PETERSON HEALTH TECHNOLOGY INSTITUTE

Virtual Solutions for Chronic Kidney Disease Management

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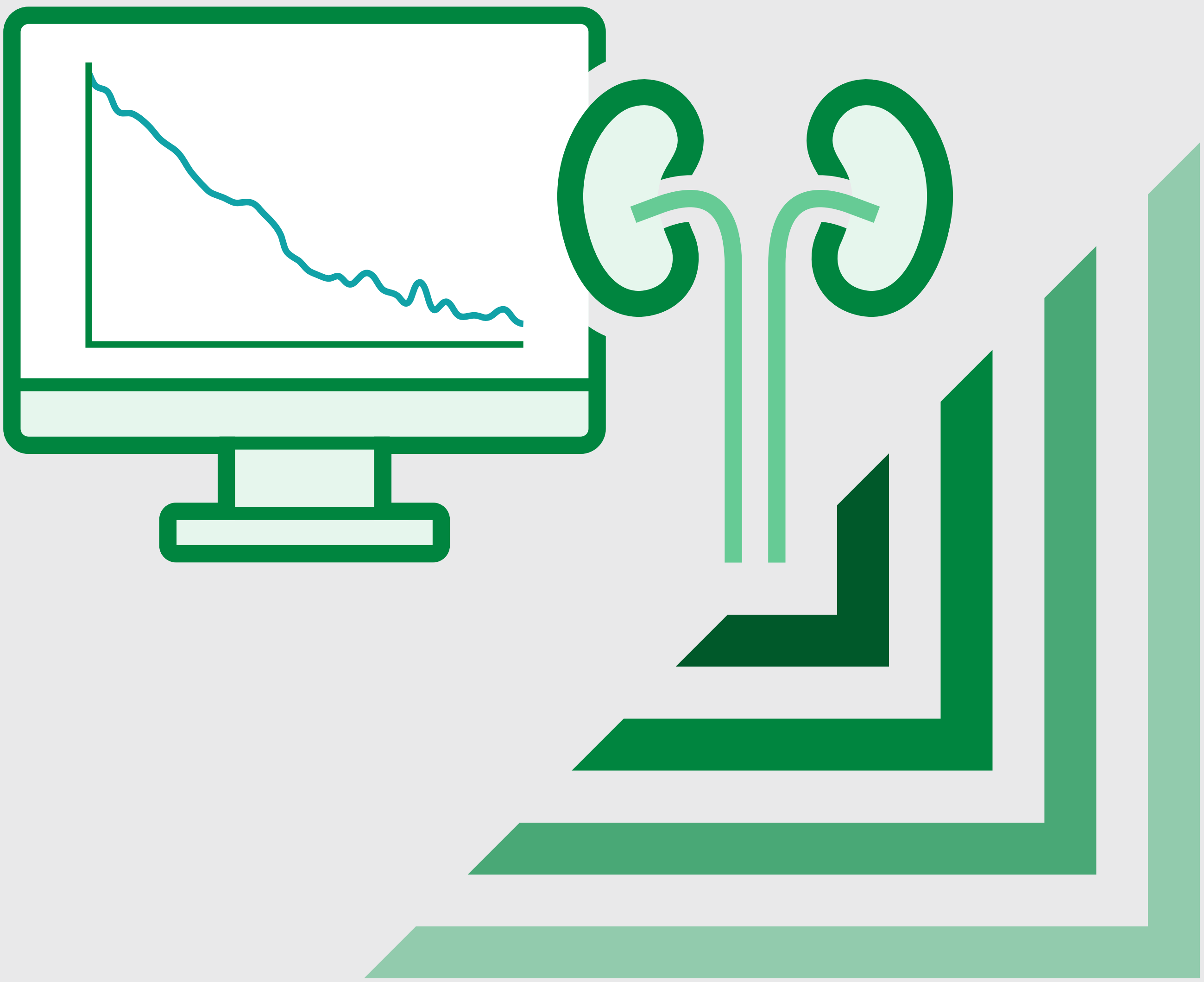

PHTI.org

About This Report

The Peterson Health Technology Institute (PHTI) provides independent evaluations of innovative healthcare technologies to improve health and lower costs.

Through its evidence-based research, PHTI analyzes the clinical benefits and economic impact of digital health solutions. These evaluations inform decisions for providers, patients, health plans, and investors, accelerating the adoption of high-value technology in healthcare.

PHTI focuses on health technologies designed to replace or augment traditional care delivery, including digital therapeutics, chronic care management apps, and remote patient monitoring technologies.

PHTI selects assessment topics on the basis of the:

- Burden of disease to the healthcare system;
- Investment and innovation in the digital health technology;
- Body of evidence about the effectiveness of the technology; and
- Stakeholder interest (purchasers, providers, and patients).

PHTI assessments evaluate evidence of the clinical and economic impact of these technologies using the ICER-PHTI Assessment Framework for Digital Health Technologies, which was designed by a team of experts specifically for digital health products and solutions. This is a secondary research review that relies on published literature and information, as well as proprietary data submitted directly from companies. PHTI did not conduct original testing of the products. All companies included in this report were notified and given an opportunity to submit clinical, commercial, and economic data, which were included in the evaluation if eligible.

The economic models used in this report are intended to compare clinical outcomes and expected costs at the population level. Model results represent average findings and should not be presumed to represent cost or outcomes for any specific patient or payer.

The findings and recommendations contained within this report represent the opinions of PHTI based on the information considered in this assessment. The findings are current as of the date of publication. Readers should be aware that new evidence may emerge following the publication of this report that could influence the results. Virtual solutions for chronic kidney disease management are likely to evolve over time, which may impact their performance. PHTI may revisit its analyses in updates to this report in the future. This report evaluates clinical and economic evidence only; it does not assess, and should not be construed as an opinion on, the legal or regulatory compliance of any company or its practices.

The Peterson Health Technology Institute

PHTI was founded in 2023 by the Peterson Center on Healthcare, a nonprofit organization dedicated to making higher-quality, more affordable healthcare a reality for all Americans. PHTI and the Center are wholly owned subsidiaries of, and are funded entirely by, the Peter G. Peterson Foundation. PHTI does not accept financial contributions.

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Letter from the Executive Director

Chronic kidney disease (CKD) is surprisingly common and often goes undiagnosed until later stages, when treatment options are limited. It is also a major driver of healthcare spending, particularly in Medicare. Given the high costs associated with dialysis (>$100,000 per patient) and transplant, substantial focus has gone into managing patients with late-stage CKD as they transition into kidney failure, including by supporting planned transitions to dialysis.

Unlike other solution categories PHTI has assessed, virtual solutions for CKD management take on population-level risk for patients' total cost of care. For instance, a company may be responsible for all members in a given Medicare Advantage plan who are diagnosed with CKD within a geographic region. These companies then work with nephrology practices to implement value-based care arrangements and support enhanced care management and education for their patients. Ideally, companies would work to slow disease progression by ensuring patients are prescribed effective medications to slow kidney damage—which, in turn, would reduce spending. Unfortunately, that is not what is happening.

Our evaluation found no consistent evidence that virtual CKD management solutions slow disease progression or reduce overall healthcare spending across the population of covered patients. Even more surprising, despite tremendous capital investment, almost none of these companies have generated any clinical or economic evidence. In Traditional Medicare, the Kidney Care Choices Model—launched in 2022—is a large-scale demonstration that has found no reductions in healthcare spending for patients with CKD who were covered in the model compared with those who were not, and incentive payments to participating nephrology practices added to overall Medicare spending.

The challenge is that payment models focus too much on late-stage CKD. The better opportunity to drive change is upstream: by increasing early screening and diagnosis and by focusing on medication management, most patients could avoid progressing to end-stage kidney disease altogether. Yet, because these companies are responsible only for diagnosed patients and work primarily with nephrologists, they have neither the incentive nor the access to improve CKD diagnosis in primary care settings. And because many patients go undiagnosed until the disease is advanced, these companies have limited opportunity to slow disease progression. The best they can do for most patients is help them avoid crashing into dialysis. That is a real improvement, but one that helps too few patients to meaningfully reduce system spending.

This evidence points to a clear path forward: change what we pay for in CKD care and pay for it at the level of the individual patient. Health plans and CMS should prioritize earlier diagnosis and focus on getting patients on the right medications—many of them proven, generic, and underprescribed. We have the clinical tools available. Now we need contracting and payment models that reward early detection, rather than late-stage interventions. With the right incentives, it is possible to close this gap between guideline-recommended care and what patients actually receive.

Sincerely,

Caroline Pearson, Executive Director
Peterson Health Technology Institute

Report Contributors and Reviewers

PHTI partners with a diverse set of contributors, advisors, and stakeholders. Those who directly contributed to this report are listed below. See our website for a full list of partners and advisors, including our Advisory Board and Purchaser Advisory Council, who offer general guidance but do not participate in the assessment process.

Clinical Advisors

The following clinical advisors provided expertise about usual clinical care for chronic kidney disease (CKD), virtual solutions, and primary and secondary health outcomes. The clinical advisors have no conflicts of interest with respect to this assessment.

- Michelle M. Estrella, MD, MHS
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Evaluation Partners

The following independent evaluation partners contributed to this report. The evaluation partners have no conflicts of interest with respect to this assessment.

- Curta assessed the clinical and economic impact of these technologies, including a systematic literature review and budget impact assessment, using the ICER-PHTI Assessment Framework.
- Charm Economics developed insight into how different technologies work, what they cost to deliver, and their impact on patients and purchasers.
- The Institute for Clinical and Economic Review (ICER) codeveloped the ICER-PHTI Assessment Framework for Digital Health Technologies and reviewed the framework's implementation in this report.

Other Partners

Manatt Health provided consulting, research, and operational support throughout the development of the report.

Patient Perspectives

PHTI collaborated with Real Patients (formerly known as Savvy Cooperative) to conduct patient interviews. PHTI conducted interviews with 10 patients with CKD who had experience with virtual CKD solutions. Patients were recruited for diversity across age, gender, race and ethnicity, income level, geography, and insurance type.

Company Submissions

PHTI directly engaged companies included in the report and accepted submissions of public and proprietary information to inform the assessment. PHTI did not conduct any primary analysis of company data. PHTI applied the same standards for minimum evidence requirements and risk of bias reviews to company-submitted information as to all other studies included in the report. Companies did not influence the assessment methods or findings.

Report contributors and reviewers provided important expertise and insight throughout the evaluation process. PHTI is solely responsible for the report and its findings.

Executive Summary

Chronic kidney disease (CKD) affects one in seven adults in the United States and generates substantial healthcare utilization and spending.[1]

CKD is a progressive condition that frequently co-occurs in people with diabetes, hypertension, and other cardiometabolic diseases. As CKD advances, patients face increasing risk of cardiovascular complications and premature death.[2] Because early-stage CKD is typically asymptomatic and screening is inconsistent, many patients are not diagnosed until the disease reaches an advanced stage, when treatment shifts from slowing progression to preparing for dialysis or kidney transplant.

Upon diagnosis, effective management of CKD centers on slowing progression by improving adherence to guideline-recommended medications and coordinating care across the multiple comorbidities patients often have. As kidney function continues to decline, timely and well-planned preparation for dialysis or transplant is essential. Given the high rates of healthcare spending for patients with CKD, managing healthcare utilization and improving budget predictability are also important goals for payers.

CKD places a substantial economic burden on the U.S. health system. Traditional Medicare alone spends more than $141 billion annually on patients with CKD, and employers spend more than $107 billion on healthcare services for people with CKD, plus an additional $30 billion in absenteeism and lost productivity.[3, 4] Spending rises sharply once patients reach end-stage kidney disease (ESKD), when annual healthcare costs reach approximately $100,000 per patient in Medicare.[5] Avoiding progression to ESKD is critical, yet remains challenging—a gap that has prompted widespread investment in companies offering virtual CKD management solutions.

Virtual solutions for CKD management operate within risk-based arrangements with Medicare Advantage and commercial health plans, taking on financial risk for populations of patients with CKD stages 3–5. Contracts typically attribute all eligible patients within a defined geography, or patients affiliated with participating nephrology practices, to the solution. As a result, companies are accountable for outcomes and healthcare spending across a heterogeneous population of diagnosed patients that includes patients managed by nephrologists, patients managed exclusively by primary care providers, and patients whose nephrologist does not partner with the solution. Within any given contract, a CKD company will only succeed at engaging a subset of the attributed patients, estimated at 60%–80% of members. Similarly, within Traditional Medicare, the Kidney Care Choices (KCC) model is a large shared-risk model in which participating companies manage the total cost and quality of beneficiaries with CKD stages 4 and 5.

Virtual CKD companies engage both nephrology practices and patients directly. Practice-facing services include financial and contracting support, as well as risk sharing that enables nephrologists to participate in value-based arrangements. They also equip practices with data and analytics to identify high-risk patients and gaps in care. Companies often employ their own care coordination teams to support patients and offer educational resources related to medications, kidney replacement therapy, and other relevant content to patients.

SCOPE OF EVALUATION

This evaluation assesses virtual solutions for CKD management, with a focus on patients with CKD stages 3–5, including patients with commercial coverage, Medicare Advantage, or Traditional Medicare (via the KCC model).

Solutions that exclusively focus on CKD diagnosis are outside the scope. This report does not focus on the management of patients with ESKD beyond the initial transition to ESKD, including dialysis and transplantation. Many of the assessed companies offer dialysis and may hold contracts for patients with ESKD in addition to CKD.

PHTI Assessment Approach

This evaluation has two primary components: clinical effectiveness and economic impact. Findings are based on evidence from a systematic literature review, company-submitted information, company website reviews, and data from the Centers for Medicare & Medicaid Services' KCC model.

Clinical Effectiveness: This evaluation reviewed evidence assessing the clinical effectiveness of virtual solutions in slowing disease progression and improving dialysis transitions. The evaluation also examined secondary outcomes, including comorbidity management, laboratory testing, quality of life, patient education, healthcare resource utilization, user experience, and health equity.

The systematic literature review examined more than 5,400 pieces of evidence and identified 34 unique studies that met inclusion criteria, including numerous randomized controlled trials, though few studies evaluated the specific interventions offered by the companies evaluated in this assessment. Most studies include 6–24 months of data. This report also draws on two annual evaluations (2022 and 2023), three financial reconciliation data files (2022–2024), and one public use file dataset (2022) from the KCC model.

Economic Impact: The budget impact model estimates the expected change in total healthcare spending over a one-year period associated with virtual solutions for CKD management. The model estimates the number of adults with CKD stages 3–5 who are eligible for these solutions and the gross reduction in expected healthcare spending resulting from improved dialysis starts for commercial, Traditional Medicare, and Medicare Advantage plans.

Stakeholder Engagement: During the assessment process, PHTI partnered with clinical advisors, experts in health technology assessment, practicing nephrologists, and health economists. PHTI also conducted interviews with patients with CKD who had experience with virtual solutions and health plans that contract with these solutions. All companies included in the report were given an opportunity to submit clinical, economic, and other commercial information to inform the assessment; all eight of the companies engaged with PHTI during the assessment process, and three submitted evidence.

Summary of Findings

PHTI evaluated virtual solutions for CKD management as a single category, since these companies offer similar features and compete head-to-head for contracts. As a category, the CKD companies in this report produced almost no clinical evidence, which is particularly noteworthy given their high level of capital investment.

Clinical Effectiveness: Based on PHTI's review of the evidence, virtual solutions for CKD management show no consistent evidence of slowing disease progression—either by improving medication use or by slowing the rate of kidney function decline—compared with usual care. They demonstrate some benefit in improving the rate of planned dialysis starts, but these do not translate to meaningful reductions in hospitalizations or other healthcare utilization. Moreover, improvements in optimal starts do not generate meaningful clinical impact or savings at the population level, because only 1 in 100 attributed patients begin dialysis annually and only 1 in 1,000 patients would experience an improved start.

Economic Impact: The budget impact model finds small reductions in healthcare spending driven by improvements in planned dialysis transitions, which are immaterial when spread across the full attributed CKD population. Nonetheless, health plans may continue to value these solutions because they may improve risk coding, lower medical loss ratios, and increase budget predictability, all of which create value for the plan and company—even absent cost of care reductions—within current contracting structures.

PHTI RATINGS FOR VIRTUAL SOLUTIONS FOR CKD MANAGEMENT

● Positive ● Moderate/Mixed ● Negative
● Higher Evidence Certainty ○ Lower Evidence Certainty

Virtual Solutions	Clinical Effectiveness[a]	Economic Impact	Summary Rating[b]
DaVita IKC Evergreen Nephrology Healthmap Solutions Interwell Health Kidneylink Monogram Health Somatus Strive Health	● (Moderate/Mixed) **Results:** Does not slow disease progression Increases planned dialysis initiation **Evidence Certainty:** Higher	● (Negative) Does not reduce total healthcare spending at the population level May increase total spending due to program costs[c]	● (Negative) **Evidence does not support broader adoption**

Source: PHTI, Virtual Solutions for CKD Management, September 2026. See PHTI.org for complete report, methods, and recommendations.

Notes: [a] Not all solutions have clinical data that meet the inclusion standards for this report. Given the similarity of approaches across companies in this report, companies without solution-specific data are assumed to perform comparably. [b] Summary rating reflects the combination of clinical and economic results. [c] Costs may include quality bonuses, shared savings payments, and increased risk-adjustment coding associated with the CKD program.

Next Steps

Based on PHTI's review of the evidence, virtual solutions for CKD management do not demonstrate meaningful improvement in disease progression or total cost of care at a population level. These limitations are a result of the current design of the solutions, the challenges of effectively delivering care to patients with CKD, and a payment and policy landscape that has primarily concentrated incentives on dialysis initiation and end-stage management rather than on upstream interventions that slow disease progression. Addressing these gaps will require coordinated action across innovators, purchasers, providers, and policymakers.

PHTI's recommendations include:

- **Tie population-based performance payments to real cost reductions.** Purchasers should structure shared savings arrangements to direct a greater share of payments toward utilization-based cost reductions and should consider additional incentives for absolute cost reductions rather than reductions relative to a growing benchmark. While planned dialysis starts remain a relevant performance milestone, they should not solely determine contract success given the small subset of the CKD population impacted.
- **Prioritize early patient identification and guideline-recommended medications.** Purchaser contracts and company offerings should be oriented around intervening earlier in CKD disease progression. Solutions should ensure lab testing is completed, support accurate diagnosis and staging, and help providers—including PCPs—initiate guideline-recommended medication therapy as early as possible.
- **Advance evidence generation.** The peer-reviewed evidence base supporting these solutions' effects on disease progression, cost reduction, patient engagement, planned starts, and other process measures associated with effective CKD management is limited. Companies should invest in rigorous, comparative research to strengthen the evidence available to purchasers.
- **Shift future models toward upstream care while emphasizing guideline-recommended medications in existing programs.** Future kidney models should shift incentives toward earlier CKD stages. CMS should consider adding CKD medication prescribing and adherence measures to Traditional Medicare incentive programs and medication-related reporting to Medicare Advantage plans. CMS should also consider adding medication use measures to the cardio-kidney-metabolic tracks in its ACCESS model, as adherence to these medications is directly linked to slowing disease progression.

These findings are based on the criteria set forth in the ICER-PHTI Assessment Framework and the currently available evidence. Please see the full PHTI report and appendices, and online data supplement for complete assessment, methods, and recommendations.

