and complex dosing schedules can be challenging, particularly among those with low health literacy or diminished cognitive function. Lack of awareness about CKD and the importance of behavioral and pharmacologic interventions can also impact patients' motivation to adhere to their treatment regimens.[16]

Lack of access to multidisciplinary and relevant specialty care

Although there are clear benefits to well-coordinated care planning and delivery, numerous challenges limit access to multidisciplinary CKD care. Key among these is that reimbursement policies and financial incentives favor specialty care over comprehensive chronic disease management, thereby guaranteeing a steady supply of people with advanced CKD for whom interventions could have been initiated if they had received excellent preventive care and chronic disease management interventions. Moreover, integrated care models that focus on the whole patient are underfunded and not broadly implemented.

There are also care gaps in nephrology care. Although a patient with CKD should be referred to a nephrologist when the etiology of their condition is unclear, or if they have advanced disease, there is lack of consensus about other instances when patients should be referred to a nephrologist. Compounding this ambiguity is limited access to nephrologists in rural and other areas, rendering referral to in-person nephrology care unattainable for many patients. It has also been shown that Black patients face greater barriers accessing specialty care like nephrology services; this is of particular concern because of the disproportionate impact of diabetes and hypertension on Black Americans.[14] Although telemedicine may help facilitate access to nephrologists in settings where there is a limited number—or absence—of these specialists, inadequate access to broadband services, technology literacy, and other features of the "digital divide" have a greater impact on rural and underserved communities, which are disproportionately impacted by CKD.

Inconsistent risk stratification

Although risk stratification rubrics support care delivery and planning by categorizing CKD severity, neither KDIGO nor KFRE account for lifestyle factors or other CKM conditions that drive CKD progression. Of greater concern is that underuse of uACR hinders accurate assessment of CKD risk because both uACR and eGFR are required for the KDIGO risk heat map.

Insufficient monitoring

Challenges to CKD monitoring among high-risk people, such as those with diabetes and hypertension, include inconsistent provider adherence to monitoring best practices, such as testing frequency and tests that should be administered to track disease progression. These challenges are exacerbated by limitations of many EHRs that fail to flag abnormal results and prompt appropriate follow-up and patient education. In some cases, monitoring tests may not be reimbursed. Lack of patient engagement in routine follow-up testing can hinder care teams from obtaining needed information on CKD progression and has unfavorable implications for care planning and shared decision making.

Potentially inappropriate medication use

Because people with CKD often have multiple chronic conditions, it is common for them to take an array of medications. Polypharmacy can be challenging for these patients because the dosing of some medications needs to be adjusted based on the patient's kidney function—it's why comprehensive medication review is important for patients with CKD. But medication review is often insufficient because of siloed care or lack of awareness of the need to adjust dosage for people with diminished kidney function. Although over-the-counter medications should be examined as well, these are frequently not considered during medication review. There are many medications that worsen CKD.

A medication-related issue that arose during the meeting was lack of awareness on the part of both physicians and patients about newer drugs that slow the progression of kidney disease, particularly SGLT-2 inhibitors and GLP-1 receptor agonists. Additional challenges to increasing use of these medications may stem from clinical inertia among providers who are not comfortable with prescribing newer medications, lack of awareness of new prescribing guidelines, concerns about polypharmacy, assumptions that some patients will not comply with a new medication regimen, and lack of coverage or burdensome prior authorization by some pharmacy benefit plans. Suboptimal prescribing for CKD—which has a more profound impact on minority populations[27]—can also stem from system-level factors such as time constraints, lack of resources, or fragmented care.

The Role of CKD in the CKM Syndrome Model

CKM COMPONENTS ARE INTERCONNECTED

Because CKD, CVD, diabetes, and obesity share common risk factors and pathophysiology, there is a need for a holistic, systems-based approach that optimizes strategies for prevention, early intervention, and management.

