

Supporting Shared Decision-Making in Life-Altering Kidney Therapy Decisions for Older Adults

A Review

Fahad Saeed, MD, MSCI; Areeba Jawed, MD; Shena Gazaway, PhD, RN, CHPN; Rasheeda K. Hall, MD, MBA, MHS; Michele Klein-Fedyshin, MSLS, RN; Barrett Bowling, MD; Jane O. Schell, MD, MHS

IMPORTANCE Older adults represent the fastest-growing population initiating dialysis in the US. For older adults with advanced chronic kidney disease (CKD), initiating dialysis is often the default option presented, as they are often ineligible for kidney transplant. This approach may not align with many older patients' goals, who often prioritize quality of life over life extension. Further, many older patients report not being informed about all available kidney therapy options. This narrative review provides a guide for primary care clinicians to collaborate closely with older adults, their families, and nephrologists to promote shared kidney therapy decision-making in advanced CKD.

OBSERVATIONS Several options exist for older adults with advanced CKD. These include kidney transplant, which aims to prolong life while preserving a good quality of life; dialysis, which focuses on prolonging life; and conservative kidney management, which forgoes dialysis and transplant, prioritizing quality of life over life prolongation. Shared decision-making is a collaborative process in which clinicians and patients jointly develop a care plan based on the best available evidence, the patient's goals and prognosis, and a careful weighing of the pros and cons of each kidney therapy option. This process supports patients to achieve informed and goal-concordant decisions regarding CKD management after careful deliberation. For patients with decisional uncertainty or a desire to maintain the status quo, a time-limited trial of dialysis or a deciding not to decide approach, respectively, can be implemented.

CONCLUSIONS AND RELEVANCE Shared decision-making is essential to help older adults with advanced CKD understand therapy options and make goal-concordant decisions. Primary care clinicians' collaboration with nephrologists to promote shared decision-making and deliver patient-centered, coordinated care is critically important.

JAMA Intern Med. 2025;185(12):1479-1488. doi:10.1001/jamainternmed.2025.5554
Published online October 27, 2025.

 [Supplemental content](#)
 [CME at *jamacmlookup.com*](#)

Author Affiliations: Author affiliations are listed at the end of this article.

Corresponding Author: Jane O. Schell, MD, MHS, Section of Palliative Care and Medical Ethics, Division of Renal-Electrolyte, University of Pittsburgh, 200 Lothrop St, Pittsburgh, PA 15213 (schelljo@upmc.edu).

One in 3 older adults has chronic kidney disease (CKD), a progressive condition associated with high morbidity, health care utilization, and mortality.^{1,2} CKD is defined by the presence of kidney damage or glomerular filtration rate (GFR) less than 60 mL/min/1.73 m² for 3 months or more, irrespective of cause.³ The leading causes of CKD in the US are diabetes and hypertension, although potentially reversible etiologies, such as drug-induced acute kidney injury, may also contribute.^{2,4} Many patients with CKD will progress to advanced CKD (ie, an estimated GFR [eGFR] less than 30 mL/min/1.73 m²) and eventually be faced with decisions about dialysis initiation. Despite the importance of these decisions, many patients and families report insufficient guidance and emotional support from clinicians during this complex decision-making process.⁵⁻¹⁰

Clinical decision-making in irreversible advanced CKD presents a unique dilemma for older adults; kidney transplant improves survival and quality of life, but many older adults are ineligible due to comorbidities, high surgical risk, or the potential for adverse effects from immunosuppression.¹¹⁻¹⁵ Dialysis may prolong survival but carries adverse effects (eg, fatigue) and practical demands (eg,

frequent in-center sessions) that can worsen quality of life.¹⁶⁻¹⁸ Conservative kidney management—an approach to CKD care that forgoes dialysis and transplant while focusing on improving quality of life—is often not presented as an option, likely because its primary objective is not to prolong survival.^{5,8,19} Additionally, individuals with advanced CKD often feel uninformed about the risks and benefits of each treatment option and pressured to initiate dialysis.^{5,8,19} These gaps in kidney therapy decision-making are consequential not only to patients but also to the US health care system, given the substantial costs of maintenance dialysis.² Nonetheless, clinicians can improve goal-concordant care for older people with advanced CKD by presenting information about a full range of therapeutic options and practicing shared decision-making. As trusted clinicians who commonly manage CKD through its early stages, primary care clinicians (PCCs) are uniquely positioned to participate in shared decision-making in collaboration with a nephrologist for patients and their families.

In this narrative review focused on older adults, we briefly review and compare kidney therapy options for irreversible advanced

CKD along with their supporting evidence. We outline an approach to shared decision-making in advanced CKD, emphasizing the central role of the PCC and the importance of involving caregivers, addressing geriatric syndromes (eg, polypharmacy, dementia, falls, frailty, mood disorders, sensory impairment, incontinence, malnutrition, delirium, and sleep disorders),²⁰ and fostering interdisciplinary collaboration. We also describe a shared kidney therapy decision-making approach for clinicians to help older adults and their families.²¹

Methods

A librarian (M.K.F.) conducted a literature search in PubMed using Medical Subject Headings, keywords, and Boolean operators to identify relevant literature on CKD in older patients. The search focused on concepts such as shared decision-making, conservative kidney management and outcomes, dialysis and outcomes in older patients with CKD, and kidney transplant and outcomes in older patients with CKD, with filters applied for English language and publication dates between 2015 and 2025. Additional searches included guideline websites and landmark articles to ensure comprehensive coverage (eMethods in the **Supplement**).

Observations

Understanding the What, Why, and Need for Collaborative Shared Decision-Making in Advanced CKD

Shared decision-making is an approach where clinicians and patients collaboratively approach important medical decisions together based on a discussion of the best available evidence, as well as the patient's goals and preferences.²² For older patients with advanced CKD, the shared decision-making process begins after a comprehensive medical evaluation that aims to discern and address factors contributing to CKD, such as diabetes and hypertension; optimize medical therapy; and rule out reversible causes of kidney dysfunction (eg, nephrotoxic medications, obstructive nephropathy).¹ For patients whose CKD progresses despite these actions, shared decision-making is crucial to support an informed, goal-concordant kidney therapy choice.²³ Shared decision-making is associated with higher odds of patient activation,²⁴ preference concordance,²⁵ decision ownership,²⁶ decisional satisfaction,²⁷ and potentially improved survival.²⁸ Current guidelines²⁹⁻³² recommend incorporating shared decision-making when discussing kidney therapy options; however, dialysis as the default persists in the US.¹⁹ More than 80% of patients start in-center hemodialysis instead of home therapies,² and patients are rarely informed about conservative kidney management as a viable option.⁸ Key barriers to shared decision-making include a short visit time,³³ lack of formal education on shared decision-making and conservative kidney management,¹⁰ and the potential influence of financial incentives for dialysis.^{34,35}

PCCs are uniquely positioned to facilitate shared decision-making because of their ongoing therapeutic relationships with patients and their comprehensive understanding of patients' health, goals, and care trajectories. We recommend initiating shared decision-making conversations about kidney therapy options for patients with an eGFR less than 30 mL/min/1.73 m², particularly those with a 5-year kidney failure risk exceeding 3% or those with sus-

tained decline in eGFR using the kidney failure risk equation³⁶ or as part of goals-of-care discussions or advance care planning discussions.³⁷ PCCs can contribute to the shared decision-making process—in partnership with dialysis educators and nephrologists—by exploring patient preferences, providing information on therapeutic options beyond dialysis, screening for geriatric syndromes,²⁰ facilitating prognostic discussions, encouraging caregiver involvement, and supporting advance care planning.³⁸⁻⁴⁰

Kidney Therapy Options for Older Patients With Advanced CKD

Facilitating shared decision-making about kidney therapy requires thorough knowledge of each option's risks and benefits (Table 1), enabling patients to weigh trade offs and make goal-concordant decisions.