The Case for Innovation

Chronic kidney disease (CKD) is a progressive disease that affects one in seven (37 million) adults in the United States.[6] Over time, patients with CKD lose their ability to filter waste and fluid from the blood, which can progress to kidney failure requiring dialysis or a kidney transplant to survive. Approximately 87% of adults with CKD are unaware that they have the condition, including one in three of those with advanced disease.[7, 8]

Because early-stage CKD is often asymptomatic and screening is inconsistent, many patients are not diagnosed until the disease has reached an advanced stage, which narrows the opportunity to slow progression and avoid preventable complications.[9] Although guideline-recommended therapies have expanded in recent years, including medications shown to slow disease progression and reduce cardiovascular risk, uptake of these newer medications remains limited. Fragmented care delivery—with responsibility often split among many clinicians—also hinders effective CKD management.

CKD places a substantial economic burden on the U.S. healthcare system. Traditional Medicare alone spends more than $141 billion annually on beneficiaries with CKD,[10] while employers incur more than $107 billion in healthcare costs and an additional $30 billion in absenteeism and lost productivity.[11] Spending increases substantially once patients progress to end-stage kidney disease (ESKD). In 2023, patients receiving dialysis or a kidney transplant accounted for $24.4 billion in Traditional Medicare spending.[12]

Virtual solutions for CKD management aim to improve clinical and economic outcomes by assuming total cost of care risk for a population of patients with CKD. These companies seek to slow disease progression, increase planned dialysis starts, and reduce healthcare utilization and spending. They contract with Medicare or commercial health plans to manage all patients with CKD in a given geography. They then partner with nephrology practices to support value-based payment arrangements and sometimes augment those practices with care coordinators who can manage across patients' specialists. The solutions can also work directly with patients to deliver educational materials, support medication management, and facilitate planned transitions to dialysis or kidney transplant. Enrollment in CKD management solutions has grown rapidly, driven by increased contracting by Medicare Advantage plans and participation in the Kidney Care Choices (KCC) model in Traditional Medicare.

This report incorporates scientific evidence, company data, and budget impact modeling to answer three fundamental questions: **How well do these virtual solutions work? For whom? Are they worth it?**

COMPANIES WITH VIRTUAL SOLUTIONS FOR CKD MANAGEMENT REVIEWED IN THIS REPORT

DaVita Integrated Kidney Care	Evergreen Nephrology	Healthmap Solutions	Interwell Health
Kidneylink	Monogram Health	Somatus	Strive Health

Condition Overview

CKD is a progressive condition characterized by persistent kidney damage or reduced kidney function, impairing the kidney's ability to filter waste from the blood.[13] In the United States, 14% of adults—approximately 37 million people—are estimated to have CKD, though only 13% of those with CKD are aware they have it.[14] Clinical guidelines recommend annual CKD screening for people with diabetes, hypertension, or cardiovascular disease, but population-wide screening is not currently recommended and rates of screening for all patients remain low.[15–18]

CKD is defined and staged using the Kidney Disease: Improving Global Outcomes (KDIGO) classification system, which categorizes stages on the basis of two measures: estimated glomerular filtration rate (eGFR), which reflects kidney function, and urine albumin-to-creatinine ratio (uACR), which reflects the degree of kidney damage.[19] The full KDIGO classification combines these two dimensions to stratify risk; for simplicity, this report describes disease severity by eGFR stage (Exhibit 1).

CKD is often asymptomatic in stages 1 and 2. However, as the disease progresses to stages 3 and 4, symptoms including fatigue, nausea, and fluid retention may emerge alongside complications such as anemia, mineral and bone disorder, and hyperkalemia (high levels of potassium in the blood).[20] In stage 5, kidney function is insufficient to filter waste products from the blood.[21] Patients are classified as having ESKD[a] when kidney failure necessitates treatment with dialysis or kidney transplant.[22, 23]

Exhibit 1

KIDNEY DISEASE STAGE AND DESCRIPTION

Stage	Description	eGFR	Kidney Function	Median Time in Stage
1	Possibly kidney damage with **normal** kidney function	≥90	90–100%	—
2	Kidney damage with **mild loss** of kidney function	60–89	60–89%	—
3a	**Mild to moderate loss** of kidney function	45–59	45–59%	7.9 years
3b	**Moderate to severe loss** of kidney function	30–44	30–44%	5.0 years
4	**Severe loss** of kidney function	15–29	15–29%	4.2 years
5	**Severe or complete loss** of kidney function	<15	<15%	0.8 years

Note: eGFR = estimated glomerular filtration rate.

Sources: American Kidney Fund, "Stages of Kidney Disease (CKD)," last updated July 21, 2025. https://www.kidneyfund.org/all-about-kidneys/stages-kidney-disease. Elaine Ku, Kirsten L. Johansen, and Charles E. McCulloch, "Time-Centered Approach to Understanding Risk Factors for the Progression of CKD," *Clinical Journal of the American Society of Nephrology* 13, no. 5 (2018): 693–701. https://doi.org/10.2215/CJN.10360917.

[a] This report uses ESKD (end-stage kidney disease) throughout. ESRD (end-stage renal disease) is an equivalent term that remains in use in U.S. law and CMS program and payment policy. A 2019 KDIGO consensus conference recommended adopting "kidney" in place of "renal" in disease terminology.

The pace of CKD progression is highly variable: some patients remain in stages 1 or 2 for decades without advancing, while others progress more rapidly. Progression from stage 3a to stage 5 takes an estimated 7–25 years depending on the underlying cause of kidney damage, comorbid conditions, age, and treatment.[24] Given how long progression takes, the majority of people diagnosed with CKD are in stage 3.[25] Among Traditional Medicare patients diagnosed with CKD stages 3–5, only 0.7% progress to dialysis annually (see **Appendix A** for detailed methodology).[26, 27]

Across all CKD stages, patients face an elevated risk of heart disease, heart failure, and stroke—and many patients with CKD die of cardiovascular complications before ever reaching ESKD.[28] Diabetes and hypertension are the leading causes of CKD.[29] Additional risk factors include age, family history, acute kidney injury, cardiovascular disease, and obesity.[30] Most people with CKD have other comorbid conditions, including 75% with hypertension, 36% with diabetes, 50% with obesity, and 19% with cardiovascular disease.[31]

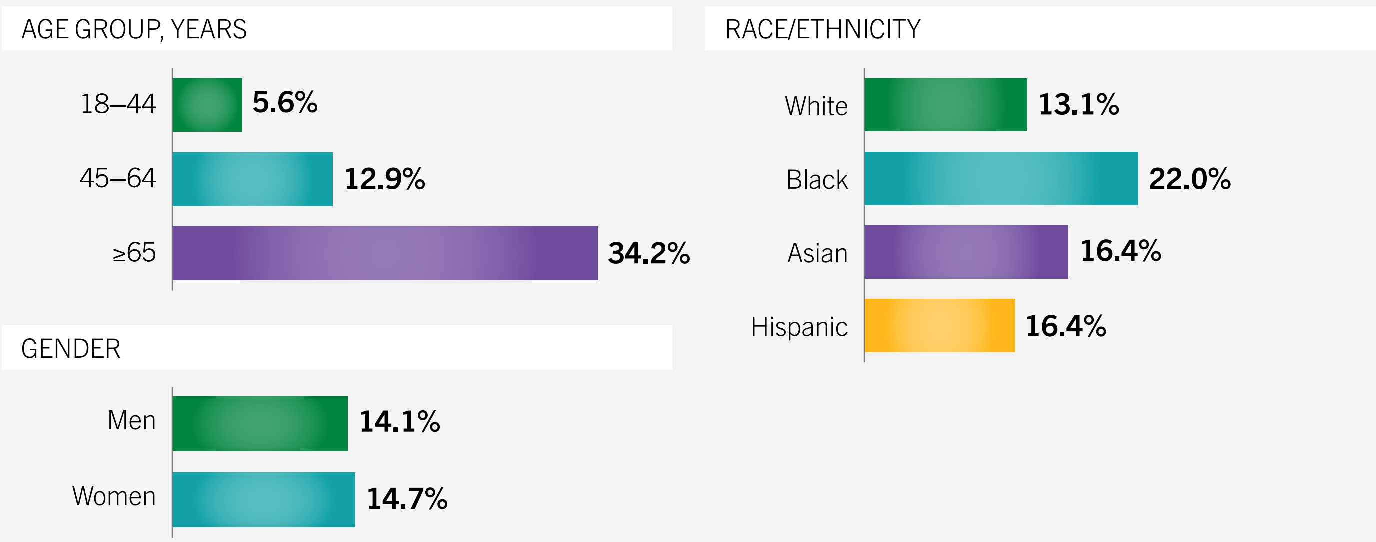
> **“Kidney disease and cardiovascular risk are deeply intertwined.**
>
> They share many risk factors, and many of the recommended medications have cross-benefit across cardio-kidney-metabolic conditions.”
>
> —Dr. Michelle Estrella

Patient Demographics and Disparities

CKD prevalence increases with age but approximately half of patients (51%) are younger than 65.[32] CKD is more common among Black adults (22%) and Asian adults (16%) than among white adults (13%) (Exhibit 2).[33] These racial disparities are more pronounced as the disease progresses: Black adults are more than four times as likely as white adults to progress to ESKD and do so at younger ages.[34] Despite having low relative CKD prevalence, Hispanic adults are more than twice as likely as white adults to progress to ESKD.[35]

Exhibit 2

PERCENTAGE OF U.S. ADULTS WITH CKD, BY DEMOGRAPHIC GROUP



Note: CKD stages 1–4 using data from the August 2021–August 2023 National Health and Nutrition Examination Survey and the CKD Epidemiology Collaboration equation without race.
Source: Centers for Disease Control and Prevention (CDC), “Chronic Kidney Disease in the United States,” March 31, 2026. https://www.cdc.gov/kidney-disease/php/data-research/index.html.

Standard of Care

Screening and Diagnosis

Early diagnosis of CKD is essential to monitor the rate of kidney function decline and begin treatment that may slow disease progression.

Diagnosis of CKD requires confirmation of abnormal kidney function—indicated by reduced eGFR, elevated uACR, or both—persisting for at least three months. Confirmation generally requires repeat testing on two occasions separated by more than three months (see callout box for complete description).[36]

Approximately 80% of patients with diabetes, hypertension, or both do not receive recommended testing for CKD, which requires both eGFR and uACR. Only 21% of these patients receive uACR testing.[37] More broadly, an analysis of nationwide Medicare claims found that only 20% of Traditional Medicare enrollees and 28% of Medicare Advantage enrollees received comprehensive CKD screening in 2023.[38] Testing of eGFR is more common as part of routine screening panels but more than half of patients with an initial abnormal eGFR result do not receive the required repeat test within three months, which limits clinicians' ability to assess the rate of kidney function decline over time.[39, 40]

Because CKD screening is recommended for people with diabetes, hypertension, or cardiovascular disease, but not for the general asymptomatic adult population, identification of at-risk patients occurs primarily through routine diabetes and hypertension disease management—often in primary care settings.[41-43]

ASSESSING KIDNEY FUNCTION AND KIDNEY DAMAGE

CKD is diagnosed and monitored using two tests that assess kidney function and kidney damage:

Estimated glomerular filtration rate (eGFR) is the primary measure of kidney function, with lower values indicating reduced kidney function. Derived from a blood test, eGFR estimates the volume of blood the kidneys filter per minute, expressed in milliliters per minute per 1.73 square meters of body surface area (mL/min/1.73 m^2).[44] Estimating the rate of eGFR decline is complicated by normal fluctuation in eGFR values, the requirement for multiple measurements over time, and nonlinear patterns of disease progression.[45]

Urine albumin-to-creatinine ratio (uACR) is a urine test that measures kidney damage by detecting albumin—a protein normally found in the blood—in urine.[46] The presence of albumin in the urine indicates that the kidney's filtering structures may be damaged.[47] Higher uACR values reflect greater albumin leakage and a higher risk of CKD progression and cardiovascular complications.[48]

Together, eGFR and uACR provide a comprehensive assessment of kidney health and are used to confirm a CKD diagnosis, stage disease severity, and predict the risk of progression. Declining eGFR and elevated uACR are each associated with higher rates of kidney failure, all-cause mortality, and cardiovascular mortality.[49]

> **“Many labs report eGFR values above 60 as just ‘greater than 60’ rather than the actual value.**
>
> Even if a patient has been previously tested, this makes it much more challenging to understand their rate of decline and the likelihood of rapid disease progression. A decline from 95 to 70 is more meaningful than one from 61 to 59, yet we remain relatively blinded to it.”
>
> —Dr. Pranav Garimella

Management and Treatment

The primary goal of CKD management is to slow disease progression to preserve kidney function.[50]

Early-stage treatment focuses on medication therapy and may be supplemented with lifestyle changes, including physical activity, dietary modification, and smoking cessation.[51] Angiotensin-converting enzyme inhibitors (ACEi) and angiotensin receptor blockers (ARB) have long been recommended for patients with CKD to slow disease progression.[52] More recently, sodium-glucose cotransporter 2 (SGLT2) inhibitors have demonstrated more substantial reductions in eGFR decline and mortality.[53] Both medication classes are available as generics. For patients with diabetes, newer branded drugs—including nonsteroidal mineralocorticoid receptor agonists (nsMRA) and glucagon-like peptide-1 (GLP-1) receptor agonists—have also been shown to slow CKD progression in clinical trials.[54, 55]

All patients with CKD should receive therapies that protect kidney function and reduce the rate of decline. In practice, however, use of these therapies remains limited: Of people with CKD, approximately 50% use an ACEi/ARB, and 15% use an SGLT2 inhibitor;[56, 57] among people with CKD who do not have other comorbidities, SGLT2 inhibitor use is only 2%.[58]

Early-stage management of CKD and other comorbidities often occurs in the primary care setting.[59] As the disease progresses, clinical guidelines recommend that patients see a nephrologist to manage complications and prepare for kidney replacement therapy; yet in practice, only 54% of Traditional Medicare patients with stage 4 CKD receive recommended nephrologist care.[60, 61] For some patients, it can also be challenging to coordinate care across multiple clinicians (e.g., cardiologists, endocrinologists) who may be managing other comorbidities and medication regimens.[62]

“By the time most patients get to nephrologists, they are already in stages 4 or 5.

Earlier stage management typically sits within primary care. Improving early CKD management would require earlier identification as well as close partnerships with PCPs to initiate evidence-based therapies.”

—Dr. Sri Lekha Tummalapalli

Planning for Kidney Replacement Therapy

As patients progress to advanced stages of CKD, attention shifts to preparing for kidney failure, with treatment options including kidney transplantation, dialysis, or conservative management (medical management of symptoms without dialysis or transplant).[63] For many patients, kidney transplantation is the preferred treatment option but long wait times and limited donor organs mean that transplants are unavailable for most patients who need them.[64, 65] As a result, most patients with ESKD rely on dialysis for survival.

There are two primary modes of dialysis: hemodialysis and peritoneal dialysis. Hemodialysis filters the blood through a machine—typically several times per week—and can be performed at an outpatient dialysis center or at home.[66] Peritoneal dialysis uses the abdominal lining as a natural filter and is performed daily.[67] Though other modalities are becoming more common, the vast majority of patients starting dialysis receive in-center hemodialysis (84.9%), followed by peritoneal dialysis (14.7%) and home hemodialysis (0.4%).[68]

Planned initiation for hemodialysis occurs in outpatient settings with surgically created permanent vascular access.[69] Unplanned starts—often initiated during an inpatient stay—require placement of a central venous catheter (CVC) (Exhibit 3). Planned dialysis initiation is associated with lower risk of infection and lower rates of sepsis, hospitalization, and mortality.[70–74] Despite this, unplanned starts are common: approximately 84% of patients initiating hemodialysis in 2023 did so with a CVC.[75]

Exhibit 3

CHARACTERISTICS OF PLANNED AND UNPLANNED DIALYSIS INITIATION

Feature	Planned	Unplanned
Vascular Access	Arteriovenous fistula, arteriovenous graft, or peritoneal catheter	Central venous catheter
Access Duration	Permanent	Temporary
Setting	Outpatient	Inpatient
Modality	Hemodialysis or peritoneal dialysis	Hemodialysis
Average Cost	$65,000	$122,000

Notes: Terminology for dialysis initiation varies across the literature; features described above represent general patterns and may not apply uniformly across all definitions. Costs reflect spending four months before and eight months after dialysis initiation. Costs for unplanned starts reflect a mix of crash and suboptimal dialysis starts. Costs have been inflated to 2025 USD.

Sources: National Kidney Foundation, “Dialysis,” last updated January 2, 2023. https://www.kidney.org/kidney-topics/dialysis. Belén Marrón, Janusz Ostrowski, Marietta Török, et al., “Type of Referral, Dialysis Start and Choice of Renal Replacement Therapy Modality in an International Integrated Care Setting,” *Plos One* 11, no. 5 (2016): e0155987. https://doi.org/10.1371/journal.pone.0155987. Leslie P. Wong, Anindita Ghosh, Jianbo Li, et al., “Dialysis Costs for a Health System Participating in Value-Based Care,” *American Journal of Managed Care* 29,no. 8 (2023): e235–e241. https://doi.org/10.37765/ajmc.2023.89410.

Economic Impact

CKD imposes substantial costs on the healthcare system. While patients with CKD represented approximately 17% of the Traditional Medicare population in 2023, they accounted for 36% of Traditional Medicare spending—$141 billion.[76] This includes $21.8 billion in Traditional Medicare Part D prescription drug spending.[77] ESKD adds substantially to this burden: in 2023, Traditional Medicare spending for patients receiving dialysis or kidney transplant was an additional $24.4 billion.[78] While Medicare Advantage spending was $27.7 billion on patients with ESKD in 2023, there are no publicly available data on expenditures for Medicare Advantage patients with CKD.[79]

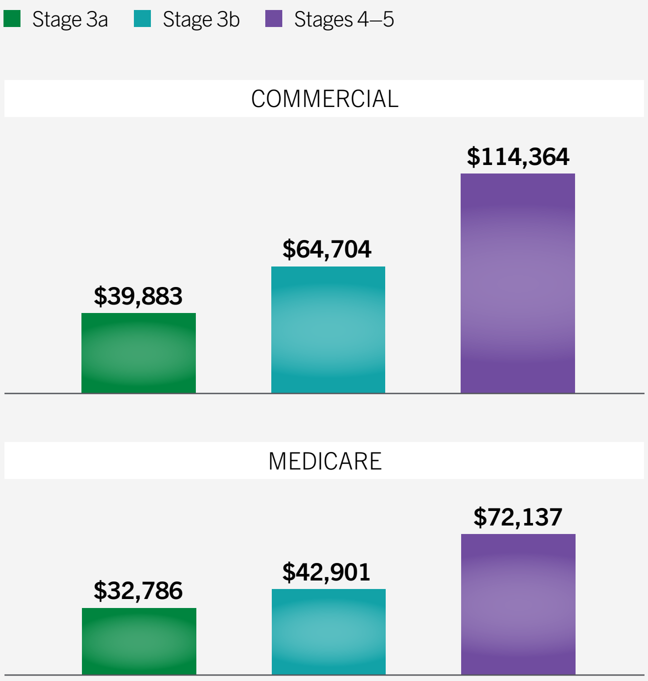
Healthcare spending is substantially higher for patients with CKD and concurrent chronic conditions.[80] Medicare beneficiaries with diabetes and CKD have 45% higher average annual healthcare spend than those with diabetes alone; those with CKD and heart failure have 37% higher spend than those with heart failure alone.[81]

The economic impact extends beyond Medicare. Approximately 7% of the U.S. workforce has CKD, with 1% having moderate to severe disease.[82] Despite accounting for a small fraction of employees, those with moderate to severe disease drive 8% of annual employer healthcare costs—approximately $107 billion when comorbidities are included. CKD-related absenteeism and reduced productivity impose an additional $30 billion in indirect costs on employers annually.[83]

Healthcare costs increase substantially as CKD advances: mean annual costs per patient nearly triple from stage 3a to stage 4–5 for both commercial and Medicare populations (Exhibit 4).[84] Across all stages, costs are higher for commercially insured patients. Healthcare spending for CKD is driven primarily by hospitalizations, which increase in both frequency and length as the disease progresses.[85] Once CKD progresses to ESKD, annual costs for patients on dialysis increase by approximately 180% for commercially insured patients and by approximately 50% for those on Medicare, compared with stage 4–5 costs.[86, 87]

Exhibit 4

MEAN ANNUAL HEALTHCARE COSTS PER PATIENT, BY CKD STAGE



Note: Costs have been adjusted to reflect total cost of care using average in-network actuarial values of plan-covered charges and inflated to 2025 USD.