> **Roundtable Participant:** *"Coming back to the interconnectedness of the CKM - our approaches to detection, care, and prevention should be interconnected, and the benefits will be interconnected as well."*

The current siloed approach to treating these conditions fails to optimize links that could facilitate treatment planning and care coordination. This approach would benefit patients at risk for CKD through increased emphasis on CKD among both primary care providers and specialists, thereby setting the stage for early intervention, improved management, and better outcomes. Clinical practices characterized by greater prominence of CKD, especially in primary care, will also help support development of quality measures and standards to improve care delivery and accountability for this condition.

ALIGNING CKD CARE WITH FUTURE CKM GUIDELINES

As professional societies and national task forces continue to align best practices for identifying people with CKD and ongoing CKD management, these practices should be incorporated into future CKM guidelines that address treatment for an inter-related group of cardiovascular and metabolic conditions. These efforts will standardize treatment strategies for overlapping CKM conditions, thereby shifting the paradigm away from individual conditions and toward an approach that manages the syndrome as a whole. To this end, the American College of Cardiology and the American Heart Association are scheduled to release CKM guidelines in 2025–2027. These guidelines present opportunities to improve care for people with CKD because they will address all CKM elements, including kidney impairment.

LINKS BETWEEN CKM AND IMPROVED CKD CARE DELIVERY

The panel discussed how to begin developing integrated quality measures for CKM. First steps include enhancing cross-specialty collaboration on CKM conditions to facilitate multidisciplinary, patient-centered care. The panel agreed that this can be accomplished by using existing measures, such as glucose and blood pressure control, to reinforce adherence to guidelines without getting into a different paradigm; in the short term, these measures can incentivize progress toward a new paradigm that emphasizes holistic care.

Recommendations to Close Care Gaps

Identifying recommendations to close CKD care gaps was among the key goals of the January 2025 meeting. Panelists offered a multitude of suggestions across several CKD topic areas.

IMPROVE CKD PREVENTION, SCREENING AND RISK STRATIFICATION

Panelists emphasized the need to improve CKD risk factor management, a recommendation that is consistent with approaching CKM holistically. There was broad agreement on the idea that the emphasis should be on case finding for high-risk populations, rather than on population screening; there was also support for expanded use of uACR testing in all high-risk patients. Some panelists highlighted the PREVENT cardiovascular risk calculator as an example of a primary prevention tool that incorporates eGFR and has an option to use uACR information to estimate 10-year CVD risk among people aged 30–79. It can also include ZIP codes to capture social deprivation index.[28] Although risk calculators are useful for assessing risk of adverse health events associated with kidney disease, expanding their use would require training primary care clinicians and specialists to know which data elements—including uACR—are needed to use and interpret findings.

Optimizing existing and emerging technologies can also help with case finding. For example, standing orders could be implemented for non-physicians to collect urine specimens, and EHR-based reminders could be implemented for high-risk patients, with an opt in/opt out function. EHR-based alerts could be used not only for case finding, but also to facilitate appropriate follow-up care. As AI continues to evolve, these technologies could be deployed in EHRs to help clinicians identify high-risk people who are appropriate for CKD testing.

Although some people would be missed with these approaches, there would undoubtedly be a high yield of millions of patients with diabetes, hypertension, and cardiovascular disease. Support for these strategies in identifying early CKD comes from research in primary care practices that had more than a 20% increase in urine testing for annual screening and monitoring in patients with diabetes.[17]

OPTIMIZE MEDICATION ACCESS, ADHERENCE, AND COORDINATION

Strategies to close care gaps associated with CKD medications start with improving communication between clinicians and patients on their value for risk factor management and slowing CKD progression. There was agreement on the importance of improving access to SGLT2 inhibitors among people with diabetes and CKD for whom these drugs are indicated. Efforts to remove cost barriers—especially among vulnerable populations—to guideline-directed CKD therapies would help patients access a variety of medications to manage conditions that drive CKD progression. These efforts would be aided by simplifying prior authorization and other utilization management strategies that hinder patient access to critical medications. Ongoing patient education and access to resources and professionals who support health literacy would help improve medication adherence among patients.