Conservative Kidney Management

Conservative kidney management is a multidisciplinary care approach that focuses on maximizing quality of life throughout CKD progression and prioritizes 4 basic components: (1) treatment focused on delaying CKD progression and managing its associated complications, such as electrolyte abnormalities, acidosis, anemia, and bone mineral disease; (2) advance care planning, including end-of-life preparation; (3) addressing spiritual, existential, and symptom-focused needs; and (4) crisis planning that includes anticipatory guidance about symptoms of acute uremic decline (eg, anorexia, weight loss, functional decline, sleepiness) and future planning for support and hospice referral.⁴¹ Patients should be assessed for transplant eligibility and counseled on alternative approaches to advanced CKD management prior to initiating conservative management. Further, screening for depression and cognitive impairment is recommended to ensure that decisions are not unduly influenced by treatable medical conditions. Potential conservative kidney management candidates include (1) older adults who prioritize quality of life over longevity; (2) patients who perceive that the drawbacks of dialysis outweigh its benefits; (3) individuals with frailty, functional impairment, or advanced serious chronic illnesses (eg, active cancer, advanced congestive heart failure); (4) patients with advanced dementia where dialysis may be unsafe (eg, by pulling needles); or (5) patients wishing for comfort-focused care.⁴² Notably, conservative kidney management requires a multidisciplinary collaborative palliative care approach with hospice initiation guided by 6-month prognosis along with patient preferences and symptom needs.

Dialysis

Dialysis (Table 2) is a kidney replacement therapy that can either be performed in a center (in-center hemodialysis) or at home (home hemodialysis or peritoneal dialysis [PD]). The dialysis team typically includes a nephrologist, an advanced nurse practitioner, a social worker, a dietitian, dialysis nurses, and technicians. The general goal of dialysis is to prolong life, either as a maintenance therapy or as a temporary intervention while awaiting kidney transplant. A timely shared decision-making process to select the appropriate access—arteriovenous fistula, graft, PD catheter, or hemodialysis catheter—is essential to avoid emergency dialysis.^{37,43}

In-Center Hemodialysis | Currently in the US, most patients receive in-center hemodialysis performed by health care professionals

Table 1. Potential Benefits and Downsides of Each Kidney Therapy Option

Kidney therapy option	Benefits or goals	Expected downsides	Potential downsides
Hemodialysis	<ul style="list-style-type: none"> Prolonged life, especially in younger people Removal of uremic toxins and excess fluid Potential improvement in some uremic symptoms (eg, low appetite, weight loss) Social aspect with in-center care may be appealing to some 	<ul style="list-style-type: none"> Access procedures required Tiredness after each dialysis session Time commitment to receive dialysis 	<ul style="list-style-type: none"> Dialysis complications (eg, hypotension, cramps, infections, bleeding) Increased risk of hospitalization Increased risk of decline in functional status or worsening cognition or clinical condition Caregiving burden
Peritoneal dialysis	<ul style="list-style-type: none"> Prolonged life, especially in younger people Removal of uremic toxins and excess fluid Potential improvement in some uremic symptoms (eg, low appetite, weight loss) Early preservation of residual kidney function 	<ul style="list-style-type: none"> Access procedures required Tiredness after each dialysis session Time commitment to receive dialysis Equipment management Disruption in home environment 	<ul style="list-style-type: none"> Dialysis complications (eg, exit site infection, catheter malfunction, peritonitis, malnutrition) Increased risk of hospitalization Risk for technique failure Increased risk of decline in functional status Caregiving burden Malnutrition and electrolyte disturbances
Conservative kidney management	<ul style="list-style-type: none"> Focused on quality of life Less frequent contact with health care system Suggestion of better preservation of the functional status Higher likelihood of receiving hospice services 	<ul style="list-style-type: none"> Potentially reduced life expectancy compared with dialysis Progressive decline in function Increased symptoms related to kidney failure (eg, fatigue) 	<ul style="list-style-type: none"> Lack of a formal conservative kidney management pathway in many health care systems Lack of multidisciplinary support for symptom management in some health care systems Lack of clinician expertise in conservative kidney management Caregiving burden
Kidney transplant	<ul style="list-style-type: none"> Prolonged life Improved quality of life 	<ul style="list-style-type: none"> Organ shortage Comorbidities or frailty exclude many older adults from receiving a kidney transplant 	<ul style="list-style-type: none"> Prolonged waiting period Risk of infection Adverse effects related to immunosuppression Surgical risks

Table 2. Common Types of Dialysis in the US

Dialysis type	Access preparation	Dialysis schedule	Care setting
In-center hemodialysis	<ul style="list-style-type: none"> Arteriovenous fistula: surgical connection between an artery and a vein; takes a few weeks to mature and may need repeated interventional radiology assisted fistulograms for relieving stenosis or fistula malfunction but has the least risk for infection Arteriovenous graft: surgically placed synthetic tube connects an artery with a vein; matures earlier than a fistula but carries a risk of clotting and infections Dialysis catheter: inserted in a large central vein and can be used immediately but carries a high risk of infection 	Approximately 4-h sessions 3 times per wk	Dialysis clinic
Home hemodialysis	Vascular access surgery: arteriovenous fistula vs arteriovenous graft; catheter is less desirable	2- to 3-h Sessions or more approximately 5-6 times per wk	Home setting
Home peritoneal dialysis	Catheter surgically placed in peritoneal cavity: can be used immediately for urgent start but usually takes approximately 2 wk to mature and carries a risk for infection, leaks, and hernias	7 d per wk	Home setting

3 times per week for about 4 hours per session.² However, this choice imposes a substantial burden, including travel time and postdialysis recovery.^{44,45} Notably, some centers also provide nocturnal in-center hemodialysis, which can be delivered overnight in center (approximately 3 times per week) or at home. Data suggest that compared with conventional thrice-weekly dialysis, nocturnal dialysis may improve phosphate control, blood pressure, secondary hyperparathyroidism, erythropoietin resistance, and ultrafiltration rates, with potential gains in quality-of-life measures.^{46,47} Observational data also show lower mortality with nocturnal hemodialysis, but randomized trials are scarce and inconclusive.^{48,49} Downsides include higher vascular access complications, transportation challenges, and sleep disturbances.⁵⁰

Home Hemodialysis | Home hemodialysis is short daily hemodialysis or nocturnal home hemodialysis. Short daily hemodialy-

sis is performed 4 to 5 times per week for approximately 2 hours per session. Unlike in-center dialysis, patients or their family members must perform hemodialysis themselves, including inserting needles in arteriovenous fistula or graft.

Older adults receiving daily home hemodialysis may have improved fluid status, reduced inflammatory markers, and left ventricular size.^{51,52} However, home hemodialysis requires training for patients and family members and can place substantial burdens related to treatment duration, frequency, equipment maintenance, disruption of the home environment,⁵³⁻⁵⁵ and risk of vascular-access infection.⁵⁶

PD | PD is performed daily and can be manual (continuous ambulatory PD) or automated overnight (automated PD) with help of machine or a combination of both. PD initiation requires training, strict aseptic technique, and reliable home envi-

ronment. PD advantages for older adults include home-based therapy, enhanced sense of control,⁵⁷ flexible scheduling, and the potential preservation of residual kidney function.⁵⁸ Disadvantages include infections and associated mortality,^{59,60} protein losses, and sleep disturbances.⁶¹

Kidney Transplant

Kidney transplant, whether from a living or deceased donor, is a therapeutic option for eligible older patients, offering increased survival, improved physical function, fewer dietary and fluid restrictions, and greater overall life satisfaction.^{11,12} Older recipients frequently regain independence in their daily activities and report experiencing less fatigue compared with dialysis.⁶²

Older patients with advanced CKD may be referred for kidney transplant evaluation once their eGFR falls below 20 mL/min/1.73 m²,⁶³ although frailty and comorbidities may preclude many from receiving a transplant despite their wishes.¹³⁻¹⁵ Ideal candidates are patients with stable cardiovascular status, no active infections or untreated malignant tumors, good adherence potential and social support, and reasonable expected posttransplant survival.⁶³ A pre-transplant assessment, often done in collaboration with PCCs, involves comprehensive cardiovascular and cognitive testing, cancer screening, functional status and frailty assessment, and targeted evaluation of comorbid conditions to ensure that the benefits of kidney transplant outweigh the risks of surgery and subsequent immunosuppression. Advanced age alone is not a contraindication to kidney transplant. According to the US Renal Data System report, the estimated 2016 median wait time for kidney transplant was 3.2 years.⁶⁴ Wait times are highly variable and are influenced by blood type, prior sensitization, regional organ availability, and other recipient factors (eg, an acute illness).