Source: Ladan Golestaneh, Paula J. Alvarez, Nancy L. Reaven, et al., "All-Cause Costs Increase Exponentially with Increased Chronic Kidney Disease Stage," *American Journal of Managed Care* 23, no. 10 suppl. (2017): S163–S72. https://www.ajmc.com/view/all-cause-costs-increase-exponentially-with-increased-chronic-kidney-disease-stage-article.

Medicare Coverage for Patients with ESKD

People younger than 65 become eligible for Medicare—after a three-month waiting period—if they progress to ESKD and need dialysis or a kidney transplant.[88] For patients with employer-sponsored insurance, there is then a 30-month coordination period during which employer-sponsored insurance is the primary payer and Medicare provides secondary coverage.[89] After the coordination period, Medicare becomes the primary payer.[90] In practice, one-third of patients switch to Medicare before the coordination period ends—an average of 19 months early—typically following job loss or the discontinuation of employer-sponsored coverage.[91]

Prior to 2021, Medicare beneficiaries with ESKD who were younger than 65 were generally ineligible for Medicare Advantage.[92] The 21st Century Cures Act eliminated this restriction and Medicare Advantage enrollment among beneficiaries with ESKD increased from 25% in January of 2020 to 55% in December of 2024.[93, 94] Medicare Advantage spending for people with ESKD surpassed Traditional Medicare costs for the first time in 2023.[95] This shift has positioned Medicare Advantage plans as the primary market for virtual CKD solutions, as plans bear the risk for the costs of people with ESKD.

The Opportunity for Virtual Solutions to Improve CKD Outcomes

Patients with CKD frequently experience gaps in care that contribute to poor outcomes and avoidable healthcare spending. Opportunities to improve CKD management should focus on increasing early diagnosis, slowing disease progression, and supporting well-coordinated transitions to kidney replacement therapy (Exhibit 5). Together, these opportunities support a central goal for health plans and public payers: managing the rapid rise in healthcare spending as CKD progresses and improving budget predictability.

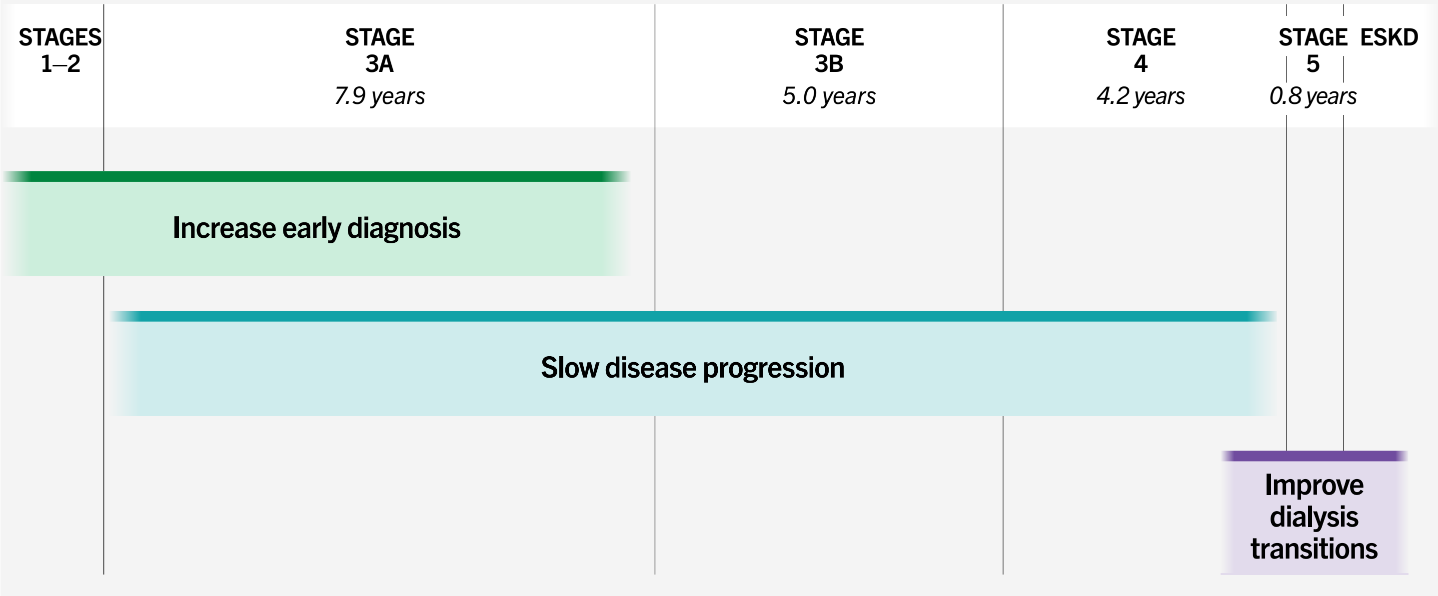
1 **Increasing Early Diagnosis:** Earlier diagnosis represents one of the greatest opportunities to improve long-term CKD outcomes, as earlier intervention allows more time to slow disease progression before kidney function is substantially compromised.

2 **Slowing Disease Progression:** Improving uptake of and adherence to guideline-recommended therapies—including ACEi/ARBs, SGLT2 inhibitors, nsMRAs, and GLP-1 receptor agonists—and strengthening care coordination across comorbidities represent key opportunities to slow eGFR decline in the diagnosed CKD population.

3 **Improving Dialysis Transition:** For patients approaching kidney failure, supporting well-coordinated transitions to dialysis or transplant represents the primary opportunity to improve care quality and reduce costs. Spending in the year prior to dialysis initiation is approximately 3–4 times higher for patients with unplanned starts, making the shift from unplanned to planned initiations a meaningful lever for both clinical and economic impact.[96]

Exhibit 5

OPPORTUNITIES TO IMPROVE CKD OUTCOMES, BY DISEASE STAGE



Note: Time in stage reflects median time in stage.

Source: Elaine Ku, Kirsten L. Johansen, and Charles E. McCulloch, “Time-Centered Approach to Understanding Risk Factors for the Progression of CKD,” *Clinical Journal of the American Society of Nephrology* 13, no. 5 (2018): 693–701. https://doi.org/10.2215/CJN.10360917.

Virtual Solutions for CKD Management

The virtual solutions described in this report are designed to address a subset of these clinical and economic opportunities. As detailed below, the solutions assume full financial risk for managing populations of patients with CKD. However, in general, solutions do not become contractually responsible for patients with CKD until after they are diagnosed. As a result, these companies' ability to impact rates of early diagnosis—particularly in the primary care setting—is quite limited. These solutions primarily work to engage both patients and clinicians in an effort to delay progression to kidney failure and defer the substantial costs associated with ESKD. They also invest considerably to support planned dialysis starts through patient education, care coordination, and structured clinical support.

> **“The market is tackling a narrow slice of the opportunity for CKD.**
>
> Private companies excel at meeting the incentives they are given, but they are often not incentivized to slow disease progression or address the nearly 90% of patients with CKD that are unaware they have it.”
>
> —Dr. Eugene Lin

Solutions for Early Diagnosis of CKD

Though they are outside the scope of this evaluation, several healthcare organizations focus on the early diagnosis of CKD. Some have developed their own blood tests and advanced algorithms to interpret the results. Others use smartphone cameras to enable at-home urine testing for uACR. Most of these organizations focus not only on diagnosis, but also on predicting disease progression, though they typically do not take an active role in care management or disease treatment.

Virtual Solutions

This assessment includes eight companies that provide virtual solutions for CKD management. Included solutions contract directly with Medicare Advantage and other payers for the total cost of care of a population of patients with diagnosed CKD. Solutions partner with or directly employ nephrologists and provide direct patient-facing services with the goal of improving clinical outcomes and reducing the healthcare spending for the attributed CKD population.

Solutions considered for this assessment were identified through a market scan, a search of published literature, and company-by-company research. The final list of included companies was informed by company meetings; detailed company research; and input from a broad set of stakeholders, including health plans, employers, clinicians, and digital health experts.

All of the solutions included in this report:

- Contract with commercial health plans or government payers, including Medicare Advantage;
- Assume accountability for the total cost of care for patients with CKD;
- Partner with or directly employ nephrologists to support the clinical management of patients with CKD;
- Deploy care teams that directly interact with and support patients with CKD stages 3–5;
- Offer a combination of patient-facing services and provider-facing analytics and support;
- Are sold by for-profit companies that are publicly traded or have raised at least $100M in funding via private investors (Exhibit 6); and
- Are sold in the United States.

Exhibit 6

COMPANY HISTORY AND FUNDING

Company	Year Founded	Ownership	Total Private Investment/ Market Cap[a]
DaVita IKC	1996	Public[b]	$11.2B
Evergreen Nephrology	2021	Private	$134M
Healthmap Solutions	2007	Private	$230M
Interwell Health	2014	Subsidiary[c]	$12.2B
Kidneylink	2021	Private[d]	$592M
Monogram Health	2019	Private	$547M
Somatus	2016	Private	$478M
Strive Health	2018	Private	$948M

Notes: [a] Market cap for public companies, as of August 31, 2026. [b] Reflects market cap for DaVita, Inc. (NYSE: DVA), of which DaVita IKC is a division. [c] Reflects market cap for Fresenius Medical Care (NYSE: FMS). The 2022 merger of Cricket Health, Fresenius Health Partners, and InterWell Health to form Interwell Health valued the combined company at $2.4 billion. [d] Private investment raised by U.S. Renal Care, of which Kidneylink is a subsidiary.

Sources: PitchBook Data, Inc. Fresenius Medical Care, “Fresenius Medical Care Participates in Three-Way Merger to Create Premier Value-Based Kidney Care Provider in the U.S.—Next Important Step in Execution of Growth Strategy 2025,” March 21, 2022. https://www.sec.gov/Archives/edgar/data/1333141/000110465922036439/tm229941d1_ex99-1.htm.

Contracting Structure

The companies evaluated in this report operate within risk-based arrangements with Medicare Advantage and commercial health plans, taking on financial risk for populations of patients with CKD stages 3–5. While these companies also manage patients with ESKD—including dialysis spending—under similar contracts (or as part of their overall contract), this function is outside the scope of this report. Contracts typically attribute all eligible patients within a defined geography, or patients affiliated with participating nephrology practices, to the solution. As a result, solutions are accountable for outcomes and healthcare spending across a heterogeneous population of diagnosed patients that includes patients managed by a nephrologist, patients managed exclusively by a primary care provider (PCP), and patients whose nephrologist does not partner with the solution.

Within any given contract, a CKD company will only engage with a subset of the attributed patients—either through contracted provider practices, directly to the patient, or both. Companies included in this assessment report engagement rates of 60%–80%, though definitions vary widely and rarely distinguish one-time from sustained engagement, or direct patient engagement from engagement through a clinician. Slowing disease progression and improving optimal starts require sustained engagement with both patients and their nephrologists, not a single point-in-time interaction with either.

> **“They gave me a magnet. I’ve never really talked to them.**
>
> They said, if I need anything I could call, but that was the extent of the contact there.”
>
> —Patient Interview Participant

Within Traditional Medicare, the Center for Medicare and Medicaid Innovation operates the **Kidney Care Choices (KCC)** model that began in 2022. This is a voluntary model designed to improve care management for patients with CKD stages 4 and 5 or ESKD. The model creates financial incentives for nephrologists, dialysis facilities, and other providers to coordinate care for Medicare beneficiaries, with the goal of reducing costs by delaying dialysis onset and increasing rates of kidney transplants.[97] Within KCC, the Comprehensive Kidney Care Contracting (CKCC) option is a shared-risk model in which Kidney Contracting Entities (KCEs) assume responsibility for the total cost and quality of care of beneficiaries. The companies evaluated in this report participate in KCEs by partnering with nephrology practices.[b] In 2023, the KCC model covered approximately 51% of Traditional Medicare beneficiaries with CKD stages 4 and 5 or ESKD.[98]

Six of the eight companies included in this report have participated in the CKCC option (Exhibit 7). Since the model began, companies included in this evaluation have accounted for more than two-thirds of participating practices in the CKCC option and represent 95% of all practices in 2026.

Exhibit 7

COMPANY PARTICIPATION IN THE CKCC OPTION, 2022–2026

	Number of Participating Practices				
Company	**2022**	**2023**	**2024**	**2025**	**2026**
DaVita IKC	11	22	22	22	22
Evergreen Nephrology	2	10	10	10	10
Interwell Health	20	24	23	21	21
Kidneylink	3	11	10	10	10
Somatus	0	2	2	0	0
Strive Health	4	8	8	7	7
Percentage of practices covered by evaluated companies	80%	77%	94%	93%	95%

Notes: 2024 data excludes figures from the KCEs that terminated effective May 31, 2024. CMS data lists Somatus as the affiliated organization for Kidney Care Center Alliance, LLC across 2022–2026; however, Somatus was affiliated with this KCE only from 2023 to 2024, having taken it over from a different organization in 2023 and exited in 2025.

Sources: CMS, “KCC PY 2022 Reconciliation Data Results and Data Dictionary.” https://www.cms.gov/priorities/innovation/files/kcc-py1-rcn-es.xlsx. CMS, “KCC PY 2023 Reconciliation Rerun Data Results and Data Dictionary.” https://www.cms.gov/priorities/innovation/files/kcc-py2-rcn-es.xlsx. CMS, “KCC PY 2024 Reconciliation Rerun Data Results and Data Dictionary.” https://www.cms.gov/priorities/innovation/files/kcc-py3-rcn-es.xlsx. CMS, “Notice of Performance Year 2025 Participants for the Kidney Care Choices (KCC) Model,” May 2, 2025. https://www.cms.gov/files/document/kcc-model-participants-cy2025.pdf. CMS, “Notice of CMS Kidney Care First Practices and Kidney Care Entities Participating in Performance Year 2026 of the Kidney Care Choices (KCC) Model,” February 4, 2026. https://www.cms.gov/priorities/innovation/files/kcc-model-participants-affiliations-cy2026.pdf.

[b] For clarity, this report refers to KCEs as “practices” throughout, reflecting the central role that nephrology practices play in each KCE.

CMS's new **Advancing Chronic Care with Effective, Scalable Solutions (ACCESS)** model—a model to test outcome-aligned payments for technology-supported care—includes two cardiovascular-kidney-metabolic conditions and collectively covers patients with CKD stages 1–3b.[99] This program has the potential to expand focus on early diagnosis and medication management. As of July 2026, none of the companies evaluated in this assessment are participating in ACCESS.

Medicare Advantage Contracting Structures

Most Medicare Advantage contracts with CKD solutions are structured as "MLR reduction guarantees," in which plans and vendors contract on the basis of a predicted spending benchmark and expected MLR for a group of patients with CKD. Virtual solutions then contract to deliver MLR reductions relative to the established threshold. This can be accomplished by reducing total healthcare costs for the patient population or by increasing the average per-patient payment from CMS through improved coding accuracy or a combination of the two (Exhibit 8).

Consider the following three illustrative scenarios in which a plan carries a CKD cohort with $105 million in risk-adjusted premium and $95 million in predicted medical costs, a baseline MLR of 90%, and administrative costs and profits of $10 million. In each scenario, the contract between the plan and the vendor guarantees a three-point MLR reduction, and the vendor achieves a roughly five-point reduction, retaining two points as their contracted fee above the guarantee. Any additional savings are split between the vendor and the plan.

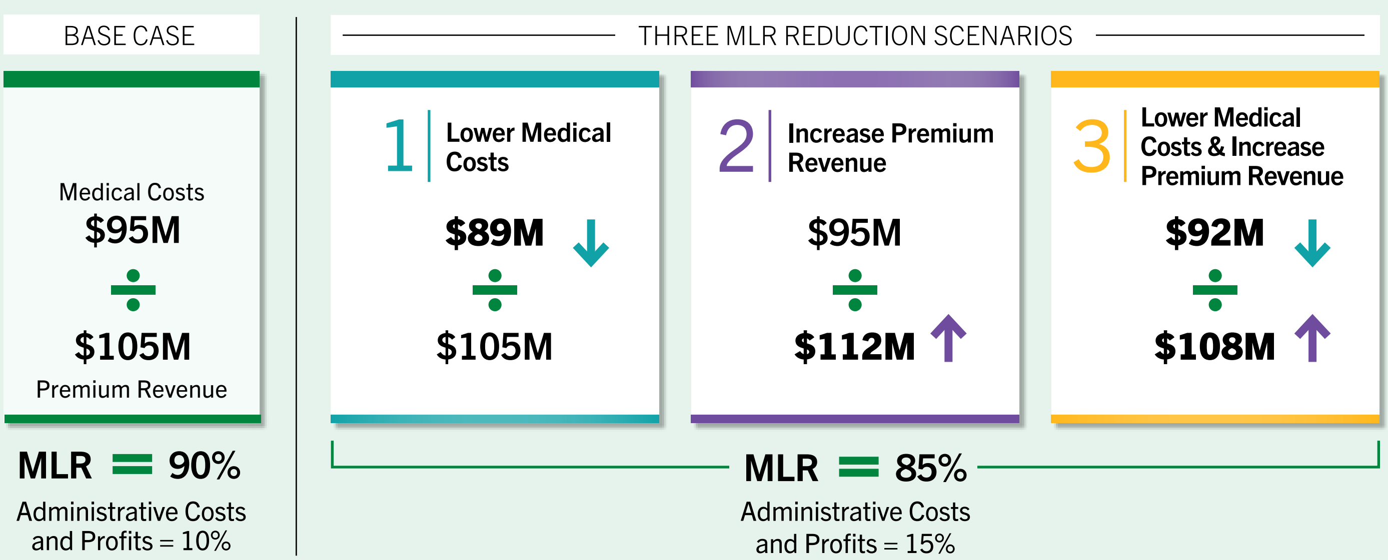
SCENARIO 1: Reduction through lower medical costs. The vendor reduces medical costs to $89 million, while premium revenue does not change, for an MLR of 85%.

SCENARIO 2: Reduction through increased premium revenue. The vendor documents confirmed CKD and comorbidities that were previously not recorded, raising the cohort's risk score and increasing CMS premium revenue from $105 million to $112 million, while medical costs hold at $95 million. MLR falls to 85%.

SCENARIO 3: Reduction through lower medical costs and increased premium revenue. The vendor lowers medical costs to $92 million and raises premiums to $108 million through improved documentation. The resulting MLR is 85%.