STRENGTHEN PROVIDER EDUCATION AND RESOURCES FOR CKD

There was widespread agreement that improved CKD education is needed at all provider levels. Suggestions included improving CKD training in medical school and nursing school curricula as well as for allied health professionals. Other ideas included developing a tool for primary care clinicians that outlines actions to take for people newly diagnosed with CKD. Such a tool would prompt lifestyle interventions and referrals to community resources and suggest pharmacologic treatment depending on the patient's profile. Development and dissemination of culturally and linguistically tailored CKD education materials was also recommended, as was the idea of a CKD educator or coordinator, similar to a Certified Diabetes Educator, who could help with patient education, follow-up, and other elements of patient self-management.

IMPROVE PRIMARY CARE DELIVERY AND COORDINATION

Panelists recommended improved integration of kidney disease testing in primary care. Once a patient is identified with CKD, non-physician team members such as nurses, diabetes educators, and medical assistants should be engaged to support patient education and health literacy. This is consistent with earlier calls to deliver multidisciplinary, coordinated, person-centered care for individuals with CKD that is supported by patient education, engagement, and shared decision making.[29] To help ensure quality, approaches should elevate and evaluate patient experiences. Ensuring that primary care physicians are well informed on the benefits and side effects of medications that slow progression of kidney disease—especially combination therapy, when indicated—was viewed as a critical step in improving CKD care.

OPTIMIZE TECHNOLOGY

Optimizing technology in CKD care was a frequent topic of discussion. To address the shortage of nephrologists and other access barriers, panelists urged that telehealth and remote monitoring be used to expand access to CKD care. They also called for integrating CKD into EHRs to improve monitoring and optimize pharmacotherapy for all eligible patients. Incorporating CKD tests into routine panels and single-ordering uACR and eGFR (with an opt-out option) were suggested to improve the quality of CKD screening efforts. Patient portals can be used effectively for accessibility and communication, and to deliver interventions for patient motivation, engagement, empowerment, and shared decision making. Wearable technologies and smartphone applications were cited as examples of how patients can optimize personal technology to manage CKM risk factors and synthesize information that can help with long-term self-management. And policies to increase broadband access in rural and underserved areas have the potential to improve care for CKD and other CKM conditions that drive disease progression.

ENHANCE PATIENT AND CAREGIVER AWARENESS AND ENGAGEMENT

Panelists called for greater investment in public health efforts—at the community, state, and national levels—to educate people about CKD, especially those at high risk. They supported developing kidney-focused campaigns that draw from the successes of “heart health” programs and from diabetes awareness and education programs that leverage local churches and senior centers, as well as small businesses like barber shops, where trusted messengers can serve as informal educators. These efforts were seen as a critical complement to improved clinical care because of their ability to effectively target high-risk populations. They could raise awareness to help high-risk patients advocate for testing and educate patients and caregivers about the importance of medication adherence and other self-management strategies to reduce the rate of CKD progression.

POLICY AND PAYMENT REFORM

Throughout the meeting, panelists emphasized how policy and payment structures impact patient care, and how these aspects of the health care system could be used to address stubborn care gaps. For example, Medicaid and Medicare coverage could be expanded to cover preventive CKD services. Although Medicaid programs differ across states, core measure sets could be used to drive quality CKD care; HEDIS measures could also be used. In areas with a high concentration of people with CKD, Medicare Special Needs Plans (SNP) could be established for people with CKD. SNPs are a type of Medicare Advantage plan designed for people with significant health needs. Such plans would be incentivized to provide high-quality, coordinated care for people with CKD. Policy reform aimed at improving CKD care in under-resourced areas could also facilitate multidisciplinary care and collaboration between primary care and specialists.

Medicare Advantage plans and other value-based care models should be incentivized to identify CKD early and initiate evidence-based, multidisciplinary care planning. These and other care models could align benefits with recommended care, such as the use of SGLT-2 inhibitors among high-risk people. There was a general call for insurance plans to align benefits with recommended CKD care, including medication approvals. For example, policy reform could address formulary restrictions and other utilization management strategies that are inconsistent with guidelines for CKD patient care.