Comparing Different Kidney Therapy Options

Dialysis vs Conservative Kidney Management | In patients older than 75 years with advanced comorbidities, dialysis may extend survival but also increases risks of dialysis-related burdens and adverse effects. Studies comparing survival between dialysis and conservative kidney management are observational in nature and often confounded by lead-time and selection biases with younger patients choosing dialysis and older patients selecting conservative kidney management. Two recent meta-analyses^{65,66} suggest that dialysis confers a survival advantage, even among those with a high comorbidity burden, although the results may not be generalizable to octogenarians and older adults with frailty and a high comorbidities burden. A recent trial emulation study demonstrated that older adults who chose dialysis compared with those who continued medical management experienced a modest increase in life expectancy of approximately 78 days but at the cost of spending 15 fewer days at home.¹⁶

Data from patients and families suggest that more important than survival time is how that time is spent.^{67,68} While dialysis can prolong survival, it can also negatively impact quality of life. For example, dialysis involves a substantial time commitment (eg, approximately 115 days per year for in-center hemodialysis), which may not align with a patient's goals. Additionally, symptoms such as fatigue, cramps, and reduced well-being are common with dialysis,¹⁷ and the overall symptom burden is comparable with that of patients with

cancer.¹⁸ In contrast, conservative kidney management may offer quality-of-life benefits⁶⁵ by avoiding dialysis-related symptoms (eg, cramps, postdialysis fatigue),⁶⁹ reducing time spent receiving treatment, focusing on symptom control,⁷⁰ and lowering costs.⁷¹ Additionally, dialysis has been associated with higher rates of hospitalization^{65,72} and possibly an increased risk of functional decline compared with conservative kidney management.^{73,74}

PD vs Hemodialysis | Evidence is still evolving, and it remains unclear whether one modality offers superior survival outcomes.^{75,76} Some studies suggest that PD may be associated with higher mortality than hemodialysis in older adults,^{77,78} while others have found no difference.⁷⁹⁻⁸¹ There are no significant difference in quality of life between PD and hemodialysis among older adults, although there is suggestion that PD may be associated with lower risk of dementia, subdural hematomas, and hemorrhagic strokes.⁸²⁻⁸⁴ Choosing between PD and hemodialysis is preference sensitive, guided by personal goals and lifestyle (eg, remaining at home or continuing full-time work) and tempered by practical feasibility (eg, catheter suitability, home storage and water supply, and transportation).

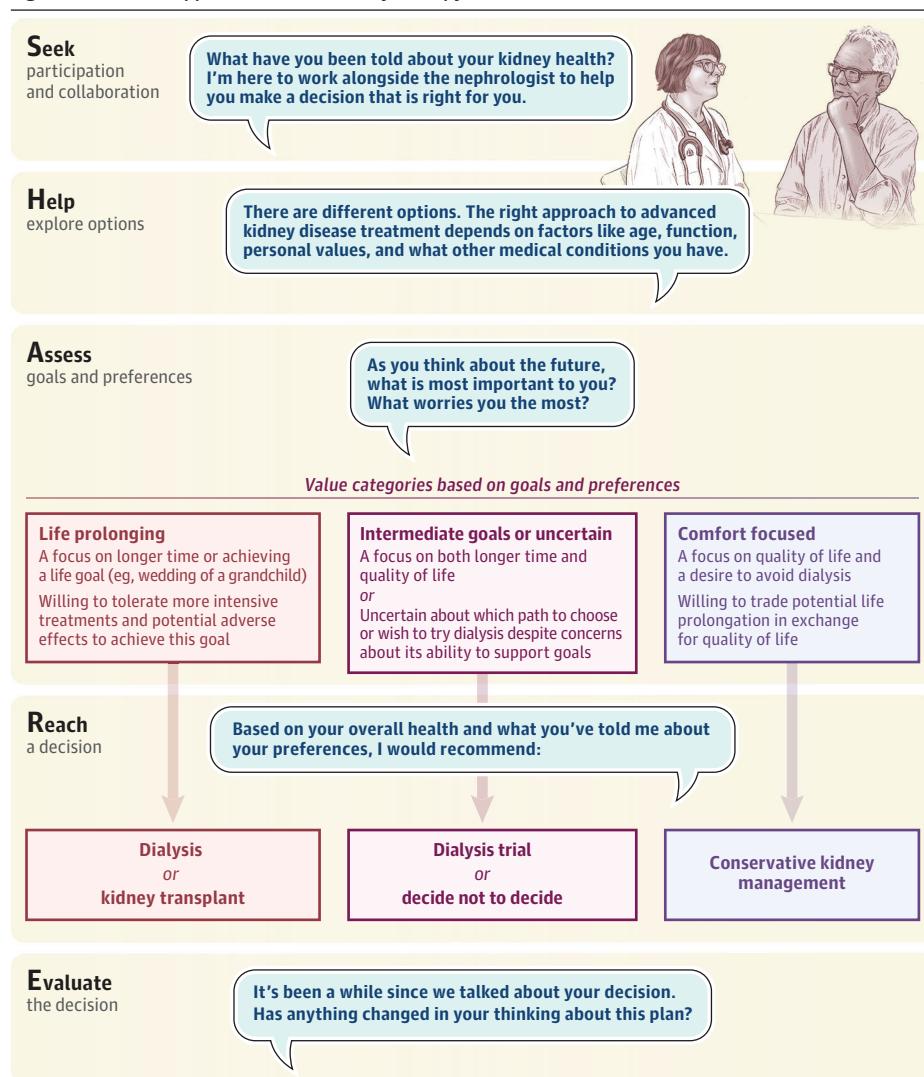
Dialysis vs Kidney Transplant | Kidney transplant in older patients offers a survival and quality-of-life advantage compared with dialysis.⁸⁵ Kidney transplant may prolong survival in older patients even after receiving a deceased donor kidney.⁸⁶⁻⁸⁸ Older kidney transplant recipients, however, tend to experience higher long-term mortality, hospitalizations, infections, cardiovascular issues, malignant tumors, and surgical complications after the transplant than their younger counterparts.^{86,89} Nevertheless, graft survival rate for the transplanted kidney is similar between older and younger patients, and most older patients die with a functioning graft.^{90,91}

Helping Patients to Weigh the Pros and Cons of Different Treatment Approaches

Global Geriatric Assessment | Older adults with advanced CKD commonly face aging-related problems—frailty, falls, cognitive impairment, reduced mobility, polypharmacy, and depression—that can influence health irrespective of treatment options.⁹² For example, frailty in people with CKD is associated with death and hospitalizations.^{93,94} Similarly, a patient with limited functional status, cognition, and social support would likely not be able to perform home dialysis tasks. A PCC can conduct an abbreviated geriatric assessment (when geriatrics expertise is not available) to assess functional status,^{95,96} frailty,⁹⁷ cognition,⁹⁸ and social support. A geriatric assessment combined with prognostic estimates (eg, the Kidney Failure Risk Equation for kidney prognosis)³⁶ and 6-month to 12-month mortality projections^{99,100} can provide vital information for shared decision-making. Indeed, dialysis in older patients with frailty may not help with geriatric impairments and can be associated with further cognitive decline^{101,102} and functional decline.^{73,74}

Role of Decision Aids | PCCs can support the decision-making process by using patient decision aids (PDAs).¹⁰³ PDAs "translate evidence into patient-friendly tools to inform patients on their options, help them clarify the value they place on benefits versus harms, and guide them in the process of decision-making."¹⁰⁴ PCCs can use PDAs to provide unbiased knowledge and facilitate informed

Figure. The SHARE Approach to Guide Kidney Therapy Decisions



choices¹⁰⁵ to include conservative kidney management as a valid option.¹⁰⁶⁻¹⁰⁸ An online interactive PDA tested in a large randomized clinical trial of 363 patients significantly improved decision quality as measured by the Decisional Conflict Scale.¹⁰⁸ A recent pilot study using a paper PDA supplemented by palliative care consultation showed significant improvements in shared decision-making within 4 to 6 weeks and in quality of life at 6 months.^{109,110} Moreover, evidence-based clinician communication skills trainings, such as Vital Talk, NephroTalk, or the Patient Priorities Care website,¹¹¹ are helpful resources to enhance shared decision-making practices.^{112,113}

Implementing the SHARE Approach to Promote Shared Decision-Making in Kidney Therapy for Older Patients

The Seek, Help, Access, Reach, Evaluate (SHARE) approach is a valuable model for PCCs to promote shared decision-making in kidney therapy decisions for older patients. The SHARE approach has been used previously to improve patient engagement and shared decision-making.^{114,115} In the following sections, we outline the 5 elements from the SHARE approach in context of kidney therapy decision-making (Figure).