Exhibit 8

MEDICAL LOSS RATIO (MLR) REDUCTION MECHANISMS



Note: The scenarios described illustrate how MLR-reduction guarantees can operate in principle. They do not describe the actual coding or contracting practices of any company evaluated in this report.

Solution Components

Virtual CKD solutions deploy a combination of clinician-facing and patient-facing capabilities with the goals of slowing disease progression and improving dialysis transitions. Companies partner with nephrology practices to offer financial and contracting support, data and analytics, and care coordination resources. Additional patient-facing capabilities focus on educational resources and medication management, which may extend beyond the nephrology-engaged population to reach attributed patients regardless of their level of specialist involvement (Exhibit 9).

Financial and Contracting Support

Many nephrology practices lack the capital reserves and actuarial expertise required to participate in risk-based care arrangements independently. Virtual CKD solutions lower the barrier to participation by supplying capital, sharing financial risk, and providing the contracting infrastructure needed to enter and manage risk-based arrangements with health plans. Because payment in these arrangements is risk-adjusted, companies also support clinical documentation of a patient's comorbidities and CKD stage, helping ensure that health plan payments reflect the clinical complexity of the attributed population.

Data and Analytics

CKD solutions provide nephrology practices with analytics support to help drive contracted clinical or economic goals. This may include reports identifying patients at elevated risk of hospitalization, flagging gaps in guideline-recommended therapy, or tracking progress against contracted quality metrics. Practices receive these data insights through dashboards and reporting, which may be integrated with existing electronic health record (EHR) systems. A few solutions also make this information available to PCP practices.

Care Coordination

CKD solutions also augment nephrology practice staff, including through embedded care coordination teams or additional funding to support existing practice-based care coordinators. For patients that do not have a nephrologist-affiliated care coordinator, CKD solutions will offer these services directly. Team composition varies but may include nurse practitioners (NPs), registered nurses (RNs), social workers, behavioral health specialists, dietitians, pharmacists, lifestyle coaches, and care coordinators.

Because many patients with CKD have multiple chronic conditions, they often see several specialists and take multiple medications.[100, 101] Coordination teams generally deliver subclinical support, such as appointment coordination and scheduling, medication reminders, and behavior and lifestyle coaching. Some solutions offer more clinically intensive interventions for patients at higher risk of progression or with more complex needs, including medication counseling, milestone tracking for planned dialysis starts, and direct home-based visits and services.

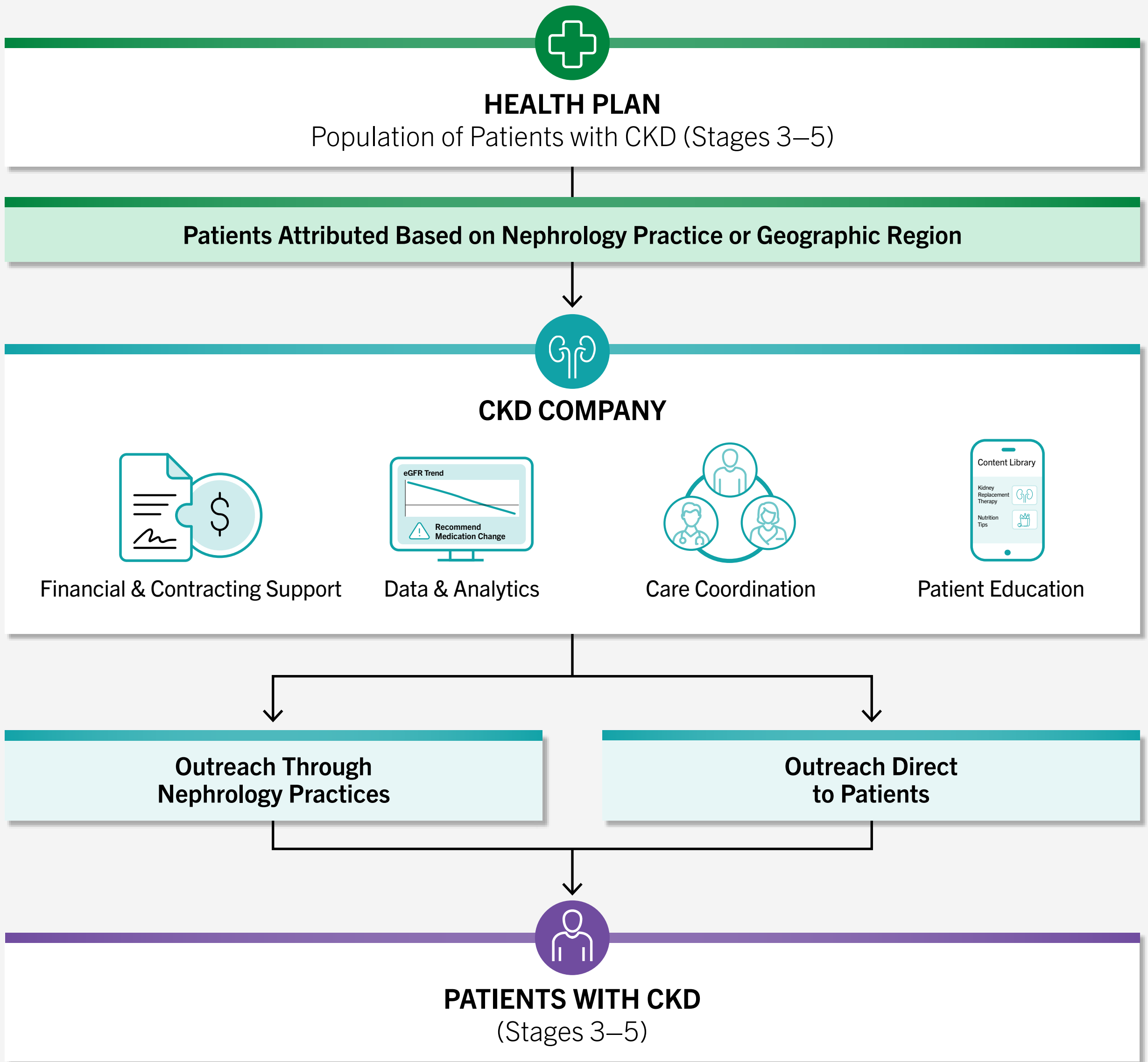
Patient Education

For patients, virtual CKD solutions offer educational resources, often with a focus on informed decision making around kidney replacement modality selection. Delivery approaches vary across solutions but include one-on-one guidance from care team members, virtual group classes, and on-demand digital content. Education focused on dialysis preparation and transplant readiness is a consistent feature across solutions and many also provide education on the medications a patient may take as part of their care plan.

> **"Having somebody that is willing to communicate and that is responsive is important.**
>
> I'm appreciative the nephrology practice partnered with a [CKD solution] to not only take some of the burden off the day-to-day communications in their office, but to reach out and support the patients."
>
> —Patient Interview Participant

Exhibit 9

ATTRIBUTION AND ENGAGEMENT OF PATIENTS WITH CKD



Company Overview

The eight virtual CKD solutions included in this report offer overlapping services and compete head-to-head for payer contracts (Exhibit 10). The companies have different operating models, which inform their relationships with payers, integration with nephrology practices, and approaches to patient engagement. However, based on a review of the evidence and discussions with public and private purchasers, it is not clear that these operational distinctions meaningfully change the company performance or selection criteria. As a result, this assessment examines the body of evidence across all solutions and is not able to differentiate performance by company or operating model.

All eight of the companies in this assessment engaged with PHTI during the evaluation process and three submitted evidence. PHTI met with companies to understand their solutions and companies had an opportunity to submit commercial information and clinical evidence for review. See **Appendix B** for detailed company-specific information. Results for all included studies are captured in the detailed **online data supplement**.

Exhibit 10

CORE COMPONENTS OF VIRTUAL CKD COMPANIES

● ● ● Standard Feature ○ ○ ○ Optional Feature

	LDO-AFFILIATED CARE COORDINATION			CARE COORDINATION				CKD-FOCUSED MULTISPECIALTY PRACTICE
CATEGORY Features	DaVita IKC	Interwell Health	Kidneylink	Evergreen Nephrology	Healthmap Solutions	Somatus	Strive Health	Monogram Health
MEDICATION MANAGEMENT								
Sends medication reminders (e.g., take medication, pick up refills) directly to patients	○	○		○	●			●
Recommends medication adjustments to patients' nephrologists or PCPs		○	●	●	●	●	●	●
Company-employed clinicians adjust/ prescribe medications to >10% of patients				○			●	●
DATA AND ANALYTICS								
Identifies patients at high risk of disease progression and alerts care teams	●	●	●	●	●	●	●	●
Uses claims, lab, EHR, and other data to identify patients with undiagnosed CKD					○	○		●
Offers a nephrology-specific EHR to practices	●	●						
CARE COORDINATION								
Employs care coordination teams	●	●	●	●	●	●	●	●
Provides patients with appointment reminders/scheduling support	●	●	●	●	●	●	●	●
Offers in-home clinical visits			●		○	●	○	●
Offers a patient-facing app or portal	●	●		○	●	●	●	●
NEPHROLOGIST EMPLOYMENT								
Employs nephrologists that deliver one-on-one care						○		●
FINANCIAL AND CONTRACTING								
Has financial relationships with nephrology practices	●	●	●	●	●	●	●	●
Has financial relationships with primary care practices				○	○	○	○	●
MARKETS								
Traditional Medicare (CKCC)	●	●	●	●			●	
Medicare Advantage	●	●	●	●	●	●	●	●
Commercial	●	●	●	○	●	●	●	●
Medicaid		●	○	○	●	●	●	●

Notes: Available features vary by contract, including across contracts held by the same company. LDO = large dialysis organization. EHR = electronic health record. CKCC = Comprehensive Kidney Care Contracting.

LDO-Affiliated Care Coordination Solutions

These are solutions affiliated with large dialysis organizations (LDOs) that extend existing kidney care infrastructure and dialysis resources into earlier-stage CKD management. These companies have extensive networks of in-person dialysis facilities, established relationships with nephrologists, and clinical technology to support patients with CKD and ESKD. This footprint may make it easier for LDO-affiliated solutions to coordinate transitions into in-person dialysis facilities.

DaVita Integrated Kidney Care

DaVita Integrated Kidney Care (IKC), including its VillageHealth brand, is the value-based kidney care division of DaVita Inc. DaVita IKC partners with nephrology practices and leverages DaVita's existing dialysis network, nephrology-specific EHR, and payer relationships to support patients with CKD. DaVita care teams provide disease education, care coordination, insurance support, medication reminders, and dialysis transition planning, working both through affiliated nephrology practices and directly with patients.

Interwell Health

Interwell Health is the value-based care operating segment of Fresenius Medical Care. Formed through the merger of several kidney care organizations, Interwell partners with nephrology practices by providing value-based contracting infrastructure, analytics, workflow tools, and a nephrology-specific EHR. Care teams support patients with CKD through care coordination, dialysis and transplant support, postdischarge services, and telehealth visits for patients without an established nephrologist.

Kidneylink

Kidneylink, a subsidiary of U.S. Renal Care, primarily supports nephrology practices through embedded multidisciplinary care teams, analytics, and technology, rather than through independent patient engagement. Kidneylink serves patients with CKD by embedding care coordinators within partner practices to provide disease education, appointment coordination, medication support, and dialysis preparation.

Care Coordination Solutions

These are independent solutions that partner with nephrology practices by providing value-based contracting support, analytics, multidisciplinary care coordination, and clinical support, without directly employing the physicians who manage patients' care. Partnership models vary: some organizations contract with nephrology practices on behalf of health plans, while others contract with health plans on behalf of nephrology practices. Compared with the LDO-affiliated solutions, these companies have a more limited physical footprint and are more likely to extend provider engagement efforts upstream of nephrology to primary care.

Evergreen Nephrology

Evergreen Nephrology partners with independent and health system–affiliated nephrology practices to facilitate participation in value-based contracts by providing capital, assuming downside financial risk, and deploying care teams. For patients without an established nephrologist, Evergreen either facilitates referral to a community nephrologist or provides virtual nephrology services directly. The company also integrates predictive analytics and point-of-care alerts into selected nephrology EHRs.

Healthmap Solutions

Healthmap Solutions partners with PCPs, nephrologists, cardiologists, endocrinologists, and other providers to support patients with CKD. Unlike most evaluated solutions, which primarily engage patients after referral to nephrology, Healthmap places greater emphasis on engaging patients earlier in the course of disease through collaboration with primary care and other physician specialties. The company provides multidisciplinary care coordination, patient education, and clinical decision support to providers, supported by technology that identifies patients with probable CKD, predicts disease progression, and guides care management.

Somatus

Somatus primarily contracts with health plans and engages nephrology practices to support participation in value-based contracts for patients with CKD. Its technology platform supports earlier CKD identification, predicts disease progression, and provides clinical recommendations to care teams. Somatus also delivers care coordination directly to patients and offers telehealth visits for individuals without an established nephrologist, as well as peer support services.

Strive Health

Strive Health partners with nephrology and primary care practices while engaging patients directly through NP-led multidisciplinary care teams. The company serves patients with CKD through telehealth and in-home care focused on care coordination, disease management, and patient education. Strive's analytics platform identifies patients at risk of disease progression and supports care recommendations for clinical teams.

CKD-Focused Multispecialty Practice Solution

Unlike the other solutions, Monogram Health operates a medical group that employs physicians directly to deliver longitudinal, home-based care for patients with CKD and other chronic conditions.

Monogram Health

Monogram Health differs from the other evaluated solutions by operating as a multistate specialty practice that employs its own physicians, rather than partnering with independent nephrology practices. The company provides primarily in-home care for patients with CKD and other complex chronic conditions, including cardiovascular disease, diabetes, COPD, and stroke. Physician-led multidisciplinary teams deliver direct clinical care, medication management, care coordination, transitions of care, and social support, while coordinating with community providers when appropriate.

Patient Perspectives

PHTI conducted interviews with 10 patients with CKD who had experience using virtual solutions to manage their condition. Patients represented a mix of disease severity and demographics, including age, gender, race, ethnicity, income level, geography, and insurance type.

Provider Care Gaps

Patients emphasized a disconnect between their PCPs and nephrologists, noting that many PCPs lacked the background to catch kidney decline early and that referrals to nephrologists often came too late.

> **"I've asked my [PCP] about that and they said, 'we don't have anybody trained here to do that test,'** so they ask the nephrologist. Every time I ask the nephrologist something that's not kidney related, they refer me back to my [PCP]."
>
> —Patient Interview Participant

> **"I would see my [PCP] on a regular basis every few months for hypertension. . . .** She noticed my kidney numbers were starting to change, so eventually she did refer me to a nephrologist and, by that time, I was starting stage 5, needing dialysis."
>
> —Patient Interview Participant

Reactive Treatment Management

Patients found that clinicians tended to take a "wait and see" approach, particularly for earlier-stage patients, with care largely oriented around dialysis rather than prevention or slowing disease progression.

> **"I've never seen a medical condition [where] it's just a wait and see, it's going to get worse, but there's nothing to do now. . . .** There's nothing really to do until dialysis, it feels like. And then you're fighting for your life at that point."
>
> —Patient Interview Participant

> **"I unfortunately was not able to take any steps initially because I had to wait eight months to be referred to a nephrologist.** And [when] I finally did get in to see her, I was told there's nothing you can do."
>
> —Patient Interview Participant

Patients as Drivers of Care

Patients reported largely self-managing their CKD, coordinating across multiple providers and specialists, managing comorbidities, researching potential treatment options, and facilitating communication across care teams with little systemic support.

> **"It's my responsibility to inform whichever doctors I'm going to what has transpired since the last visit, including hospital visits.** If I have a hospital visit, then I have a follow-up with the [PCP] and whatever specialist is needed. . . . And then I will message whatever specialist about any changes in medications or adverse effects."
>
> —Patient Interview Participant

> **"I feel like I'm the one that is more proactive than my doctors, which is sad. . . .** I have things that I'm working on for kidney health but nothing that they've recommended. It's more me saying, 'can I try this?'"
>
> —Patient Interview Participant

Clinical Effectiveness

This report evaluates the effectiveness of virtual solutions for CKD management in improving two primary clinical outcomes—slowing disease progression and improving dialysis transition—among other outcomes.

The evidence from this evaluation comes from a systematic literature review and results from the Medicare KCC model, including the 2022 and 2023 model evaluation reports and additional data released by CMS for program years 2022 through 2024. The evaluations are large, well-designed comparative analyses that report clinical and financial outcomes for patients aligned to the KCC model compared with matched patients at practices not participating in the model. This is useful for assessing whether the model improved clinical outcomes and reduced spending compared with what would have occurred if the model did not exist.

The additional model data include clinical outcomes by participating practices, as well as financial reconciliation files showing performance relative to CMS's projected cost of care for their attributed patients (i.e., benchmarks).

The systematic literature review identified a small but high-quality evidence base, including numerous randomized controlled trials (RCTs). This evaluation focused on adults with CKD stages 3a–5, prior to ESKD—the population for whom virtual CKD management solutions are most clinically relevant. Most studies enrolled patients with average baseline eGFR values in the stage 3b range and include 6–24 months of data. Detailed clinical methods and findings are described below.

Only three of the eight companies included in this report produced evidence on the clinical or economic effectiveness of their solutions that met inclusion criteria, making up approximately 18% of the literature reviewed. Therefore, most of the evidence for these solutions comes from noncompany evidence. Within the noncompany evidence, most interventions comprise elements of clinical decision support, care team extensions, and virtual education modules that are featured in all of the solutions in this assessment. Although company models vary in structure, most incorporate the same core components studied in the literature.

Systematic Literature Review

Using the ICER-PHTI Assessment Framework, independent reviewers conducted a systematic literature review of scientific and gray literature on virtual solutions for CKD on the basis of the predefined criteria in Exhibit 11 (Prospero Registry Link). The review included published and unpublished evidence on clinical effectiveness from online databases (EMBASE, PUBMED, and ClinicalTrials.gov), conference proceedings, company-provided data, company websites, and the CMS KCC model outcomes data available as of July 31, 2026. See **Appendix A** for a detailed methodology.

Exhibit 11

PICOS INCLUSION AND EXCLUSION CRITERIA

Criteria	Exclusion Criteria
POPULATION: • Adults with CKD stages 3–5 (including 3a and 3b)	• Patients on dialysis • Post–kidney transplant patients • Patients with CKD stages 1 and 2 • Patients in hospice or end-of-life care • Mixed populations without stage 3–5 stratified results[a]
INTERVENTIONS: • Virtual solutions for remote monitoring, clinical decision support, care coordination, or patient education, as part of an active care plan	• Comorbidity-only apps • Direct-to-consumer, self-pay models • Diagnostic-only • Administrative screening–only • Posttransplant management services
COMPARATORS: • Standard of care • No care	N/A
OUTCOMES: See Exhibit 14	N/A
SETTING: • United States	N/A
STUDY DESIGN: • Randomized and nonrandomized controlled trials • Observational studies • SLRs[b] • Meta-analyses	• Address, case reports, case series, commentaries, editorials, published erratum, lectures, letters, personal narrative, study protocols, nonsystematic and narrative reviews • ≤20 study participants
DATE OF PUBLICATION: 2015–2025, and Conferences: 2022–2025	N/A

Notes: SLR = systematic literature review. N/A = not applicable. See **Appendix** table **A-1** and **A-2** for a detailed list of search terms.