BOX 2: Panelist responses to "one thing" they would like to see happen to improve CKD care

- Increase use of community health workers.
- Increase awareness of kidney disease.
- Increase representation of nurses and front-line staff in discussions of CKD care.
- Increase use of uACR more generally, not just among high-risk patients.
- Increase access to appropriate care and risk factor testing for all Americans.
- More community and public engagement in CKD.
- CKM health literacy beginning in elementary school.
- Give equitable access to proven therapies like SGLT2 inhibitors.
- Incorporate public health in the move from volume to value.
- Increase access and reimbursement for team-based care.
- Assess social needs and provision of needed resources.

CLOSING THOUGHTS

The meeting concluded with panelists sharing one thing to enhance CKD care. Box 2 summarizes their responses, which reflect the varied priority areas that could be addressed to improve care.

Implications for Quality Measures to Improve CKD Care

Measures for high-quality, ongoing CKD care could address early intervention, pharmacologic intervention, care planning, progression monitoring, and patient-centered care, among other topics. The panel discussed potential CKD quality measures, their potential for rapid development, and topics that warrant additional research. Box 3 summarizes measures the panel felt are appropriate for development in the near term.

BOX 3: CKD measures that could provide a foundation for developing quality measures and standards.

CKD prevention	CKD screening/case finding	CKD management and monitoring
Blood pressure, glucose and lipid control, as appropriate for each patient	Order eGFR and uACR for people at high risk for CKD	Appropriate follow-up testing and monitoring once CKD diagnosis is established
Patient education and referral for weight loss counseling and support for overweight individuals	Stage CKD using KDIGO guidelines	A measure that integrates an array of labs and target measures
Patient education and referral to smoking cessation programs for smokers		A comprehensive, patient-centered care plan
Patient education about the risk-enhancing impact of diabetes, hypertension, obesity, and smoking on CKD risk		Deliver patient education on CKD progression, diet, medication adherence, and access to medical nutrition therapy
		Consult/referral to nephrology before advanced disease develops
		Prescribe SGLT2 inhibitors, GLP-1 receptor agonists and nsMRAs for eligible patients
		Medication review of prescription and OTC medications at appropriate intervals
		Renal dosing for appropriate prescription medications
		Avoid prescribing nephrotoxic medications

Although some topics, such as the appropriate interval for screening people with established CKD, are not fully aligned across stakeholders, these and other care elements that need additional research may also be candidates for future measure development. Box 4 summarizes these topics.

BOX 4: CKD screening topics that may require additional research before quality measures and standards can be developed to support these care elements

CKD Topics
Define the population to be screened/for which case finding should be conducted, and set up EHRs to identify these patients and prompt appropriate order sets
Identify numerical value(s) that trigger action
Define action(s) to take once a trigger value is observed
Determine if appropriate actions were taken in response to trigger values
Identify a construct for continuity from a positive CKD finding to initiation of follow-up care
Define the optimal testing interval for patients without CKD
Determine whether test results are adequately communicated to the patient
Determine how to assess patient awareness of CKD, CKD risk factors, and screening recommendations
Assess patient awareness of CKD diagnosis following previous testing

Conclusion

Delivery of high-quality care for CKD requires a holistic, multidisciplinary approach that emphasizes prevention, early detection, and treatment by multidisciplinary teams that understand the role of CKD in the larger CKM framework. This goal can be achieved through enhancing provider and patient education, optimizing evidence-based testing, leveraging existing and emerging technologies, and aligning practice guidelines and reimbursement policies to emphasize access to preventive care and proven therapies. By implementing these strategies, health care providers and policymakers can close care gaps, reduce disparities, and help ensure that CKD patients receive the high-quality care they need.

Transforming CKD management will be greatly facilitated by developing quality measures that address CKD prevention, screening, and treatment. The priority areas described in this report, as well as challenges associated with emerging scientific evidence and conflicting guidelines, will impact the trajectory of measure development—but ultimately, quality measures and standards offer significant opportunities to improve care for both CKD and CKM.

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