Step 1: Seeking Patient (and Family) Participation and Reinforce Collaboration

The first step of the SHARE approach²¹ is to invite the patient's participation in shared decision-making and to reinforce the PCC's role in collaborating with nephrology. Engaging the patient involves respecting their autonomy by identifying their preferences for decision-making, assessing their health literacy,¹¹⁶ exploring their disease understanding, addressing their support needs, and discussing the decision-making timeline. Some patients may prefer a passive role in decision-making while others may favor a more directive, clinician-led approach.^{117,118} Therefore, the PCCs must tailor the SHARE approach to match each patient's decision-making style.

Step 2: Helping Patients Explore and Compare Kidney Therapy Options

This step involves clearly describing and discussing the available kidney therapy options (Table 1), including their benefits and potential drawbacks. To make an informed decision, patients need a realistic understanding of what the future might look like with each option.¹¹⁹ Recent data suggest that presenting conservative kidney management as an active choice can enhance patient engagement in the shared

decision-making process.¹²⁰ We find using tested decision aids^{108,121} or those that discuss conservative kidney management¹²² helpful.

Step 3: Assessing Patient Goals and Preferences

Unfortunately, patient goals and preferences are frequently overlooked in kidney therapy decision-making.^{6,25} Nearly 20% of patients regret starting dialysis, particularly when the decision was made by physicians or family members.⁶ However, the likelihood of perceived goal-concordant care increases significantly with shared decision-making.²⁵ Older adults with CKD value aspects of quality of life such as independence,⁶⁷ avoidance of pain and symptoms, and maintaining the ability to travel.^{67,123}

Kidney therapy decisions are preference sensitive and ideally guided by patients' priorities concerning quality of life, existential and emotional concerns, and prognostic considerations. Encouraging patients to envision their future lives and to identify what matters most to them can facilitate a more informed, goal-concordant decision-making process. We emphasize that acknowledging, exploring, and addressing emotions is an essential part of shared decision-making.

Step 4: Reaching a Decision Together

Kidney therapy decision-making in outpatient settings can be an evolving process, often spanning several weeks or months. This time frame allows patients, families, and clinicians to learn about and deliberate on the available choices while reflecting on how their goals and preferences align with expected prognosis and quality-of-life estimates. Exploring the reason for the chosen kidney therapy modality and validating (or questioning) the choice is also part of the decision-making process.

Two special circumstances may arise during kidney therapy decision-making conversations. First, some older patients at low risk for CKD progression may prefer to maintain the status quo and avoid engaging in decision-making. In such cases, patients can decide not to decide¹²⁴ and revisit decision-making later at a mutually decided kidney function level (eg, at an eGFR level of 15 mL/min/1.73 m²). Some patients may never need to make a definitive decision, and by deciding not to decide, they can avoid unnecessary vascular procedures for dialysis preparation.¹²⁵

Second, some patients may remain ambivalent about their choices. A time-limited dialysis trial²⁹—lasting weeks or months with goals set collaboratively by clinician and patient—can help decide whether to continue dialysis or shift to conservative kidney management.

Step 5: Evaluating the Decision

Decisional conflict is highly prevalent during kidney therapy decision-making.⁷ Therefore, clinicians must address any emotions and lingering questions that may arise during and even following the decision-making. Revisiting the decision is also critical if life circumstances or patient preferences change over time. Additionally, given the often progressive nature of CKD, clinicians should ensure that the chosen kidney therapy option remains aligned with the patient's goals.¹¹¹

Engaging and Supporting Caregivers During Kidney Therapy Decision-Making

Caregivers of individuals with advanced CKD are vital and often overlooked members of the health care team. Caregivers support patient decision-making in multiple ways, serving as advocates, information

seekers, and sharers. Allen et al¹²⁶ found that caregiver involvement in kidney therapy decision-making added perspectives and questions without altering the total patient questions. Others have shown the positive association of social support with higher patient activation and improved shared decision-making for kidney therapy decisions.²⁴ However, some evidence also shows that overreliance on caregiver input may be associated with decisional regret.⁶

Caregiver involvement in shared decision-making conversations is essential, as each kidney therapy choice may impact the caregiver's day-to-day life.^{127,128} Caregiver involvement is greater for home therapies (for cannulation or dialysis delivery) or when transportation to the dialysis center is required. PCCs can support caregivers by providing information on kidney therapy options, offering anticipatory guidance, and providing psychological support.^{129,130}

Engaging in Advance Care Planning and Supporting End-of-Life Care

A crucial aspect of kidney therapy decision-making for PCCs is to engage in discussions about advance care planning and end-of-life care. Inadequate advance care planning may contribute to increased end-of-life health care utilization, unwanted invasive interventions, and cardiopulmonary resuscitation despite poor outcomes for patients with advanced CKD.^{131,132} Approximately 20% of patients receiving dialysis eventually decide to stop.^{133,134} Dialysis withdrawal is more common in older compared with younger patients, those with chronic illness (eg, cardiovascular disease and dementia), and those receiving hemodialysis compared with PD.¹³⁵ Survival after dialysis withdrawal is typically short (approximately 4 to 5 days), with longer survival time when the withdrawal reason is due to psychological reasons rather than medical.¹³⁶ Assessing for major depressive disorder, cognitive impairment, and other medical conditions that may influence decision-making is important before proceeding with a request to withdraw dialysis.

Hospice use is less frequent among patients using chronic dialysis than the general Medicare population, likely due in part to Medicare Hospice Benefit limitations, which exclude coverage for services like dialysis or anemia medications related to end-stage kidney disease.^{137,138} Concurrent care is an innovative model that may improve hospice access by allowing dialysis with palliative intent to continue alongside hospice services.^{139,140}

Facilitating Multidisciplinary Input Into Shared Decision-Making

Effective care for patients with advanced CKD requires synergistic collaboration between nephrologists and PCCs along with other allied specialties, such as palliative care, clinical pharmacy, and nursing. Key features of collaborative care include clearly defining clinical roles and responsibilities, establishing regular communication, and sharing data and clinical impressions throughout the shared decision-making process.¹⁴¹ Collaboration requires simple yet direct communication methods, such as phone calls or electronic medical record messaging, high-quality letters in the absence of electronic records, or newer integrated models of collaborative advanced CKD care to ensure that patient voices are heard and respected during shared decision-making and care transitions.¹⁴²⁻¹⁴⁵

PCCs play a central role in guiding shared decision-making for advanced CKD by helping older adults clarify goals and presenting all kidney therapy options, including conservative kidney management, screening for geriatric syndromes, discussing prognosis, in-

volving caregivers, coordinating specialty referrals, and facilitating advance care planning.^{40,142,146} Further, ongoing care with a PCC provides consistent support during transitions after dialysis initiation or kidney transplant.

Conclusions

Individuals with advanced CKD are often faced with consequential decisions about treatment approaches, including decisions about

whether to initiate dialysis, undergo transplant evaluation, or pursue conservative kidney management. Treatment decisions must be individualized, yet evidence suggests that patients may not be adequately informed about the risks and benefits of every treatment approach. PCCs can act as key shared decision-making facilitators and advocate for goal-concordant care in collaboration with nephrologists. It is essential to include patients and caregivers in these critical choices—moving beyond a dialysis-only default to recognize conservative kidney management as a valid and reasonable option that honors the whole person, their goals, and overall well-being.