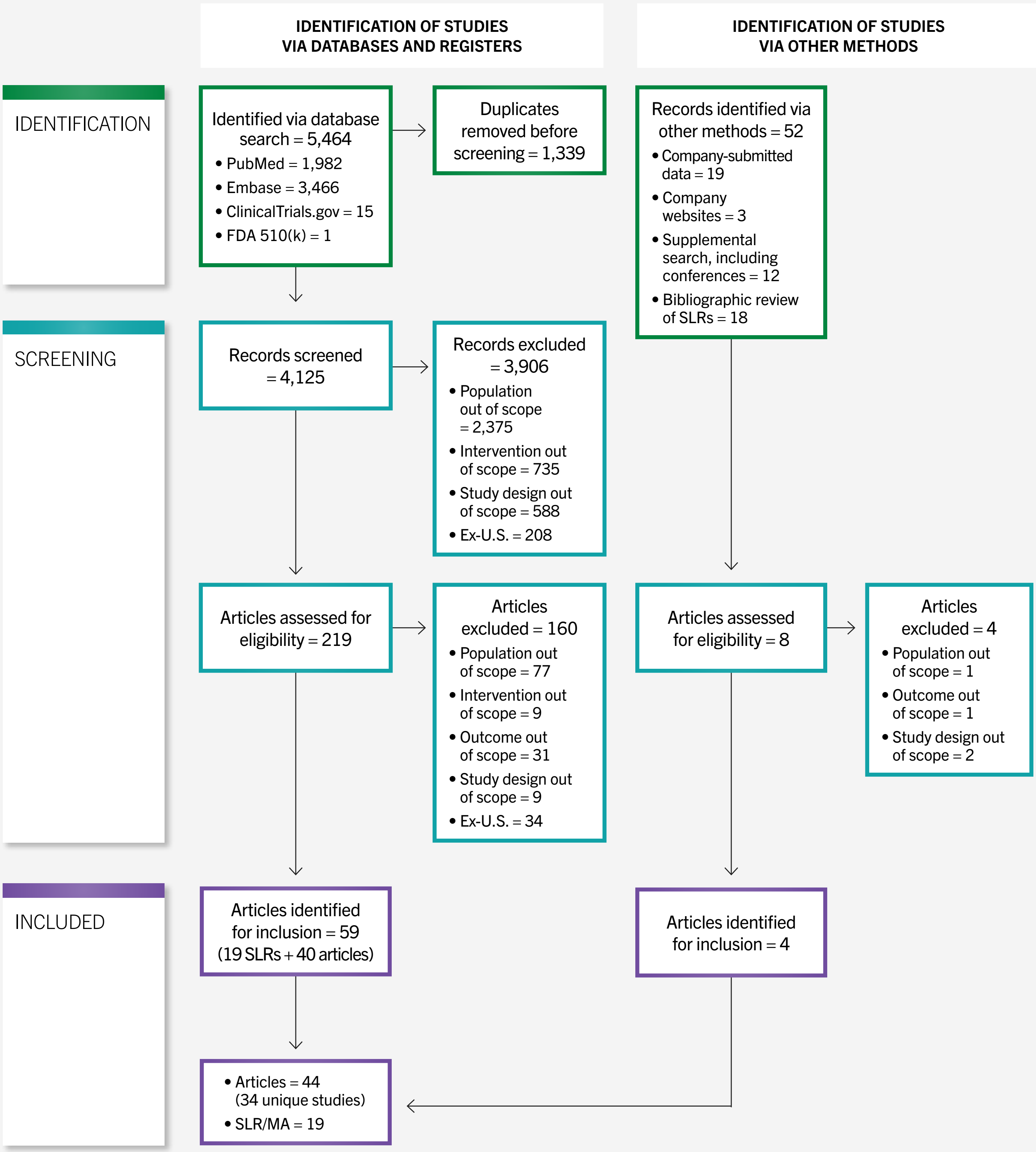
[a] Excludes studies with mixed populations (stages 1–2 CKD and/or patients on dialysis) that did not report results separately for dialysis-independent patients with stages 3–5 CKD.
[b] SLRs were included for manual reference checks only for studies published between 2015 and 2025 and were not included in the qualitative evidence synthesis.

The search of online databases and conference posters identified 5,464 pieces of evidence. Reviewers screened these for inclusion in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (see Exhibit 12) and identified 219 eligible articles (including peer-reviewed journal publications and conference posters/abstracts) and 19 systematic literature reviews/meta-analyses. References from the systematic literature reviews/meta-analyses resulted in 18 additional eligible articles. Three companies (Healthmap Solutions, Interwell Health, and Strive Health) submitted 19 pieces of clinical evidence for review. After screening using the PICOS criteria, four more articles were added, for a total of 44 articles based on 34 unique studies and 19 systematic literature reviews/meta-analyses.

The 34 studies identified in the systematic literature review included 22 interventional studies and 12 observational studies. Twenty-two studies examined virtual CKD solutions compared with a control arm and are referred to as “comparative studies” in this report, while five studies compared virtual solutions of varying modalities to one another; the remaining seven were single-arm (noncomparative) studies.

Exhibit 12

PRISMA DIAGRAM



Notes: SLR = systematic literature review. MA = meta-analysis. The SLR was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Articles include peer-reviewed publications, conference abstracts and posters, and studies listed on clinicaltrials.gov.
For abstract/full-text publication pairs where the full text was excluded, the corresponding abstract was assigned the same exclusion reason as was applied to the full-text.

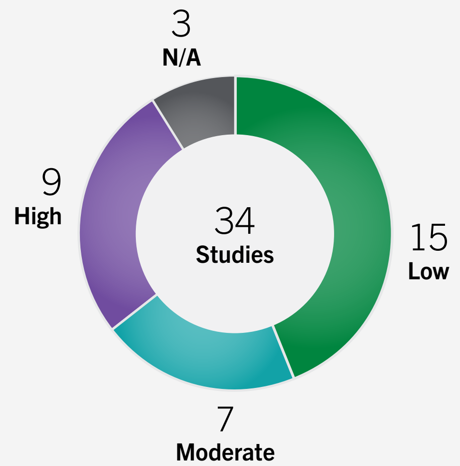
Evidence Requirements and Risk of Bias

According to the ICER-PHTI Assessment Framework, the interventions in this report qualify as Tier 3b because they are professionally directed therapeutic services that represent "moderate to severe risk" to patients if they are not effective. The minimum evidence requirements for Tier 3b are RCTs demonstrating clinical efficacy. Other real-world comparative evidence and single-arm studies may be considered as additional supporting data.

Independent reviewers conducted study quality assessments—or risk of bias ratings—on 34 studies with sufficient detail to be rated (see Exhibit 13). The 18 RCTs were rated with the Cochrane Collaboration Risk of Bias in Randomized Trials Version 2 (RoB2), of which eight were rated with a low risk of bias, five with moderate risk, and four with high risk; one study could not be rated. The 16 nonrandomized studies were rated with the Newcastle-Ottawa Scale (NOS), of which seven were rated with low risk of bias, two with moderate risk, and five with high risk; two studies could not be rated.

Exhibit 13

RISK OF BIAS RATINGS FOR CLINICAL STUDIES



Notes: N/A = not applicable; N/A means that studies could not be rated. Risk of bias is assessed for studies, not articles. For ease of interpretation across risk of bias ratings, "Low" refers to original ratings of "Low Risk of Bias" (RoB2) or "Good Study Quality" (NOS), "Moderate" refers to original ratings of "Some Risk of Bias" (RoB2) or "Fair Study Quality" (NOS), and "High" refers to original ratings of "High Risk of Bias" (RoB2) or "Poor Study Quality" (NOS). See **Appendix C-1** and **C-2** for more detail on risk of bias ratings.

Primary Outcomes

This evaluation examines evidence about solution impact on two primary outcomes for CKD management: slowing the rate of disease progression and improving dialysis transition (see Exhibit 14). The evidence includes direct clinical outcomes for patients and process measures that enable these clinical benefits. Secondary outcomes include comorbidity management, quality of life, and patient education. Outcomes considered in this assessment were informed by the International Consortium for Health Outcomes Measurement (ICHOM) CKD outcome measures sets.[102]

Exhibit 14

DETAILED SUMMARY OF OUTCOMES ASSESSED

PRIMARY OUTCOMES

Slow Disease Progression

Medication Utilization
- ACEi/ARB rates
- SGLT2i rates

Kidney Function Decline
- eGFR slope
- Surrogate disease endpoints
- Albuminuria (uACR)

Improve Dialysis Transition

Planned Dialysis Starts
- Outpatient/home starts
- Optimal start rates

Hospitalization and ED Visits

SECONDARY OUTCOMES

Comorbidity Management
- Blood pressure (SBP, BPC)
- Glycemic control (HbA1c)

CKD Laboratory Testing
- e.g., eGFR, uACR, parathyroid hormone

Quality of Life
- KDQOL
- SF-12 PCS/MCS

Patient Education
- Condition knowledge
- Preparedness for kidney replacement therapy

Healthcare Resource Utilization
- Nephrology referrals and consultations
- Transplant rate

Safety
- Adverse events
- Mortality

User Experience
- Satisfaction and usability
- Engagement

Health Equity
- Access and accessibility
- Distribution

Notes: eGFR = estimated glomerular filtration rate. uACR = urine albumin-to-creatinine ratio. ED = emergency department. KDQOL = Kidney Disease Quality of Life. SF-12 PCS / MCS = Short Form-12 Physical and Mental Component Summary.

CKD Management Under Usual Care

Across the comparative studies in this evaluation, "usual care" reflected active clinical management of patients diagnosed with CKD, rather than an untreated control. Patients in control arms typically received routine CKD care within primary care or nephrology settings, which often included medication management and elements of patient education. Many patients and clinicians have access to EHRs and accompanying virtual patient portals in usual care. Comparisons in this report therefore estimate the incremental effect of virtual CKD management solutions above usual CKD care.

Slow Disease Progression

This evaluation assesses two measures that support slowed disease progression: guideline-recommended medication utilization and kidney function decline, measured by eGFR, progression to ESKD, and the doubling of serum creatinine. While uACR is an important marker for understanding and managing disease progression, only one study in this review assessed changes in albuminuria—mirroring the low testing rates observed in routine clinical practice.[103] Overall, the evidence does not suggest that virtual solutions increase guideline-recommended medication utilization or slow disease progression compared with usual care.

Medication Utilization

Nine studies reported on the impact of virtual CKD solutions on medication utilization—primarily among patients with stage 3a–3b CKD, when medication optimization has the greatest potential to delay disease progression. Most studies measured medication utilization as prescription fill rates or days of supply. Baseline rates of guideline-recommended therapy use were high across study populations, limiting the ability to detect incremental increases attributable to the solution. Overall, the evidence showed no meaningful impact of virtual solutions on ACEi/ARB utilization and small increases in SGLT2 inhibitor utilization, though the evidence on SGLT2 inhibitor use remains limited given its recent inclusion in CKD care recommendations.

Across five comparative studies and two single-arm studies, virtual CKD solutions did not demonstrate a consistent or significant impact on ACEi/ARB prescription rates. One exception was the K-CHAMP trial, a low risk of bias RCT examining a virtual multidisciplinary solution, which found a significantly higher share of days per year with an ACEi/ARB prescription among patients using the solution compared with usual care (9.2 percentage points higher); however, this measure reflects EHR prescription records and may overstate actual medication use.[104] The four remaining comparative studies found prescribing rates ranging from 5.5 percentage points lower to 2.5 percentage points higher than usual care, with none reaching statistical significance.[105–108] Two single-arm studies reported increases in the share of patients with an ACEi/ARB prescription over the study period; the increase in one study did not reach statistical significance and the other study did not report significance testing.[109, 110]

Two comparative studies and one single-arm study found small increases in SGLT2 inhibitor prescribing rates among patients using virtual CKD solutions. A secondary analysis of the K-CHAMP trial found a statistically significant six-percentage-point increase in the share of days with a SGLT2 inhibitor prescription in the intervention arm compared with usual care; a second comparative study of Healthmap Solutions found a higher proportion of patients with a new SGLT2 inhibitor prescription compared with usual care (4% vs. 1%), though this difference was not statistically significant.[111, 112] One single-arm study reported increased practice-level rates of SGLT2 inhibitor prescriptions, from 16% to 25%, after five months of using a physician education and support tool; statistical significance was not reported.[113]

The KCC model includes patients with later-stage CKD (stage 4–5), who have a narrower window to slow progression and who may begin medication deescalation. Nonetheless, the evaluation results showed no meaningful change in guideline-recommended medication utilization for patients enrolled in CKD management solutions. In 2022 and 2023, there were no statistically significant differences in these rates between patients aligned to CKCC-participating practices and patients at non-CKCC practices.[114, 115] Baseline rates of ACEi/ARB and SGLT2 inhibitor use were nearly identical across groups and increased at comparable rates; between-group differences from baseline were less than one percentage point for both medication classes.

Kidney Function Decline

Nine studies examined kidney function decline using eGFR and related surrogate endpoints, including progression to ESKD and doubling of serum creatinine—five were comparative studies and four were single-arm studies. Most studies enrolled patient populations with an average baseline eGFR in stage 3a and a range of stage 3a–5. The preponderance of evidence shows no slowing of disease progression among patients using virtual CKD solutions relative to usual care.

Kidney function declines gradually with age—even in the absence of CKD—at approximately 1 mL/min/1.73 m^2 per year; patients with CKD lose kidney function more rapidly, making the rate of eGFR decline a key indicator of disease progression and treatment effect. The FDA and the National Kidney Foundation recognize changes in eGFR slope as a measure of disease progression in clinical trials; they also accept a 40% decline in eGFR—a marker of substantial kidney loss—as a surrogate endpoint for kidney failure.[116–119] Interpretation of eGFR slope requires long follow-up periods (2–3 years) to distinguish true disease progression from short-term fluctuations in eGFR. There is no consensus in the literature or among clinical experts about what constitutes a minimal clinically important difference (MCID) for eGFR or related surrogate endpoints. SGLT2 inhibitors have been shown to deliver a 0.8–1.0 mL/min/1.73 m^2 per year slower decline in eGFR slope in clinical trials with patients in stages 3a–3b compared with placebo groups.[120]

The comparative evidence demonstrates no slowing of disease progression among patients using virtual CKD solutions relative to usual care. One single-arm company study with moderate risk of bias did show statistically significant reductions in eGFR decline, but the study had pre-post design with no control group and clinical improvements were only reported for a small subset of patients with sufficient longitudinal testing, limiting generalizability to the broader population.[121]

Three comparative studies reported eGFR results: two found no significant difference in eGFR decline between groups over 17–24 months and the third was a small, short-duration study that found the virtual solution had a smaller eGFR decline at six months but did not report statistical testing. The K-CHAMP study, which found a significant increase in guideline-recommended medication use for those receiving the virtual solution, did not find a significant difference in annual eGFR slope between patients at practices using the solution and those receiving usual care (–1.1 vs. –1.0 mL/min/1.73 m^2 per year, respectively) over 17 months or in the proportion of patients who experienced a 40% or greater reduction in eGFR.[122] The study also found no statistically significant difference in median uACR. Similarly, a moderate risk of bias two-year RCT evaluating enhanced patient portal interventions—with and without in-clinic navigation support—found no statistically significant differences in annual eGFR decline or the proportion of patients who progressed to the next stage compared with usual care.[123] A smaller RCT that could not be assessed for risk of bias in a Veterans Affairs population reported a smaller decline in eGFR over six months among patients seeing providers using a virtual solution compared with usual care (–0.4 and –3.2 mL/min/1.73 m^2, respectively), though statistical significance was not reported.[124]

Two additional comparative studies reported on other surrogate disease progression endpoints, including a composite outcome of doubling of serum creatinine, progression to ESKD, or death, and the share of patients who progressed to ESKD overall. Although one study found a small increase in ACEi/ARB prescriptions among those receiving the solution, neither found a statistically significant difference in disease progression between those receiving a virtual solution and usual care.[125, 126]

Although the KCC model includes later-stage patients, the findings from the model are consistent with the SLR evidence: neither demonstrates that virtual CKD management solutions slow disease progression compared with patients receiving usual care.[127] In 2023, Medicare patients aligned to the KCC model did not have significantly slower rates of disease progression than patients receiving care in non-KCC practices across four analyses, including time from CKD stage 4 to dialysis initiation; time from CKD stage 5 to dialysis initiation; and two composite endpoints incorporating ESRD, preemptive transplant, and death.

Four single-arm studies reported eGFR. One pre-post study (n = 623) evaluated patients with stage 3b or 4 CKD enrolled in Strive's program that uses predictive analytics to identify high-risk patients and delivers care through a virtual team including a nephrologist, pharmacist, registered dietitian, and care coordinator. The study, which had moderate risk of bias, compared eGFR trajectories over approximately 20 months before and after program enrollment. Rates of eGFR decline slowed significantly following enrollment for both groups, decreasing from –1.5 to –0.3 mL/min/1.73 m^2 per year (77% reduction) for patients with stage 3b and from –2.9 to –1.0 mL/min/1.73 m^2 per year (65% reduction) for patients with stage 4.[128] However, this study compared patients with their own pre-intervention rate of decline rather than with a separate group of comparison patients. In addition, only a small subset (8%) of patients eligible for the study (after excluding those on dialysis, with acute kidney injury, and with outlier eGFR data) had sufficient eGFR data to be included in the analysis, a sampling bias that limits the generalizability of the findings.

Three smaller (n = 25–55), single-arm studies that reported eGFR—all with high risk of bias—did not demonstrate consistent changes in eGFR. One found no statistically significant change in eGFR over approximately 12 months and no progression to doubling of serum creatinine or dialysis initiation among patients with uncontrolled hypertension enrolled in a virtual pharmacist-integrated nephrology practice utilizing remote monitoring.[129] Another study found that patients enrolled in a virtual multidisciplinary solution had an average eGFR increase of 3.1 mL/min/1.73 m^2 after approximately four months; however, given the short average follow-up period, this change may reflect expected short-term biological fluctuation, rather than changes in disease progression.[130] A third pilot study of 25 patients with type 2 diabetes and CKD enrolled in a virtual education solution found no statistically significant change in eGFR over six months.[131]

Improve Dialysis Transition

Virtual CKD management solutions may support planned dialysis starts (also known as optimal starts) through patient education, care coordination, and structured clinical support. Planned initiation may contribute to reduced vascular access complications and infections, and more informed modality choice—factors associated with lower hospitalization rates and reduced avoidable acute care. The evidence suggests that virtual solutions may help increase optimal dialysis start rates compared with patients receiving usual care, including within the CKCC option. Yet despite these improvements in dialysis transition quality, the evidence does not show a corresponding reduction in population-level healthcare utilization and spending.

Planned Dialysis Starts

The KCC model—plus two comparative studies and one single-arm study—examined optimal dialysis starts, including outpatient initiation, home dialysis use, and avoidance of CVCs. While the evidence is limited, it suggests that virtual CKD management programs can improve optimal starts for patients initiating dialysis.