ARTICLE INFORMATION

Accepted for Publication: September 2, 2025.

Published Online: October 27, 2025.

doi:10.1001/jamainternmed.2025.5554

Author Affiliations: Department of Medicine, University of Rochester Medical Center, Rochester, New York (Saeed); Department of Public Health, University of Rochester Medical Center, Rochester, New York (Saeed); Division of Nephrology, University of Rochester Medical Center, Rochester, New York (Saeed); Division of Palliative Care, University of Rochester Medical Center, Rochester, New York (Saeed); Division of Nephrology and Palliative Care, Department of Medicine, University of Michigan, Ann Arbor (Jawed); School of Nursing, University of Alabama at Birmingham (Gazaway); Division of Nephrology, Department of Medicine, Duke University School of Medicine, Durham, North Carolina (Hall); Durham VA Healthcare System, Durham, North Carolina (Hall); Health Sciences Library System, University of Pittsburgh, Pittsburgh, Pennsylvania (Klein-Fedyshin); Durham Veterans Affairs Geriatric Research Education and Clinical Center, Durham Veterans Affairs Health Care System (VAHCS), Durham, North Carolina (Bowling); Section of Palliative Care and Medical Ethics, Division of Renal-Electrolyte, University of Pittsburgh, Pittsburgh, Pennsylvania (Schell).

Conflict of Interest Disclosures: Dr Gazaway reported grants from the National Institute of Diabetes and Digestive and Kidney Diseases. No other disclosures were reported.

Funding/Support: Dr Saeed is supported by a grant from the National Institute on Aging (grant R01 AG082891-01A1).

Role of the Funder/Sponsor: The funder had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication.

Additional Contributions: We thank Rickinder Grewal, MD, and Hafsa Tariq, MD (Division of Nephrology, Department of Medicine, University of Rochester Medical Center, Rochester, New York), for reviewing and providing feedback on the manuscript. They were not compensated for their work outside normal salary.

Additional Information: We used artificial intelligence (GPT-4; OpenAI) on April 7 and August 22, 2025, to proofread our work and edit for typos and language. We take responsibility for the integrity of the content of our article.

REFERENCES

1. US Centers for Disease Control and Prevention. Chronic Kidney Disease in the United States, 2023. Accessed August 11, 2025. <https://www.cdc.gov/kidney-disease/php/data-research/index.html>
2. United States Renal Data System. 2024 USRDS Annual Data Report: epidemiology of kidney disease in the United States, 2024. Accessed August 11, 2025. <https://adr.usrds.org/2024>
3. Levey AS, Eckardt KU, Tsukamoto Y, et al. Definition and classification of chronic kidney disease: a position statement from Kidney Disease: Improving Global Outcomes (KDIGO). *Kidney Int*. 2005;67(6):2089-2100. doi:10.1111/j.1523-1755.2005.0365.x
4. Amdur RL, Chawla LS, Amodeo S, Kimmel PL, Palant CE. Outcomes following diagnosis of acute renal failure in U.S. veterans: focus on acute tubular necrosis. *Kidney Int*. 2009;76(10):1089-1097. doi:10.1038/ki.2009.32
5. Saeed F, Sardar MA, Davison SN, Murad H, Duberstein PR, Quill TE. Patients' perspectives on dialysis decision-making and end-of-life care. *Clin Nephrol*. 2019;91(5):294-300. doi:10.5414/CN109608
6. Saeed F, Ladwig SA, Epstein RM, Monk RD, Duberstein PR. Dialysis regret: prevalence and correlates. *Clin J Am Soc Nephrol*. 2020;15(7):957-963. doi:10.2215/CJN.13781119
7. DePasquale N, Green JA, Ephraim PL, et al. Decisional conflict about kidney failure treatment modalities among adults with advanced CKD. *Kidney Med*. 2022;4(9):100521. doi:10.1016/j.xkme.2022.100521
8. Song MK, Lin FC, Gile CA, Arnold RM, Bridgman JC, Ward SE. Patient perspectives on informed decision-making surrounding dialysis initiation. *Nephrol Dial Transplant*. 2013;28(11):2815-2823. doi:10.1093/ndt/gft238
9. Karlin J, Chesla CA, Grubbs V. Dialysis or death: a qualitative study of older patients' and their families' understanding of kidney failure treatment options in a US public hospital setting. *Kidney Med*. 2019;1(3):124-130. doi:10.1016/j.xkme.2019.04.003
10. Jawed A, Batch B, Allen R, et al. Comparing nephrologists' self-reported decision-making skills and treatment attitudes with their patients' experiences of making kidney therapy decisions and receiving nephrology care. *Am J Hosp Palliat Care*. 2025;42(6):587-593. doi:10.1177/10499091241279939
11. Shi B, Ying T, Chadban SJ. Survival after kidney transplantation compared with ongoing dialysis for people over 70 years of age: a matched-pair analysis. *Am J Transplant*. 2023;23(10):1551-1560. doi:10.1016/j.ajt.2023.07.006
12. Humar A, Denny R, Matas AJ, Najarian JS. Graft and quality of life outcomes in older recipients of a kidney transplant. *Exp Clin Transplant*. 2003;1(2):69-72.
13. Sørensen SS. Rates of renal transplants in the elderly—data from Europe and the US. *Transplant Rev (Orlando)*. 2015;29(4):193-196. doi:10.1016/j.trre.2015.04.005
14. Segall L, Nistor I, Pascual J, et al. Criteria for and appropriateness of renal transplantation in elderly patients with end-stage renal disease: a literature review and position statement on behalf of the European Renal Association-European Dialysis and Transplant Association Descartes Working Group and European Renal Best Practice. *Transplantation*. 2016;100(10):e55-e65. doi:10.1097/TP.0000000000001367
15. Butler CR, Gaughan OA, Taylor JS, Gee PO, O'Hare AM. Experience of older adults and their family members in the kidney transplant evaluation. *JAMA Intern Med*. 2025;185(2):186-194. doi:10.1001/jamainternmed.2024.6653
16. Montez-Rath ME, Thomas IC, Charu V, et al. Effect of starting dialysis versus continuing medical management on survival and home time in older adults with kidney failure: a target trial emulation study. *Ann Intern Med*. 2024;177(9):1233-1243. doi:10.7326/M23-3028
17. King SJ, Reid N, Brown SJ, et al. A prospective, observational study of frailty, quality of life and dialysis in older people with advanced chronic kidney disease. *BMC Geriatr*. 2023;23(1):664. doi:10.1186/s12877-023-04365-4
18. Jhamb M, Abdel-Kader K, Yabes J, et al. Comparison of fatigue, pain, and depression in patients with advanced kidney disease and cancer-symptom burden and clusters. *J Pain Symptom Manage*. 2019;57(3):566-575.e3. doi:10.1016/j.jpainsympman.2018.12.006
19. Wong SPY, McFarland LV, Liu CF, Laundry RJ, Hebert PL, O'Hare AM. Care practices for patients with advanced kidney disease who forgo maintenance dialysis. *JAMA Intern Med*. 2019;179(3):305-313. doi:10.1001/jamainternmed.2018.6197
20. Liu CK, Miao S, Giffuni J, et al. Geriatric syndromes and health-related quality of life in older adults with chronic kidney disease. *Kidney360*. 2023;4(4):e457-e465. doi:10.34067/KID.0000000000078
21. Agency for Healthcare Research and Quality. The SHARE Approach. Accessed July 29 2025. <https://www.ahrq.gov/professionals/education/curriculum-tools/shareddecisionmaking/index.html>
22. Elwyn G, Laitner S, Coulter A, Walker E, Watson P, Thomson R. Implementing shared decision making in the NHS. *BMJ*. 2010;341:c5146. doi:10.1136/bmj.c5146
23. Mandel EI, Fox M, Schell JO, Cohen RA. Shared decision-making and patient communication in nephrology practice. *Adv Kidney Dis Health*. 2024;31(1):5-12. doi:10.1053/j.ajkd.2023.12.003

24. Saeed F, Kazi BS, Syed M, Fiscella KA, Duberstein PR. Patient activation, social support, physician trust, and shared dialysis decision-making: a cross-sectional investigation. *Kidney Med.* 2025;7(6):101014. doi:10.1016/j.xkme.2025.101014

25. Kazi BS, Duberstein PR, Kluger BM, et al. Prevalence and correlates of preference-concordant care among hospitalized people receiving maintenance dialysis. *Kidney360*. 2023;4(6):e751-e758. doi:10.34067/KID.0000000000000131

26. Finderup J, Dam Jensen J, Lomborg K. Evaluation of a shared decision-making intervention for dialysis choice at four Danish hospitals: a qualitative study of patient perspective. *BMJ Open*. 2019;9(10):e029090. doi:10.1136/bmjopen-2019-029090

27. Lee YK, Kim YH, Kim DH, et al. Shared decision-making intervention regarding dialysis modality in patients with CKD stage 5. *Medicine (Baltimore)*. 2023;102(19):e33695. doi:10.1097/MD.00000000000033695

28. Kohatsu K, Kojima S, Shibagaki Y, Sakurada T. Shared decision-making in selecting modality of renal replacement therapy confers better patient prognosis after the initiation of dialysis. *Ther Apher Dial*. 2025;29(1):34-41. doi:10.1111/1744-9987.14192

29. Renal Physicians Association. *Shared Decision-Making in the Appropriate Initiation of and Withdrawal from Dialysis*. 2nd ed. Renal Physicians Association; 2010.

30. Choosing Wisely. Homepage. Accessed April 21, 2025. <https://www.choosingwisely.org>

31. Galla JH; The Renal Physicians Association and the American Society of Nephrology. Clinical practice guideline on shared decision-making in the appropriate initiation of and withdrawal from dialysis. *J Am Soc Nephrol*. 2000;11(7):1340-1342. doi:10.1681/ASN.V1171340

32. Williams AW, Dwyer AC, Eddy AA, et al; American Society of Nephrology Quality, and Patient Safety Task Force. Critical and honest conversations: the evidence behind the "Choosing Wisely" campaign recommendations by the American Society of Nephrology. *Clin J Am Soc Nephrol*. 2012;7(10):1664-1672. doi:10.2215/CJN.04970512

33. Joseph-Williams N, Elwyn G, Edwards A. Knowledge is not power for patients: a systematic review and thematic synthesis of patient-reported barriers and facilitators to shared decision making. *Patient Educ Couns*. 2014;94(3):291-309. doi:10.1016/j.pec.2013.10.031

34. Grubbs V, Tuot DS, Powe NR, O'Donoghue D, Chesla CA. System-level barriers and facilitators for foregoing or withdrawing dialysis: a qualitative study of nephrologists in the United States and England. *Am J Kidney Dis*. 2017;70(5):602-610. doi:10.1053/j.ajkd.2016.12.015

35. Allen RJ, Saeed F. Dialysis organization online information on kidney failure treatments: a content analysis using corpus linguistics. *Kidney Med*. 2022;4(6):100462. doi:10.1016/j.xkme.2022.100462

36. Tangri N, Stevens LA, Griffith J, et al. A predictive model for progression of chronic kidney disease to kidney failure. *JAMA*. 2011;305(15):1553-1559. doi:10.1001/jama.2011.451

37. Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group. KDIGO 2024 Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease. *Kidney Int*. 2024;105(4S):S117-S314. doi:10.1016/j.kint.2023.10.018

38. Campbell GA, Bolton WK. Referral and comanagement of the patient with CKD. *Adv Chronic Kidney Dis*. 2011;18(6):420-427. doi:10.1053/j.ackd.2011.10.006

39. Lim CC, Liew ZH, Ng LC, Choo J, Kwek JL. How primary care physicians view kidney supportive care. *Clin Kidney J*. 2023;17(1):sfad305. doi:10.1093/ckj/sfad305

40. Greer RC, Ameling JM, Cavanaugh KL, et al. Specialist and primary care physicians' views on barriers to adequate preparation of patients for renal replacement therapy: a qualitative study. *BMC Nephrol*. 2015;16:37. doi:10.1186/s12882-015-0020-x

41. Davison SN, Pommer W, Brown MA, et al. Conservative kidney management and kidney supportive care: core components of integrated care for people with kidney failure. *Kidney Int*. 2024;105(1):35-45. doi:10.1016/j.kint.2023.10.001

42. Thamer M, Kaufman JS, Zhang Y, Zhang Q, Cotter DJ, Bang H. Predicting early death among elderly dialysis patients: development and validation of a risk score to assist shared decision making for dialysis initiation. *Am J Kidney Dis*. 2015;66(6):1024-1032. doi:10.1053/j.ajkd.2015.05.014

43. Liu AY, Hammes M, Angelos P, et al. Expanding the scope of shared decision-making in vascular access planning for hemodialysis: a case for interprofessional collaboration. *BMC Nephrol*. 2025;26(1):297. doi:10.1186/s12882-025-04261-6

44. Bossola M, Hedayati SS, Brys ADH, Gregg LP. Fatigue in patients receiving maintenance hemodialysis: a review. *Am J Kidney Dis*. 2023;82(4):464-480. doi:10.1053/j.ajkd.2023.02.008

45. Morton RL, Tong A, Howard K, Snelling P, Webster AC. The views of patients and carers in treatment decision making for chronic kidney disease: systematic review and thematic synthesis of qualitative studies. *BMJ*. 2010;340:c112. doi:10.1136/bmj.c112

46. Burton JO, Graham-Brown MPM. Nocturnal hemodialysis: an underutilized modality? *Curr Opin Nephrol Hypertens*. 2018;27(6):472-477. doi:10.1097/MNH.0000000000000450

47. Culleton BF, Walsh M, Klarenbach SW, et al. Effect of frequent nocturnal hemodialysis vs conventional hemodialysis on left ventricular mass and quality of life: a randomized controlled trial. *JAMA*. 2007;298(11):1291-1299. doi:10.1001/jama.298.11.1291

48. Rocco MV, Daugirdas JT, Greene T, et al; FHN Trial Group. Long-term effects of frequent nocturnal hemodialysis on mortality: the Frequent Hemodialysis Network (FHN) Nocturnal trial. *Am J Kidney Dis*. 2015;66(3):459-468. doi:10.1053/j.ajkd.2015.02.331

49. Pauly RP. Survival comparison between intensive hemodialysis and transplantation in the context of the existing literature surrounding nocturnal and short-daily hemodialysis. *Nephrol Dial Transplant*. 2013;28(1):44-47. doi:10.1093/ndt/gfs419

50. Hull KL, Quann N, Glover S, et al. Evaluating the clinical experience of a regional in-center nocturnal hemodialysis program: the patient and staff perspective. *Hemodial Int*. 2021;25(4):447-456. doi:10.1111/ndi.12953

51. Weinhandl ED, Nieman KM, Gilbertson DT, Collins AJ. Hospitalization in daily home hemodialysis and matched thrice-weekly in-center hemodialysis patients. *Am J Kidney Dis*. 2015;65(1):98-108. doi:10.1053/j.ajkd.2014.06.015

52. Ayus JC, Mizani MR, Achinger SG, Thadhani R, Go AS, Lee S. Effects of short daily versus conventional hemodialysis on left ventricular hypertrophy and inflammatory markers: a prospective, controlled study. *J Am Soc Nephrol*. 2005;16(9):2778-2788. doi:10.1681/ASN.2005040392

53. Welch JL, Thomas-Hawkins C, Bakas T, et al. Needs, concerns, strategies, and advice of daily home hemodialysis caregivers. *Clin Nurs Res*. 2014;23(6):644-663. doi:10.1177/1054773813495407

54. Seshasai RK, Wong T, Glickman JD, Shea JA, Dember LM. The home hemodialysis patient experience: a qualitative assessment of modality use and discontinuation. *Hemodial Int*. 2019;23(2):139-150. doi:10.1111/ndi.12713