The two small comparative studies reported rates of outpatient and home starts among patients who initiated dialysis. One was a low risk of bias pilot study of patients with stage 4–5 CKD enrolled in Interwell's Cricket Health solution, a virtual care coordination program providing dialysis education and transition planning. It found no statistically significant difference in number of patients who initiated dialysis between those receiving the solution and those receiving usual care (10 vs. 9 patients) during the approximately 16-month study duration. Among these patients, those receiving the intervention were statistically significantly more likely to do so in an outpatient setting than those receiving usual care (8 of 10 vs. 2 of 9 patients).[132] A second study with a high risk of bias found that among the small number of patients who initiated dialysis, patients receiving a virtual education solution had a lower rate of home initiation (hemodialysis or peritoneal dialysis) than those who received an in-person education program, though this difference was not tested for statistical significance.[133]

A single-arm retrospective cohort study of 328 Medicare patients compared optimal dialysis start rates—defined as initiation without a CVC—across two sequential six-month periods in 2022. In the first period, patients and clinicians received virtual educational programming on the benefits of optimal starts. In the second period, the intervention was expanded to include standardized, clinician-facing support tools, including structured guidance on patient progression to dialysis, increased EHR documentation requirements, and audits of patients as "on track" or "off track."[134] The proportion of optimal starts increased significantly across the two periods, from 43% to 58%. Patients who did not have an optimal start had a significantly higher rate of hospitalization in the six months following dialysis initiation than those who did (49% vs. 34%).

Results from the CKCC option in 2022 and 2023 show statistically significant improvements in optimal ESKD start rates compared with non-CKCC practices, with optimal starts defined as a composite measure including preemptive kidney transplants, home dialysis starts, and in-center hemodialysis starts without a CVC.[135, 136] Compared with patients at non-CKCC practices, CKCC-aligned patients had optimal start rates that were 6.9 percentage points higher in 2022 and 12.4 percentage points higher in 2023—both statistically significant (Exhibit 15). The measure counts modality and vascular access at the first outpatient claim, which means patients who initiate dialysis during a hospitalization and subsequently transition to a home modality or outpatient setting are counted as optimal starts regardless of how dialysis was initiated—potentially overstating the rate of planned transitions.

Exhibit 15

OPTIMAL ESKD START RATES, CKCC-PARTICIPATING PRACTICES VS. NON-CKCC PRACTICES, 2022–2023

	PRACTICES IN THE CKCC OPTION		SIMILAR PRACTICES NOT PARTICIPATING IN THE MODEL		
Performance Year	**Pre-Model (2017–2019)**	**Post-Model (Performance Year)**	**Pre-Model (2017–2019)**	**Post-Model (Performance Year)**	**Difference-in-Difference (Percentage Points)**
2022	44%	60%	39%	48%	6.9
2023	40%	58%	37%	43%	12.4

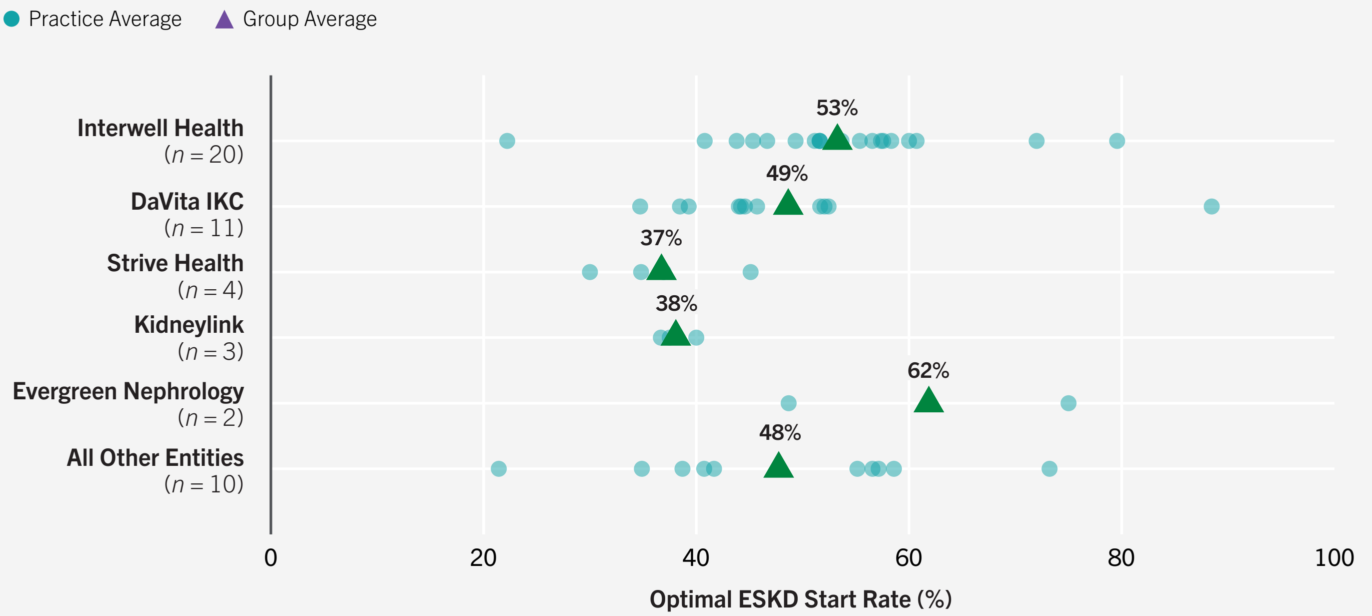
Notes: Similar practices not participating in the model are a matched comparison group of nephrology practices selected via propensity score matching on practice, patient, and market characteristics. The pre-model period reflects the risk-adjusted mean across 2017–2019, not a single baseline year. Comparison groups were estimated separately for each performance year.

Sources: Brighita Negrusa, Jennifer Wiens, Darin Ullman, et al., "Kidney Care Choices (KCC) Model First Annual Evaluation Report, Performance Year 2022—Appendices," *CMS,* August 2024. https://www.cms.gov/kcc-model-eval-ann-rpt-1-app. Brighita Negrusa, Jennifer Wiens, Darin Ullman, et al., "Kidney Care Choices (KCC) Model Second Annual Evaluation Report, Performance Year 2023—Appendices," *CMS,* February 2026. https://www.cms.gov/priorities/innovation/data-and-reports/2026/kcc-2nd-annual-report-app.

The KCC model dataset, which is only available for 2022, provides more detail on practice-level optimal start rates within the CKCC option and can be examined for five companies evaluated in this assessment.[137] Variation in optimal start rates was large across all participating practices, ranging from 21% to 88%. Among the five companies of focus for this assessment, average optimal start rates ranged from 37% to 62% (Exhibit 16), with substantial practice-level variation within each company. Average optimal start rates were similar between practices affiliated with the five companies assessed in this report ($n = 40$) and the remaining CKCC practices ($n = 10$), at 50% and 48%, respectively. Given the high degree of variability, it is likely that optimal start rates may be more influenced by specific practices, rather than the virtual CKD companies. Further, no comparator group exists for these rates, data on practice characteristics are limited, and data are available only for the model's first year, limiting interpretation of this dataset.

Exhibit 16

VARIATION IN OPTIMAL ESKD START RATES WITHIN AND AMONG COMPANIES IN THE CKCC OPTION, 2022



Note: Company-level optimal ESKD start rates are unweighted averages across practices from the 2022 KCC public use file and are not directly comparable to the difference-in-difference results for ESKD optimal start rates reported in the 2022 KCC evaluation report.

Source: CMS, "Kidney Care Choices Model Dataset, 2022," last modified November 7, 2025. https://data.cms.gov/cms-innovation-center-programs/disease-episode-based-payment-models/kidney-care-choices-model.

Hospitalization and Emergency Department Visits

Virtual CKD management solutions that improve dialysis transition quality would be expected to yield downstream reductions in acute care use. Patients who transition to dialysis through crash starts were associated with roughly four times higher rates of both predialysis and postdialysis inpatient admissions than those with optimal starts.[138] However, across eight studies, which spanned both patients approaching dialysis transition and the broader CKD population supported by these solutions, the available evidence showed limited and inconsistent effects on hospitalization rates and emergency department (ED) visits compared with usual care.

Three studies evaluated hospitalizations among patients approaching or initiating dialysis. One comparative study with moderate risk of bias found that patients enrolled in a kidney transition care program had fewer hospitalizations than those receiving usual care (9.7 vs. 10.6 per 100 patients per quarter), though no statistical significance was reported.[139] One study with a high risk of bias that lacked a comparison with usual care reported a 32% hospitalization rate over two months among patients using a wearable activity tracker with directed exercise sessions, though less than half of patients were transitioning to ESKD.[140] One single-arm study, described above, found significantly lower hospitalization rates among patients with an optimal dialysis start compared with those without (34% vs. 49%).[141]

Five comparative studies evaluated the impact of virtual solutions on hospitalization rates and ED visits across CKD stages 3–5, with most finding no significant differences compared with usual care.[142–146] One low risk of bias comparative study found that Strive's virtually enabled transitional care management program—which provides specialized care team support, patient education, and care coordination for 30 days following a hospitalization—significantly reduced readmission rates among patients with CKD stages 3–5 and a moderate to high risk of readmission who chose to receive the solution compared with those who did not (42%, 37%, and 25% lower at 7, 14, and 30 days postdischarge, respectively).[147]

The remaining four comparative studies found no differences in hospitalization rates or ED visits between patients with CKD receiving virtual solutions—which included enhanced personal health records, patient navigation, and multidisciplinary telehealth care—compared with usual care.[148-151]

Currently available findings from the KCC evaluation reports are consistent with this pattern.[152, 153] In 2022 and 2023, patients aligned to CKCC-participating practices showed no statistically significant difference in the rate of hospitalizations or ED visits compared with patients at non-CKCC practices. Baseline rates of hospitalizations (including those for vascular access complications), 30-day readmissions, and ED visits were nearly identical across groups and remained comparable over the observation period; between-group differences from baseline were less than 0.5 percentage points across all measures.

This null finding is likely due in part to the fact that the hospitalization measures reported in the CKCC data were not specific to patients newly starting dialysis but, rather, reflect outcomes across the broader CKD and ESKD population. Reporting hospitalization outcomes across the full CKCC population therefore obscures any signal attributable to improvements in dialysis transition quality among incident patients.

Total Cost of Care

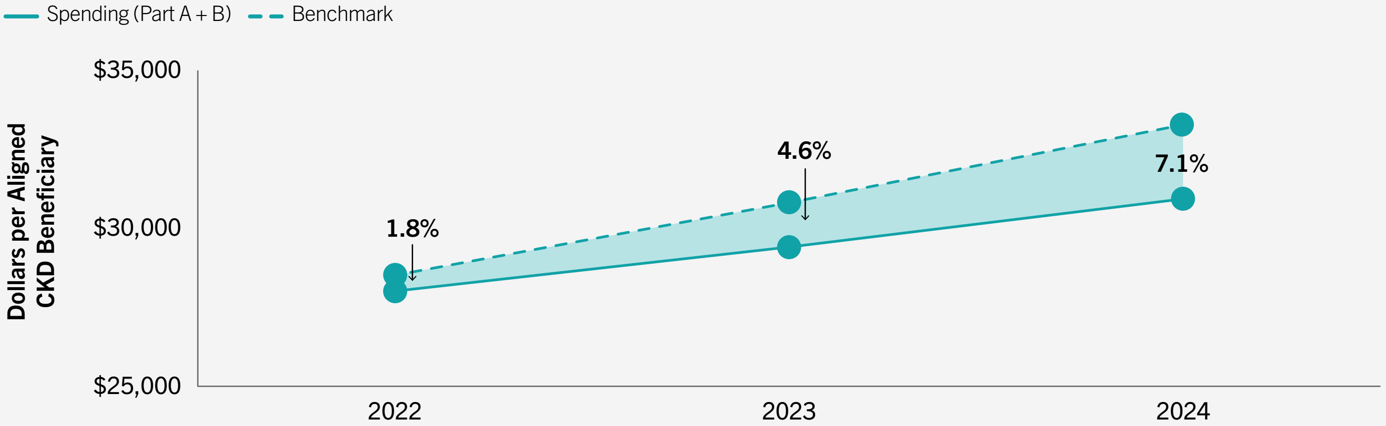
Findings from the currently available KCC evaluations show that the participating practices did not reduce total cost of care for patients with CKD. In 2022 and 2023, the KCC evaluation reports found no statistically significant difference in medical spending (i.e., total Medicare Part A and B payments) for patients aligned to CKCC-participating practices compared with non-CKCC practices.[154, 155] After accounting for program costs—including the fixed payments to nephrology practices, kidney transplant bonuses, and other incentive payments—the net impact of the CKCC option on Medicare was not statistically significant in 2022, but reached a statistically significant net loss of $275.4 million in 2023.

These evaluation results are important since they offer the most rigorous approach to understanding the overall spending impact of these solutions. By contrast, CKCC practices have consistently spent below their benchmarks and have earned growing shared savings payments, with overall gross savings increasing from $63.2 million in 2022 to $311.2 million in 2024.[156–158] Among all CKCC practices, CKD gross savings rates grew from 1.8% in 2022 to 7.1% in 2024, or from $504 to $2,347 below the benchmark per beneficiary (Exhibit 17).

However, these payments do not reflect a reduction in medical spending. CMS sets the benchmark at the start of each year for each CKCC-participating practice on the basis of factors including historical spending, regional spending rates, and patient complexity. Benchmarks can under- or overestimate actual spending when there are unanticipated changes in costs or care patterns. Model participation is optional

Exhibit 17

AGGREGATE CKCC OPTION SPENDING PER ALIGNED CKD BENEFICIARY RELATIVE TO BENCHMARK, 2022–2024



Notes: Y-axis does not begin at zero; axes are scaled to highlight year-over-year changes in spending relative to the adjusted benchmark. The number of practices participating in each year varies. Spending reflects total Traditional Medicare CKD Part A and Part B expenditures per CKD beneficiary, annualized from CKD patient-months. Benchmark reflects total CKD benchmark amount per CKD beneficiary annualized from CKD patient-months. Gross savings represent the difference between the adjusted CKD benchmark and CKD spending as a share of the CKD benchmark; a positive value indicates spending below benchmark.

Sources: CMS, "KCC PY 2022 Reconciliation Data Results and Data Dictionary." https://www.cms.gov/priorities/innovation/files/kcc-py1-rcn-es.xlsx. CMS, "KCC PY 2023 Reconciliation Rerun Data Results and Data Dictionary." https://www.cms.gov/priorities/innovation/files/kcc-py2-rcn-es.xlsx. CMS, "KCC PY 2024 Reconciliation Rerun Data Results and Data Dictionary." https://www.cms.gov/priorities/innovation/files/kcc-py3-rcn-es.xlsx.

and practices already spending below the regional average may have more incentive to join than practices above it. Accurate benchmark setting is a documented challenge across CMS value-based models; gross savings calculated from model benchmarks often exceed those calculated compared with a control group—a pattern consistent with benchmarks set higher than actual costs.[159]

Company-Specific Results: In 2024, company-level gross savings rates for CKD beneficiaries ranged from 3.2% to 9.3%, suggesting all companies spent well under their benchmark targets (Exhibit 18). While some companies performed above the overall CKCC gross savings rate and some performed below, performance on this measure has limited meaning, as it does not reflect CKCC-participating practices spending less than those not in the model.

Exhibit 18

GROSS CKD SAVINGS RATE BY COMPANY, 2024

			PRACTICE-LEVEL RANGE IN GROSS CKD SAVINGS RATE	
	Number of Practices	Aggregate Gross CKD Savings Rate	Lowest	Highest
CKCC OVERALL	**80**	**7.1%**	**–9.8%**	**19.8%**
DaVita IKC	22	7.4%	–2.1%	15.0%
Evergreen Nephrology	10	6.0%	–1.8%	11.0%
Interwell Health	23	7.2%	–4.9%	17.5%
Kidneylink	10	9.3%	–7.4%	19.8%
Somatus	2	3.2%	0.7%	4.2%
Strive Health	8	6.6%	–8.0%	11.2%
Other CKCC Entities	5	3.1%	–9.8%	8.3%

Note: Company-level gross CKD savings rates are calculated from each company's total CKD Part A and B spending and CKD adjusted benchmark across all affiliated practices; see **Appendix A** for more detail.

Source: CMS, "KCC PY 2024 Reconciliation Rerun Data Results and Data Dictionary." https://www.cms.gov/priorities/innovation/files/kcc-py3-rcn-es.xlsx.

Together, the currently available evidence finds that virtual CKD management solutions move a single process measure but not the outcomes that determine population health or spending. On the first aim, slowing disease progression, there is no demonstrated effect. Solutions did not meaningfully increase guideline-recommended medication utilization and neither the comparative evidence nor the CKCC data show slower eGFR decline or reduced progression to ESKD relative to usual care. On the second aim, improving dialysis transitions, the evidence is stronger but narrow. Virtual solutions—and the CKCC option in particular—significantly increased optimal dialysis start rates. That improvement is real but it has not translated into lower acute care utilization or spending at the population level in any currently available data. Two factors explain the gap. The gain in optimal starts is modest in magnitude and patients initiating dialysis are a small share of the broader CKD population these solutions manage. A change of that size—confined to that subset—may not register as a detectable difference in hospitalization, ED use, or total cost of care.

Of note, the conclusions above reflect the findings of the KCC 2022 and 2023 evaluation reports. CMS made subsequent changes to the KCC model, including in performance years 2024 and 2026.[160, 161] The 2024 changes updated risk score methodology and the 2026 changes lowered program costs, including reducing quarterly capitation payments by 50% and removing the kidney transplant bonus. At the time of this assessment's publication, the evaluation findings from 2024 and later performance years are not yet available. These later evaluation reports will provide insight into whether some of these changes by CMS improved financial and clinical performance of the model.

Secondary Outcomes

In addition to primary clinical outcomes, patients and providers prioritize outcomes including comorbidity management, patient preparedness for ESKD, and quality of life. The evidence for these outcomes varies in both quality and quantity. All studies reporting on these outcomes are summarized below and listed in the **online data supplement**.

Comorbidity Management

Management of comorbid conditions—particularly hypertension and diabetes—is an important component of CKD care. Hypertension is highly prevalent among patients with CKD and is the second-most-common cause of kidney failure, while diabetes is the leading cause; both have bidirectional relationships with CKD, in which poor control accelerates kidney function decline and worsening kidney function complicates management.[162]

Blood Pressure Management

Blood pressure management is an important element of CKD management, typically assessed using systolic blood pressure (SBP) and the proportion of patients achieving blood pressure control (BPC). A reduction between groups of approximately 5 mm Hg in SBP is generally considered clinically meaningful difference and BPC is typically defined as maintaining levels below 130/80 mm Hg or other guideline-recommended thresholds. Intensive BPC for patients with CKD is primarily associated with cardiovascular and mortality benefits, with more limited renoprotective effects concentrated among patients with increased albuminuria.[163]

Fourteen studies reported on blood pressure outcomes using two measures: change in SBP and the proportion of patients achieving BPC. Across seven comparative studies reporting blood pressure management outcomes, none found clinically meaningful improvements compared with usual care and only one reported statistically significant improvements.[164–170] Additional evidence from comparisons between virtual solutions with varying levels of risk of bias did not report statistically significant or clinically meaningful differences in SBP.[171–175] Single-arm evidence found mixed effects, limited in their interpretation by the lack of a comparison arm.[176–178]

Glycemic Control

HbA1c is a primary measure of glycemic control and guides treatment decisions for patients with CKD and comorbid diabetes.[179] A decline of at least 0.5 percentage points is considered the threshold for a clinically meaningful improvement in HbA1c. Evidence on the impact of virtual CKD solutions on glycemic control was limited: only two studies reported changes in HbA1c at follow-up and neither included a usual care comparator group. Both studies reported small declines in HbA1c, one of which was statistically significant, but neither met the threshold for a clinically meaningful improvement.[180–181] One additional study reported the share of patients in the intervention and control groups who achieved an HbA1c of less than 7% and found no statistically significant difference.[182]

CKD Laboratory Testing

Appropriate laboratory testing is foundational to CKD management, risk stratification, and initiation of guideline-recommended care. Most comparative evidence for laboratory testing rates reported higher rates for virtual solutions than for usual care.