55. Wu HHL, Dhaygude AP, Mitra S, Tennankore KK. Home dialysis in older adults: challenges and solutions. *Clin Kidney J*. 2022;16(3):422-431. doi:10.1093/ckj/sfac220

56. Bi SH, Tang W, Rigodanzo-Massey N, et al. Infection-related hospitalizations in home hemodialysis patients. *Blood Purif*. 2015;40(3):187-193. doi:10.1159/000433517

57. Brown EA, Johansson L, Farrington K, et al. Broadening Options for Long-term Dialysis in the Elderly (BOLDE): differences in quality of life on peritoneal dialysis compared to haemodialysis for older patients. *Nephrol Dial Transplant*. 2010;25(11):3755-3763. doi:10.1093/ndt/gfq212

58. Marrón B, Remón C, Pérez-Fontán M, Quirós P, Ortiz A. Benefits of preserving residual renal function in peritoneal dialysis. *Kidney Int Suppl*. 2008;(108):S42-S51. doi:10.1038/sj.ki.5002600

59. Jiang C, Zheng Q. Outcomes of peritoneal dialysis in elderly vs non-elderly patients: a systematic review and meta-analysis. *PLoS One*. 2022;17(2):e0263534. doi:10.1371/journal.pone.0263534

60. Lim WH, Dogra GK, McDonald SP, Brown FG, Johnson DW. Compared with younger peritoneal dialysis patients, elderly patients have similar peritonitis-free survival and lower risk of technique failure, but higher risk of peritonitis-related mortality. *Perit Dial Int*. 2011;31(6):663-671. doi:10.3747/pdi.2010.00209

61. Li H, Li X, Feng S, Zhang G, Wang W, Wang S. Sleep disorders and its related risk factors in patients undergoing chronic peritoneal dialysis. *Chin Med J (Engl)*. 2014;127(7):1289-1293. doi:10.3760/cma.j.issn.0366-6999.20132428

62. Tonelli M, Wiebe N, Knoll G, et al. Systematic review: kidney transplantation compared with dialysis in clinically relevant outcomes. *Am J Transplant*. 2011;11(10):2093-2109. doi:10.1111/j.1600-6143.2011.03686.x

63. Chadban SJ, Ahn C, Axelrod DA, et al. KDIGO Clinical Practice Guideline on the Evaluation and Management of Candidates for Kidney Transplantation. *Transplantation*. 2020;104(4S1)(suppl 1):S11-S103. doi:10.1097/TP.00000000000003136

64. United States Renal Data System. 2022 USRDS annual data report: epidemiology of kidney disease in the United States. Accessed August 11, 2025. <https://usrds-adr.niddk.nih.gov/2022>

65. Buur LE, Madsen JK, Eidemak I, et al. Does conservative kidney management offer a quantity or quality of life benefit compared to dialysis? a systematic review. *BMC Nephrol*. 2021;22(1):307. doi:10.1186/s12882-021-02516-6

66. Fu R, Sekercioglu N, Mathur MB, Couban R, Coyte PC. Dialysis initiation and all-cause mortality among incident adult patients with advanced CKD: a meta-analysis with bias analysis. *Kidney Med*. 2020;3(1):64-75.e1. doi:10.1016/j.xkme.2020.09.013

67. Ramer SJ, McCall NN, Robinson-Cohen C, et al. Health outcome priorities of older adults with advanced CKD and concordance with their nephrology providers' perceptions. *J Am Soc Nephrol*. 2018;29(12):2870-2878. doi:10.1681/ASN.2018060657

68. Morton RL, Snelling P, Webster AC, et al. Factors influencing patient choice of dialysis versus conservative care to treat end-stage kidney disease. *CMAJ*. 2012;184(5):E277-E283. doi:10.1503/cmaj.111355

69. Shah KK, Murtagh FEM, McGeechan K, et al. Health-related quality of life and well-being in people over 75 years of age with end-stage kidney disease managed with dialysis or comprehensive conservative care: a cross-sectional study in the UK and Australia. *BMJ Open*. 2019;9(5):e027776. doi:10.1136/bmjjopen-2018-027776

70. Chou A, Li C, Farshid S, Hoffman A, Brown M. Survival, symptoms and hospitalization of older patients with advanced chronic kidney disease managed without dialysis. *Nephrol Dial Transplant*. 2023;38(2):405-413. doi:10.1093/ndt/gfac154

71. Verberne WR, Dijkers J, Kelder JC, et al. Value-based evaluation of dialysis versus conservative care in older patients with advanced chronic kidney disease: a cohort study. *BMC Nephrol*. 2018;19(1):205. doi:10.1186/s12882-018-1004-4

72. Tam-Tham H, Ravani P, Zhang J, et al. Association of initiation of dialysis with hospital length of stay and intensity of care in older adults with kidney failure. *JAMA Netw Open*. 2020;3(2):e200222. doi:10.1001/jamanetworkopen.2020.0222

73. Murtagh FE, Addington-Hall JM, Higginson IJ. End-stage renal disease: a new trajectory of functional decline in the last year of life. *J Am Geriatr Soc*. 2011;59(2):304-308. doi:10.1111/j.1532-5415.2010.03248.x

74. Kurella Tamura M, Covinsky KE, Chertow GM, Yaffe K, Landefeld CS, McCulloch CE. Functional status of elderly adults before and after initiation of dialysis. *N Engl J Med*. 2009;361(16):1539-1547. doi:10.1056/NEJMoa0904655

75. Wu Z, Chen L, Zhao M. Impact of peritoneal dialysis and hemodialysis on mortality in patients with end-stage renal disease: a systematic review and meta-analysis. *Ther Apher Dial*. 2025;29(1):79-88. doi:10.1111/1744-9987.14195

76. Yeates K, Zhu N, Vonesh E, Trpeski L, Blake P, Fenton S. Hemodialysis and peritoneal dialysis are associated with similar outcomes for end-stage renal disease treatment in Canada. *Nephrol Dial Transplant*. 2012;27(9):3568-3575. doi:10.1093/ndt/gfr674

77. Winkelmayer WC, Glynn RJ, Mittleman MA, Levin R, Pliskin JS, Avorn J. Comparing mortality of elderly patients on hemodialysis versus peritoneal dialysis: a propensity score approach. *J Am Soc Nephrol*. 2002;13(9):2353-2362. doi:10.1097/01.ASN.0000025785.41314.76

78. Han SS, Park JY, Kang S, et al. Dialysis modality and mortality in the elderly: a meta-analysis. *Clin J Am Soc Nephrol*. 2015;10(6):983-993. doi:10.2215/CJN.05160514

79. Harris SA, Lamping DL, Brown EA, Constantinovic N; North Thames Dialysis Study (NTDS) Group. Clinical outcomes and quality of life in elderly patients on peritoneal dialysis versus hemodialysis. *Perit Dial Int*. 2002;22(4):463-470. doi:10.1177/089686080202200404

80. Lamping DL, Constantinovic N, Roderick P, et al. Clinical outcomes, quality of life, and costs in the North Thames Dialysis Study of elderly people on dialysis: a prospective cohort study. *Lancet*. 2000;356(9241):1543-1550. doi:10.1016/S0140-6736(00)03123-8

81. National Institute for Health and Care Excellence. Chronic kidney disease (stage 5): peritoneal dialysis. Accessed July 29, 2025. <https://www.nice.org.uk/guidance/cg125/resources/chronic-kidney-disease-stage-5-peritoneal-dialysis-35109451582405>

82. Wolfgram DF, Szabo A, Murray AM, Whittle J. Risk of dementia in peritoneal dialysis patients compared with hemodialysis patients. *Perit Dial Int*. 2015;35(2):189-198. doi:10.3747/pdi.2014.00213

83. Wang IK, Cheng YK, Lin CL, et al. Comparison of subdural hematoma risk between hemodialysis and peritoneal dialysis patients with ESRD. *Clin J Am Soc Nephrol*. 2015;10(6):994-1001. doi:10.2215/CJN.08140814