Evidence from comparative studies suggests that virtual CKD solutions—predominantly clinical decision support tools—improve CKD laboratory testing rates, though findings were not consistent across all studies. Four comparative studies reported higher rates of recommended CKD laboratory testing in intervention arms than in usual care, including increased uACR and urine microalbumin testing and improved measurement of parathyroid hormone, phosphorus, and uACR.[183–186] In one of the studies, statistically significant improvements in rates of guideline-concordant CKD laboratory testing were observed among both PCPs and nephrologists, though the magnitude of improvement was greater among PCPs.[187] A 24-month, single-arm study in primary care practices also found statistically significant increases in screening and monitoring for albuminuria, though not for eGFR monitoring.[188] In contrast, one study found higher rates of eGFR monitoring in the usual care group than in the intervention group, while another study found no significant differences in the rate of laboratory monitoring compared with usual care.[189, 190]

The KCC evaluation reports measured rates of quarterly eGFR testing; in 2022 and 2023, testing rates declined for both patients aligned to CKCC-participating practices and non-CKCC practices, though the decline was greater among patients at non-CKCC practices and statistically significant in 2023.[191, 192]

Quality of Life

Declining kidney function is associated with reduced quality of life, as worsening symptoms—including fatigue, pain, and decreased emotional well-being—and increasing disease burden impair patients' daily functioning.[193] Three studies found mixed results for quality-of-life outcomes, with none reaching statistical significance. Outcomes were measured using the Kidney Disease Quality of Life (KDQOL) scale and the SF-12 Physical and Mental Component Summary Scores. One study found greater improvements in KDQOL scores among patients using a virtual CKD solution than in usual care, though SF-12 scores were comparable between groups.[194] The remaining two studies—neither of which included a usual care arm—reported improvements in KDQOL scores and declines in SF-12 scores at follow-up, respectively.[195, 196] The follow-up periods across these studies (3–4 months) are short relative to the years-long trajectory of CKD progression and limit the ability to draw conclusions from the available evidence.

Patient Education

Because CKD progresses gradually and often without symptoms, patients' understanding of their disease and confidence in managing it are important outcomes, particularly as they approach ESKD and face decisions about kidney replacement therapy. Across seven studies, evidence indicated modest improvements in condition knowledge but limited evidence that these gains extended to patients' readiness to make treatment decisions.

One comparative study found statistically significant improvements in CKD knowledge among patients using a virtual CKD solution compared with usual care; however, initial improvements in patients' readiness to make treatment decisions—measured on the Decisional Conflict Scale (DCS)—were not sustained by the end of the 18-month study.[197] Two studies, neither of which reported outcomes for a control arm, found significant improvements in condition knowledge among patients using Interwell's Cricket Health; one also reported improvements in patients' understanding of their kidney replacement options.[198, 199] Findings across the remaining studies were mixed, with inconsistent results in both condition knowledge and preparedness for kidney replacement therapy.[200–203]

The KCC evaluation reports include the Patient Activation Measure (PAM) survey; in 2022 and 2023, patients aligned to CKCC-participating practices demonstrated statistically significant improvements in PAM scores between the first and last survey administration, though the lack of a comparison group limits the conclusions that can be drawn.[204, 205]

Healthcare Resource Utilization

In addition to hospitalizations and ED visits described above, studies examined additional measures of healthcare resource utilization, including nephrology referrals and consultations and transplant rates.

Nephrology Referrals and Consultations

Evidence from comparative studies conducted predominantly in primary care settings suggests that virtual CKD solutions do not consistently impact referrals to a nephrologist or visit frequency compared with usual care. Three studies reported comparable nephrologist referral or visit rates[206–208] and three studies—including one from Cricket Health—reported lower nephrology referrals and visit rates in the intervention group.[209–211] One study reported significantly higher rates of annual nephrologist visits in the intervention group that used EHR-based tools, patient education, and PCP-nephrologist collaboration than with usual care among both high-risk and low-risk patients in stage 3 (45% vs. 34% and 17% vs. 11%, respectively).[212]

Transplant Rate

Two comparative studies reported transplant rates; however, neither found statistically significant differences between patients using a virtual CKD solution and usual care. One study found higher rates in the active control group (3% vs. 0%), while the other found that 5% of the intervention group and 0% of the usual care group received transplants over 16 months; however, few patients in this latter study transitioned to kidney replacement therapy.[213, 214] Similarly, the 2022 and 2023 KCC evaluation reports did not find statistically significant differences in overall transplant rates between patients aligned to CKCC-participating practices and non-CKCC practices.[215, 216]

Safety

Eleven studies reported on safety outcomes, including adverse events and mortality; no studies reported on cardiovascular events. The evidence suggests that virtual CKD solutions present minimal safety risks. Of three studies reporting adverse events, only one reported any occurrences, and rates were lower among those receiving the intervention than usual care. [217–219] Mortality rates were reported across 10 studies and were generally comparable between the intervention and usual care groups.[220–224] Several studies observed lower mortality rates in the intervention arms; however, these differences were not statistically significant in most studies.[225–229]

User Experience

To be clinically effective, virtual solutions must deliver a strong user experience and engage patients. Across studies in this report, patients consistently reported high satisfaction; however, the extent to which they engaged with the solutions varied considerably.

Satisfaction and Usability

User satisfaction and usability metrics help determine whether virtual solutions meet patient expectations and can be easily integrated into their lives. Across seven studies, patient satisfaction was consistently high, ranging from 67% to 100%; however, the variability of measurement methods limits comparability across studies. Four studies—including two reporting on patients using Cricket Health—found that patients were likely to recommend the solution to others.[230–233] Two studies reported that patients found the solutions helpful and perceived the care as good quality and one study reported that patients found the solution easy to use.[234–236]

Given that many solutions in this report have components designed for providers and are intended to integrate into clinical workflows, provider experience is an important consideration. Several studies reported on provider experience with mixed results: while some providers found the solutions helpful, others expressed disagreement with the clinical recommendations.[237–241]

Engagement

Patient engagement with virtual CKD solutions varied substantially across studies. Given the progressive nature of CKD, sustained engagement over time is important for solutions to deliver meaningful clinical benefit; however, evidence on long-term engagement was limited, as only three studies reporting on engagement had more than six months of follow-up.[242–244] Metrics used to measure engagement included dashboard use, message and video viewing, and session attendance.[245–249] The heterogeneity in reported metrics limits direct comparability across studies.

Most studies reported only on whether patients completed at least one interaction with the solution during the study period, with limited evidence on engagement beyond that initial contact. One of the studies with a longer follow-up period—17 months—found that while the majority of patients completed at least one education session, they completed an average of only 1.9 sessions.[250] The absence of longer-term engagement data across the evidence base limits the ability to assess whether patients sustained the engagement necessary to derive meaningful clinical benefit from virtual CKD solutions.

Health Equity

Few studies in this evidence base reported results stratified by demographic group, limiting the ability to draw conclusions about whether virtual CKD solutions perform equitably across diverse populations. Study populations were predominantly white, despite CKD being more common among Black and Asian adults.[251] The limited evidence on diverse patient populations highlights the need for more research on whether virtual CKD solutions are effective across demographic groups.

Race and Ethnicity: Despite well-documented inequities in CKD progression and ESKD by race and ethnicity, most studies included in this review enrolled predominantly white populations. Two studies focused specifically on minority populations; however, neither reported on clinical outcomes.[252, 253] Three additional studies enrolled higher proportions of Black participants relative to other studies in the evidence base but none reported results stratified by race or ethnicity.[254–256]

Gender: Studies in this evidence base enrolled approximately equal proportions of male and female participants. Only one study reported outcomes stratified by gender and found similar results across male and female participants.[257] Several studies specifically enrolled veterans, a population that is predominantly male, which limits the generalizability of those studies to female patients.

Geography: Few studies reported on the geographic distribution of their study populations. One study enrolled a majority of participants from metropolitan areas, while another enrolled 56% rural participants.[258, 259] The latter examined a nephrologist-led, multidisciplinary virtual solution and found that rural patients receiving the solution had marginally lower rates of hospitalizations and ED visits, although these differences were not statistically significant.[260]

Age: Studies in this evidence base were predominantly composed of older adults, with average ages of approximately 70. Only one study reported outcomes stratified by age; it did not find significant differences between patients younger than 65 and those 65 and older.[261]

Evidence Limitations

While the systematic literature review identified a body of evidence that includes several well-designed comparative studies, important limitations constrain interpretation of clinical effectiveness. Evaluating disease progression in CKD is inherently challenging, as kidney function declines slowly, over many years, and detecting meaningful differences in eGFR trajectory typically requires multiyear follow-up, which few studies incorporated.[262] As a result, much of the evidence relies on intermediate or process measures, such as prescribing patterns, type of dialysis starts, and testing rates. In many studies, usual care included some access to EHRs, which may have built-in elements—like prescription reminders—that could be similar to elements of virtual solutions. Additionally, many studies were small, single-site or pilot trials designed to assess feasibility, rather than effectiveness, and were therefore underpowered to detect statistical significance and potentially subject to selection bias. Studies were also frequently conducted within single health systems, academic centers, or specific payer or provider models, limiting applicability to broader clinical practice. Finally, study populations often lacked diversity, with many enrolling predominantly white participants despite the disproportionate burden of CKD among Black, Hispanic, and other historically underserved populations—further limiting generalizability of findings.

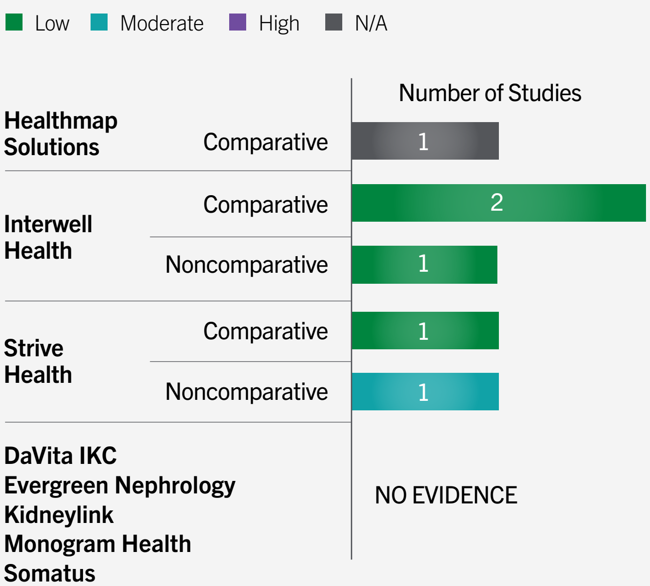
Solution-Specific Outcomes

Only three of the eight companies included in this report produced peer-reviewed evidence on the clinical effectiveness of their solutions that met inclusion criteria (Exhibit 19). The absence of company-specific evidence does not preclude a company from delivering effective care but it limits the ability to assess whether any company-specific offering produces outcomes beyond those observed in the broader evidence base.

Of the eight companies assessed, Strive Health produced evidence showing the strongest improvements in clinical outcomes: its two studies (one low risk of bias comparative study and one moderate risk of bias single-arm study) found statistically significant findings on kidney function decline and hospital readmissions and it was the only company with evidence on eGFR outcomes. Interwell Health had the most evidence, with three low risk of bias studies (two comparative studies and one single-arm study), all evaluating Cricket Health. Healthmap Solutions had one comparative study that could not be rated for risk of bias, as it was available only as a conference poster (see **Appendix B**).

Exhibit 19

RISK OF BIAS RATINGS FOR CLINICAL STUDIES BY COMPANY



Notes: N/A = not applicable. N/A means that studies could not be rated. Risk of bias is assessed for studies, not articles. For ease of interpretation across risk of bias ratings, "Low" refers to original ratings of "Low Risk of Bias" (RoB2) or "Good Study Quality" (NOS), "Moderate" refers to original ratings of "Some Risk of Bias" (RoB2) or "Fair Study Quality" (NOS), and "High" refers to original ratings of "High Risk of Bias" (RoB2) or "Poor Study Quality" (NOS). See **Appendix C-1** and **C-2** for more detail on risk of bias ratings.

DaVita IKC

No evidence from DaVita IKC met inclusion criteria. Among DaVita's 11 practices participating in the CKCC option in 2022, the average optimal start rate was 49%, ranging from 35% to 88%.

Evergreen Nephrology

No evidence from Evergreen Nephrology met inclusion criteria. Among Evergreen Nephrology's two practices participating in the CKCC option in 2022, the average optimal start rate was 62%, ranging from 49% to 75%.

Healthmap Solutions

One comparative study from Healthmap Solutions that could not be assessed for risk of bias met inclusion criteria.[263] As described above, providers using the provider-outreach care coordination solution had a higher proportion of patients with a new SGLT2 inhibitor prescription over three months than providers who did not receive the solution (4% vs. 1%), though the difference was not statistically significant.

Interwell Health

Three studies from Interwell Health met inclusion criteria: two low risk of bias comparative studies and one low risk of bias single-arm study. Each study evaluated Cricket Health, a company acquired by Interwell Health in 2022. As described above, a small comparative study found a higher proportion of outpatient dialysis initiation and greater uptake of peritoneal dialysis among patients receiving the solution compared with usual care, though the study was not powered to detect statistically significant differences.[264] The additional comparative study found no statistically significant difference in blood pressure or in ACEi/ARB prescribing among patients whose providers received clinical decision support with or without a pharmacist compared with usual care; however, it did find significantly higher rates of PCP awareness of CKD.[265] A single-arm study reported improvements in CKD knowledge and self-efficacy following program enrollment, with no reported statistical testing.[266]

Among Interwell Health's 20 practices participating in the CKCC option in 2022, the average optimal start rate was 53%, ranging from 22% to 80%.[267]

Kidneylink

No evidence from Kidneylink met inclusion criteria. Among Kidneylink's three practices participating in the CKCC option in 2022, the average optimal start rate was 38%, ranging from 37% to 40%.

Monogram Health

No evidence from Monogram Health met inclusion criteria.

Somatus

A non–peer reviewed report by the Validation Institute found Medicare members enrolled in the Somatus program for six months had a reduction in medical costs due to increased levels of PAM.[268]

Strive Health

Two studies from Strive Health met the inclusion criteria, including one comparative study with a low risk of bias and one single-arm, pre-post study with a moderate risk of bias, both described in detail above.[269, 270] The comparative study found that Strive's transition care management program—which supports patients with specialized care teams after hospitalization—significantly reduced hospital readmission rates for those who received the solution compared with those who did not (42%, 37%, and 25% lower rates at 7, 14, and 30 days, respectively).[271] The single-arm, pre-post study found statistically significant reductions in the rate of kidney function decline among patients with stage 3b and stage 4 CKD following enrollment in Strive's model (1.1 and 1.9 mL/min/1.73 m^2 per year slower rate of eGFR decline, respectively), which includes patient education, shared decision making, and complex care management.[272] Together, these two studies represent the strongest company-specific evidence identified in this report.

A case study from Strive using a single-arm analysis compared medical claims of active program members six months preenrollment to 3–9 months postenrollment. The study reported a 31% per-member per-month (PMPM) reduction in total cost of care for high- and complex-risk patients and a 21% PMPM reduction across all risk categories.[273] Savings were primarily driven by hospital admission decreases of 43%–49% and ED visit reductions of 16%–21% across risk categories. Methodological details were limited, including undisclosed sample size, lack of a control group, and use of Strive's proprietary composite risk-scoring model to define high/complex-risk patients.

Among Strive's four practices participating in the CKCC option in 2022, the average optimal start rate was 37%, ranging from 30% to 45%.[274]

Economic Impact

People with poorly managed CKD experience substantially higher healthcare spending as their disease advances through later stages. Mean annual commercial spending is estimated to be $39,883 for stage 3a, rising to $114,364 for stages 4 and 5. Medicare spending follows the same pattern but is considerably lower, estimated at $32,786 for stage 3a and $72,137 for stages 4 and 5 (Exhibit 4).[275] Per-patient spending rises sharply at the transition to ESKD, with annual spending climbing to about $100,000 for Medicare patients on dialysis with ESKD.[276] For patients younger than 65, dialysis initiation also marks the start of Medicare eligibility, though benefits often begin after a waiting period, adding a coverage transition to an already high-cost clinical event.[277]

How patients begin dialysis further impacts their cost of care. Unplanned starts are associated with higher rates of acute hospitalization: these patients are two times more likely to be hospitalized in the year following dialysis initiation.[278] Planned starts, by contrast, are associated with lower postdialysis spending, fewer hospitalizations, and reduced catheter-related complications, establishing planned start rate as a key process measure through which care management interventions can drive meaningful reductions in acute utilization and spending.[279, 280]

Virtual solutions for CKD management have the potential to reduce healthcare spending by slowing disease progression and improving dialysis transitions. However, as described above, the evidence finds that virtual solutions do not slow disease progression compared with usual care. Therefore, the budget impact model will focus on estimating the impact of virtual solutions on planned dialysis starts, where the solutions have demonstrated improvements in dialysis transition quality.

Budget Impact Model Methodology

The budget impact model seeks to estimate the expected one-year change in total healthcare spending that results from offering virtual solutions for CKD management. The model estimates the number of adults with diagnosed CKD stages 3–5 who would be attributed to a virtual solution and the gross reduction in expected healthcare spending resulting from the solution's impact on dialysis start type.

There are two primary components of the budget impact:

1. **Eligible population:** The total number of patients diagnosed with CKD stages 3–5 who are attributed to a virtual solution; and
2. **Reduced spending from improved dialysis starts:** The changes in healthcare spending that result from increased planned starts to dialysis.

These components come together to estimate the gross impact on healthcare spending per attributed member of a virtual CKD solution. Further, this analysis estimates the impact on healthcare spending on the total cost of care of a CKD population. It does not account for changes in risk-adjusted premium, which alter the payment a plan receives and represent a transfer of costs between CMS and the plan, rather than a reduction in medical spending of a patient. Because these solutions contract under shared-savings models, the model does not assume any additional program costs for the virtual CKD solution.

Eligible Population

The model estimates the number of U.S. adults with CKD who would be attributed to virtual solution programs across commercial plans, Traditional Medicare, and Medicare Advantage. Although some virtual CKD companies contract with Medicaid plans, the majority of patients with CKD are dual-eligible or transition to Medicare as the primary payer after a three-month waiting period following dialysis initiation.[281] As a result, the potential savings from improved dialysis transitions that accrue to Medicaid are limited, and this budget model does not estimate the impact of virtual CKD solutions on a Medicaid population.

The model assumes all eligible patients with diagnosed CKD stages 3–5 are attributed to a virtual solution program. Purchasers typically attribute members to CKD companies on the basis of ICD-10 codes and either nephrology practice relationships or geographic regions. Once attributed, the CKD company is responsible for managing the total cost of care for all attributed patients, regardless of whether individual patients actively engage with the program.

The model estimates the proportion of adults who are diagnosed with CKD stages 3–5 and assumes that all of them would be attributed to a virtual CKD company: 0.4% of all commercial enrollees, 10.4% of all Traditional Medicare enrollees, and 12.6% of all Medicare Advantage enrollees.[282] The proportion of these patients with CKD who initiate dialysis in a given year is 1.9% in commercial plans, 0.7% in Traditional Medicare, and 0.9% in Medicare Advantage.[283] Because commercial enrollees with CKD are assumed to have an age mix similar to Medicaid enrollees, the incidence of dialysis initiation among commercial patients with CKD is assumed to match the Medicaid rate (Exhibit 20). See **Appendix A** for detailed calculations on population inputs.

Exhibit 20

ESTIMATING THE ELIGIBLE POPULATION FOR VIRTUAL CKD SOLUTIONS

	Commercial	Traditional Medicare	Medicare Advantage
PROPORTION OF ENROLLEES WHO ARE ADULTS	79.5%	99.9%	99.9%
PREVALENCE OF CKD	1.0%	15.4%	18.3%
DIAGNOSED STAGES 3–5	49.9%	67.8%	68.9%
ENROLLEES ATTRIBUTED TO THE VIRTUAL SOLUTION	***0.4%***	***10.4%***	***12.6%***
ATTRIBUTED ENROLLEES INITIATING DIALYSIS WITHIN ONE YEAR	1.9%	0.7%	0.9%

Usual Care Spending

Research demonstrates that total spending rises sharply in the months immediately preceding dialysis initiation, with 59% of patients hospitalized in the same month as initiation or the month prior.[284] Based on this spending pattern, the model examines a 12-month episode of care, including four months predialysis and eight months postdialysis. For patients progressing to ESKD, the model estimates the difference in annual spending for dialysis initiation for planned and unplanned starts (Exhibit 21).[285] See **Appendix A** for detailed methodology.

Exhibit 21

ANNUAL PER-PATIENT SPENDING FOR DIALYSIS INITIATION BY START TYPE, 2025

	Commercial	Traditional Medicare/ Medicare Advantage
Planned Dialysis Initiation	$191,956	$64,899
Unplanned Dialysis Initiation	$361,487	$122,217
Net Increase Spending for Unplanned Starts	+$169,531	+$57,317

Note: Sums may not add up due to rounding.

Source: Leslie P. Wong, Anindita Ghosh, Jianbo Li, et al., "Dialysis Costs for a Health System Participating in Value-Based Care," *American Journal of Managed Care* 29, no. 8 (2023): e235–e241. https://doi.org/10.37765/ajmc.2023.89410.

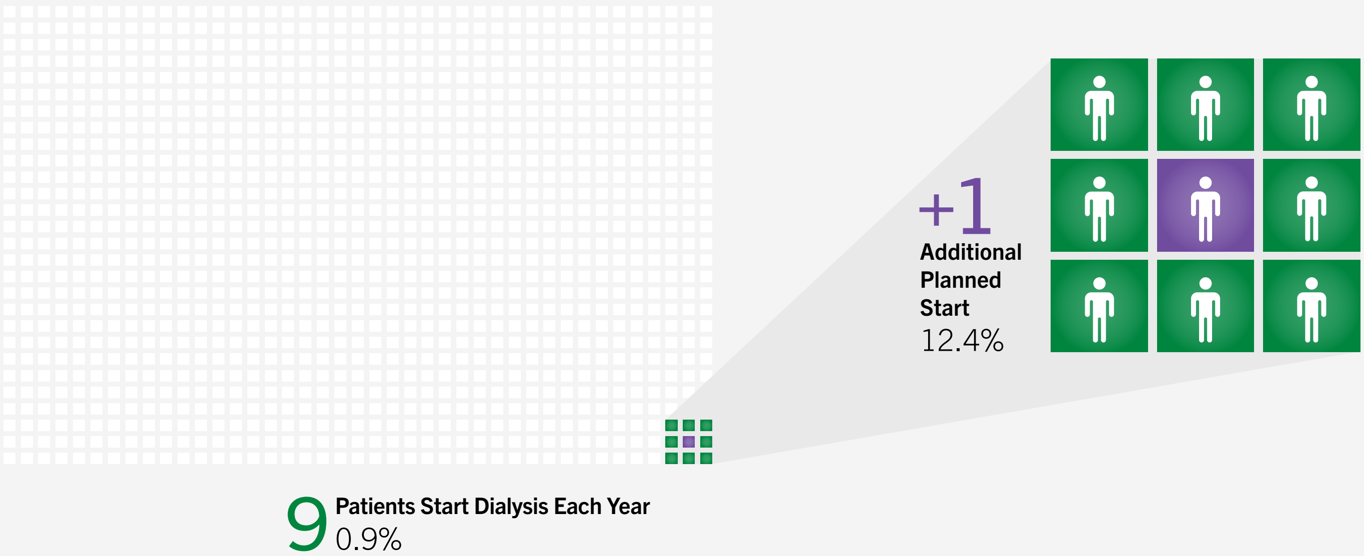
Reduced Spending from Increased Planned Starts

Virtual CKD solutions can reduce spending at the point of dialysis initiation by shifting more patients from unplanned to planned starts. Estimates for virtual solution impact on dialysis start type are drawn from 2023 CKCC program data—one of the few sources with statistically significant, real-world outcomes for virtual CKD management.[286] The data showed a 12.4-percentage-point improvement in optimal ESKD start rates among CKCC-aligned patients compared with patients at non-CKCC practices. This 12.4-percentage-point improvement represents the mean across all attributed patients. Because engagement is assumed to be reflected in this estimate, the model does not apply a separate rate.

The budget impact model estimates the per-patient impact of start type to the estimated mix of planned and unplanned starts under usual care versus under a virtual solution. Applying the CKCC-derived improvement in planned starts, the model estimates that virtual solution patients have a 12.4-percentage-point improvement in planned starts compared with usual care, resulting in a lower average annual spending of $7,107 in Medicare and $21,022 in commercial plans (for detailed methodology, see **Appendix A**).[287, 288]

Exhibit 22

IMPACT OF CKD COMPANY, PER 1,000 ATTRIBUTED PATIENTS



Note: Estimate of all enrollees attributed to CKD company that start dialysis based on Medicare Advantage; increase in planned starts based on CKCC data.

Change in Overall Spending

The model estimates the gross healthcare savings from virtual CKD solutions. Virtual CKD solutions contract with purchasers to assume the total cost of care for patients with CKD attributed to them in a health plan and are paid on the basis of achieving agreed upon financial targets at a population level. Because these contracts are structured around total cost of care, rather than individual patient engagement, the model estimates gross savings as the change in overall health spending across all attributed patients—including those who actively engage with the virtual solution and those who do not.

The financial impact of virtual CKD solutions on dialysis initiation is concentrated among a small subset of patients (Exhibit 22), resulting in very limited per-member savings when spread across all attributed patients with CKD or all health plan enrollees. The estimated savings per patient per improved dialysis start are $7,107 in Medicare and $21,022 in commercial plans. However, since virtual CKD solutions take on responsibility for managing total cost of care for all attributed members with CKD assigned to them in a plan, these savings are diluted when spread across the entire attributed population. Across all attributed members with CKD, savings from using a virtual CKD management solution are $401 per patient with CKD in commercial plans, $53 in Traditional Medicare, and $62 in Medicare Advantage (Exhibit 23).

Exhibit 23

ESTIMATED ANNUAL BUDGET IMPACT OF VIRTUAL CKD SOLUTIONS

	Commercial	Traditional Medicare	Medicare Advantage
Annual Spending per 1M Member Plan*	$240M	$4.5B	$5.4B
Δ Spending with Virtual CKD Management Solutions (%)	–$1.6M (0.66%)	–$5.5M (0.12%)	–$7.8M (0.14%)
Δ Spending per Attributed Member with CKD	–$401	–$53	–$62
Δ PMPM for All Plan Enrollees	–$0.13	–$0.46	–$0.65

Notes: Negative numbers represent healthcare savings and positive numbers represent healthcare spending. * Total spending estimated for patients with CKD stages 3–5 attributed to a virtual CKD solution.

At the health plan level, these CKD companies manage substantial revenue and deliver nominal savings across the attributed population. For instance, a hypothetical one-million-member Medicare Advantage plan would contract with a CKD company to manage $5.4 billion of healthcare spending, and the solution would be expected to reduce patient spending by only $7.8 million—less than 0.2%. These estimates suggest little to no reduction in overall healthcare spending. Because the model does not account for program costs such as quality bonuses, shared savings payments, and increased risk-adjustment coding that may accompany more complete documentation, particularly in Medicare Advantage, actual net program spending may increase rather than decrease.

Patient Out-of-Pocket Costs

Patient out-of-pocket spending for CKD varies by disease severity, treatment intensity, comorbidity management, and insurance benefit design. Average annual overall out-of-pocket spending for CKD is estimated at $1,218 per patient—largely driven by prescription medication costs of $730 per patient, as well as high rates of hospitalizations.[289] Virtual CKD solutions are not expected to have a meaningful net impact on out-of-pocket spending.

Summary Ratings

PHTI assigns summary ratings on the basis of its review of the clinical and economic evidence and the budget impact model.

Based on PHTI's review of the clinical evidence, virtual CKD management solutions do not demonstrate meaningful impact on slowing disease progression for people with CKD. These solutions can improve planned transitions to dialysis, which are shown to improve patient outcomes. However, because only a tiny fraction of all patients with CKD transition to dialysis in a given year, increasing optimal start rates does not generate measurable economic impact at a population level.

The evidence base on the clinical effectiveness of these solutions is small but of relatively high quality and includes a large, well-studied demonstration program in Medicare. As a category, the CKD companies in this report produced almost no clinical evidence, which is noteworthy given their high level of capital investment.

Exhibit 24

PHTI RATINGS FOR VIRTUAL SOLUTIONS FOR CKD MANAGEMENT

● Positive ● Moderate/Mixed ● Negative
● Higher Evidence Certainty ○ Lower Evidence Certainty

Virtual Solutions	Clinical Effectiveness[a]	Economic Impact	Summary Rating[b]
DaVita IKC Evergreen Nephrology Healthmap Solutions Interwell Health Kidneylink Monogram Health Somatus Strive Health	Moderate/Mixed **Results:** Does not slow disease progression Increases planned dialysis initiation **Evidence Certainty:** Higher	Negative Does not reduce total healthcare spending at the population level May increase total spending due to program costs[c]	Negative **Evidence does not support broader adoption**

Source: PHTI, Virtual Solutions for CKD Management, September 2026. See PHTI.org for complete report, methods, and recommendations.

Notes: [a] Not all solutions have clinical data that meet the inclusion standards for this report. Given the similarity of approaches across companies in this report, companies without solution-specific data are assumed to perform comparably. [b] Summary rating reflects the combination of clinical and economic results. [c] Costs may include quality bonuses, shared savings payments, and increased risk-adjustment coding associated with the CKD program.

Clinical Impact: Based on PHTI's review, included companies show no consistent evidence of slowing disease progression—either by improving medication use or slowing the rate of kidney function decline—compared with usual care. Comparative studies reviewed in this assessment show no significant differences in medication use or kidney function between virtual solutions and usual care. The one study reporting improvement in eGFR decline used a pre-post design without a comparator group, limiting the conclusions that can be drawn.

Evidence on improving dialysis transition quality is the most promising. The currently available CKCC data provide the strongest signal that companies can impact dialysis transition quality, with rates of optimal starts increasing by 12.4 percentage points in 2023 relative to practices outside the model. However, CKCC data available for 2022 also show wide practice-level variation in optimal starts within each of the participating companies, making it unclear whether these improvements are attributable to the solutions or to broader incentives within value-based care models. Further, there is limited evidence that the observed improvements in dialysis transitions have translated to reductions in hospitalizations or other healthcare utilization.

Based on the ICER Evidence Rating Matrix, virtual solutions for CKD management receive a C+, with high certainty of comparable net health benefit for disease progression and moderate certainty of a small net health benefit for improving planned dialysis starts.

Economic Impact: The limited clinical impact of these solutions translates into little to no reductions in overall healthcare spending, driven primarily by improvements in planned dialysis transitions. Nonetheless, health plans may continue to value these solutions because many performance-based contracts are tied to reductions in MLR relative to historical cost trends, which can improve risk coding, lower MLR, and increase budget predictability. These financial benefits do not translate to improvements in total cost of care for the attributed patients.

Company Performance: PHTI's review of the evidence did not identify meaningful distinctions in the performance of virtual CKD solutions by company. While variations in company design and features could influence purchasing decisions, the reviewed evidence did not suggest that these result in materially different outcomes. Among the companies reviewed, Strive Health generated more evidence on primary outcomes; it is the only company to examine disease progression and hospital readmissions. Despite methodological limitations, both studies find a statistically significant impact of Strive's solution on these measures for select populations.

CKCC data show practice-to-practice variation within the six companies that participated in the program. High- and low-performing nephrology practices on both clinical outcomes (optimal starts) and economic outcomes were distributed across the six virtual CKD companies that participated in the program. Individual nephrology practice financial performance data from the CKCC option suggest that there may be opportunities to reduce healthcare spending within the CKD population.

Next Steps

Virtual solutions for CKD management have attracted considerable investment and grown rapidly, yet current evidence does not demonstrate meaningful improvements in slowing disease progression or meaningful reductions in total cost of care across attributed populations. While evidence suggests CKD companies improve dialysis transitions, their interventions are not targeted at the upstream management best suited to slow disease progression. These limitations reflect both the design of current solutions and challenges of effectively delivering care to patients with CKD.

CKD is a long-duration condition with a high comorbidity burden that requires sustained coordination across primary care, nephrology, and multiple specialties. The current payment and policy landscape has primarily concentrated resources and incentives on dialysis initiation and end-stage management. However, the greatest opportunity to improve outcomes lies in shifting CKD management earlier in the disease course and in aligning care and payment around interventions that can meaningfully slow disease progression. Addressing these gaps will require coordinated action across purchasers, providers, innovators, and policymakers.

Recommendations for Purchasers

Current contracting models emphasize shorter contracts tied to population-level cost accountability, despite limited evidence that virtual CKD management solutions consistently reduce total cost of care across attributed populations. Additionally, because CKD progresses over a long time horizon, short-term performance-based contracts may be incompatible with the investment and sustained clinical engagement needed to demonstrate cost savings from utilization reductions.

Purchasers, including Medicare Advantage plans and CMS, should evolve contracting approaches beyond population-level accountability. They should consider rewarding patient-level outcomes that are more directly within a company's control while continuing to focus on long-term reductions in healthcare utilization. By balancing incentives for both short-term performance with long-term cost reduction–based payments, purchasers can create contracts that drive meaningful clinical and economic improvements over time.

Add Payments for Patient-Level Outcomes

Population-based shared savings arrangements should be complemented by patient-level milestone payments tied to clinically meaningful actions that predict slower disease progression or result in meaningful cost savings. These milestones often occur earlier in the disease course, apply to a much larger share of the CKD population, and can reward companies for achieving clinically or economically important milestones early in the contracting period.

Specifically, contracts should reward solutions for:

1. **Identification, Diagnosis, and Engagement:** Purchasers should pay for confirmed eGFR and uACR testing and accurate staging as discrete milestones, rewarding early detection and helping shift the focus of care earlier in disease progression.
2. **Sustained, Guideline-Recommended Medication Use:** Performance incentives should reward verified initiation and continued use of guideline-recommended medications (SGLT2 inhibitors, nsMRAs, and GLP-1s), recognizing that the clinical and economic benefits of these therapies may require contracting beyond a single year.
3. **Planned Dialysis Starts:** A planned dialysis start should remain an important performance milestone, as it represents one of the few late-stage outcomes currently supported by evidence. However, contract success should not depend solely on this milestone, since only a small subset of the CKD population reaches this stage.

Tie Population-Based Performance Payments to Real Cost Reductions

Health plans should tie a greater share of performance payments toward demonstrated reductions in avoidable utilization and absolute spending, rather than savings measured against a growing benchmark. These measures are more likely to reflect meaningful improvements in patient care and lower healthcare costs.

Recommendations for Innovators

Prioritize Early Diagnosis and PCP Engagement

The majority of patients with CKD are in stages 3a and 3b, when interventions have the greatest potential to slow disease progression and reduce downstream complications. Companies should orient their offerings toward identifying patients earlier, supporting accurate diagnosis and staging, and ensuring that clinicians document diagnoses and initiate appropriate follow-up care.

Patients with early-stage CKD often receive care from PCPs rather than nephrologists. Because PCPs are typically the first point of contact for these patients and manage a broad range of conditions with limited time per patient, PCPs may particularly benefit from the specialist-level support that virtual CKD solutions can provide. As such, companies should strengthen their engagement with and focus on PCPs while continuing to support nephrologists and other specialists.

Shifting intervention upstream will be essential to demonstrate improvements in long-term clinical and economic outcomes.

Focus on Guideline-Recommended Medication Initiation

Guideline-recommended therapy delivers more value the earlier it begins, as early initiation allows more time for its effect on slowing disease progression and reducing long-term downstream costs. Solutions should help providers initiate guideline-recommended therapy, ensure that recommended laboratory testing is completed, support medication adherence, and facilitate communication across the care team. Given the long-term nature of CKD, companies should focus on sustained use of guideline-recommended therapies at early stages and should publish comparative evidence linking their interventions to confirmed medication adherence.

Advance Evidence Generation

Company-generated, peer-reviewed evidence for these solutions is very limited, constraining purchasers' ability to assess which solutions and individual solution components are likely to improve outcomes or reduce total cost of care. Companies should invest in rigorous, comparative research to strengthen the evidence base for their solutions and to support their clinical and economic impacts.

Specifically, additional research is needed to better understand companies' abilities to:

1. **Impact Disease Progression:** Additional evidence is needed on how virtual CKD management solutions affect measures of disease progression, including eGFR decline and uACR, which are strongly associated with long-term utilization and costs.
2. **Sustain Engagement with Earlier Stage Patients:** Current evidence provides limited insight into how virtual CKD management solutions engage patients earlier in the disease course and which engagement strategies are associated with improved clinical outcomes. Companies should evaluate approaches to identifying and engaging earlier-stage patients, compare provider-referred and direct-to-patient outreach models, and determine the level and duration of engagement needed to meaningfully influence disease progression.

Recommendations for Policymakers

Create Incentives Focused on the Use of Guideline-Recommended Medications to Slow Disease Progression

Specifically, CMS should:

1. Update the kidney pathway in the Merit-based Incentive Payment System (MIPS) to include a SGLT2 inhibitor prescribing measure and adherence measures for both major classes of CKD medications;
2. Add medication prescribing, initiation, and/or adherence measures with performance targets to the cardio-kidney-metabolic track of the ACCESS model for patients with CKD; and
3. Assess the need for a CKD-specific medication adherence measure for the Medicare Advantage Star Ratings program.

Evolve the KCC Model, or Structure Any Future Kidney-Care Models, Around Early Interventions That Slow Disease Progression

A successor model should shift incentives to focus on earlier-stage CKD when interventions can be more impactful, rather than concentrating resources only on the relatively small number of patients for whom kidney failure is imminent.

Target Efforts to Improve Earlier Identification of CKD

As part of this effort, the U.S. Preventive Services Task Force should accelerate its ongoing work to update CKD screening recommendations for asymptomatic adults. An updated recommendation with an A or B rating could substantially expand access to early CKD screening by requiring coverage without patient cost sharing across many health plans.

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To access all appendices, please visit https://phti.org/assessment/virtual-solutions-ckd-management/#appendices.

Online Data Supplement

Access the online data supplement at: https://phti.org/assessment/virtual-solutions-ckd-management/#data-supplement.

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