84. Wang HH, Hung SY, Sung JM, Hung KY, Wang JD. Risk of stroke in long-term dialysis patients compared with the general population. *Am J Kidney Dis*. 2014;63(4):604-611. doi:10.1053/j.ajkd.2013.10.013

85. Schoot TS, Goto NA, van Marum RJ, Hilbrands LB, Kerckhoffs APM. Dialysis or kidney transplantation in older adults? a systematic review summarizing functional, psychological, and quality of life-related outcomes after start of kidney replacement therapy. *Int Urol Nephrol*. 2022;54(11):2891-2900. doi:10.1007/s11255-022-03208-2

86. Wolfe RA, Ashby VB, Milford EL, et al. Comparison of mortality in all patients on dialysis, patients on dialysis awaiting transplantation, and recipients of a first cadaveric transplant. *N Engl J Med*. 1999;341(23):1725-1730. doi:10.1056/NEJM199912023412303

87. Oniscu GC, Brown H, Forsythe JL. How great is the survival advantage of transplantation over dialysis in elderly patients? *Nephrol Dial Transplant*. 2004;19(4):945-951. doi:10.1093/ndt/gfh022

88. Bae S, Massie AB, Thomas AG, et al. Who can tolerate a marginal kidney? predicting survival after deceased donor kidney transplant by donor-recipient combination. *Am J Transplant*. 2019;19(2):425-433. doi:10.1111/ajt.14978

89. Lim JH, Lee GY, Jeon Y, et al. Elderly kidney transplant recipients have favorable outcomes but increased infection-related mortality. *Kidney Res Clin Pract*. 2022;41(3):372-383. doi:10.23876/j.krcp.21.207

90. Rao PS, Merion RM, Ashby VB, Port FK, Wolfe RA, Kayler LK. Renal transplantation in elderly patients older than 70 years of age: results from the Scientific Registry of Transplant Recipients. *Transplantation*. 2007;83(8):1069-1074. doi:10.1097/01.tp.0000259621.56861.31

91. Jankowska M, Bzoma B, Małyszko J, et al. Early outcomes and long-term survival after kidney transplantation in elderly versus younger recipients from the same donor in a matched-pairs analysis. *Medicine (Baltimore)*. 2021;100(51):e28159. doi:10.1097/MD.00000000000028159

92. Golębierski T, Augustyniak-Bartosik H, Weyde W, Klinger M. Geriatric syndromes in patients with chronic kidney disease. *Postepy Hig Med Dosw (Online)*. 2016;70(0):581-589. doi:10.5604/17322693.1204562

93. Nair D, Liu CK, Raslari R, McAdams-DeMarco M, Hall RK. Frailty in kidney disease: a comprehensive review to advance its clinical and research applications. *Am J Kidney Dis*. 2025;85(1):89-103. doi:10.1053/j.ajkd.2024.04.018

94. van Loon IN, Wouters TR, Boereboom FTJ, Bots ML, Verhaar MC, Hamaker ME. The relevance of geriatric impairments in patients starting dialysis: a systematic review. *Clin J Am Soc Nephrol*. 2016;11(7):1245-1259. doi:10.2215/CJN.06660615

95. Gallo JJ, Paveza GJ. Activities of daily living and instrumental activities of daily living assessment. In: Gallo JJ, Bogner HR, Fulmer T, Paveza GJ, eds. *Handbook of Geriatric Assessment*. 4th ed. Jones and Bartlett Publishers; 2006:193-240.

96. Anderson F, Downing GM, Hill J, Casorso L, Lerch N. Palliative Performance Scale (PPS): a new tool. *J Palliat Care*. 1996;12(1):5-11. doi:10.1177/082585979601200102

97. Rockwood K, Song X, MacKnight C, et al. A global clinical measure of fitness and frailty in elderly people. *CMAJ*. 2005;173(5):489-495. doi:10.1503/cmaj.050051

98. Borson S, Scanlan JM, Chen P, Ganguli M. The Mini-Cog as a screen for dementia: validation in a population-based sample. *J Am Geriatr Soc*. 2003;51(10):1451-1454. doi:10.1046/j.1532-5415.2003.51465.x

99. Schmidt RJ, Landry DL, Cohen L, et al. Derivation and validation of a prognostic model to predict mortality in patients with advanced chronic kidney disease. *Nephrol Dial Transplant*. 2019;34(9):1517-1525. doi:10.1093/ndt/gfy305

100. QxMD. Predicting 6 and 12 month mortality in CKD patients. Accessed August 11, 2025. https://qxmd.com/calculate/calculator_446/predicting-6-and-12-month-mortality-in-ckd-patients

101. Kurella Tamura M, Vittinghoff E, Hsu CY, et al; CRIC Study Investigators. Loss of executive function after dialysis initiation in adults with chronic kidney disease. *Kidney Int*. 2017;91(4):948-953. doi:10.1016/j.kint.2016.11.015

102. Iyase O, Okai D, Brown E. Cognitive function and advanced kidney disease: longitudinal trends and impact on decision-making. *Clin Kidney J*. 2017;10(1):89-94. doi:10.1093/ckj/sfw128

103. Eneanya ND, Percy SG, Stallings TL, et al. Use of a supportive kidney care video decision aid in older patients: a randomized controlled trial. *Am J Nephrol*. 2020;51(9):736-744. doi:10.1159/000509711

104. Brouwers M, Stacey D, O'Connor A. Knowledge creation: synthesis, tools and products. *CMAJ*. 2010;182(2):E68-E72. doi:10.1503/cmaj.081230

105. Stacey D, Légaré F, Lewis K, et al. Decision aids for people facing health treatment or screening decisions. *Cochrane Database Syst Rev*. 2017;(4):CD001431. doi:10.1002/14651858.CD001431.pub5

106. Davis JL, Davison SN. Hard choices, better outcomes: a review of shared decision-making and patient decision aids around dialysis initiation and conservative kidney management. *Curr Opin Nephrol Hypertens*. 2017;26(3):205-213. doi:10.1097/MNH.0000000000000321

107. Saeed F, Dahl S, Horowitz RK, et al. Development and acceptability of a kidney therapy decision aid for patients aged 75 years and older: a design-based research involving patients, caregivers, and a multidisciplinary team. *Kidney Med*. 2023;5(7):100671. doi:10.1016/j.xkme.2023.100671

108. Ladin K, Tighiouart H, Bronzi O, et al. Effectiveness of an intervention to improve decision making for older patients with advanced chronic kidney disease: a randomized controlled trial. *Ann Intern Med*. 2023;176(1):29-38. doi:10.7326/M22-1543

109. Saeed F, Jawed A, Dahl S, et al. Palliative care acceptability for older adults with advanced CKD:

a qualitative study of patients and nephrologists. *Kidney Med.* 2024;6(10):100883. doi:10.1016/j.kxme.2024.100883

110. Saeed F, Horowitz RK, Allen RJ, et al. Feasibility and acceptability of a palliative care intervention among older adults with advanced CKD and their caregivers. *Kidney360.* 2025;6(2):236-246. doi:10.34067/KID.0000000622

111. Tinetti ME, Naik AD, Dindo L, et al. Association of patient priorities-aligned decision-making with patient outcomes and ambulatory health care burden among older adults with multiple chronic conditions: a nonrandomized clinical trial. *JAMA Intern Med.* 2019;179(12):1688-1697. doi:10.1001/jamainternmed.2019.4235

112. Cohen RA, Bursic A, Chan E, Norman MK, Arnold RM, Schell JO. NephroTalk multimodal conservative care curriculum for nephrology fellows. *Clin J Am Soc Nephrol.* 2021;16(6):972-979. doi:10.2215/CJN.11770720

113. Frydman JL, Gelfman LP, Lindenberger EC, et al. Virtual Geritalk: improving serious illness communication of clinicians who care for older adults. *J Pain Symptom Manage.* 2021;62(3):e206-e212. doi:10.1016/j.jpainsymman.2021.02.024

114. Erturkmen GBL, Juul NK, Redondo IE, et al; ADLIFE study group. Design, implementation and usability analysis of patient empowerment in ADLIFE project via patient reported outcome measures and shared decision making. *BMC Med Inform Decis Mak.* 2024;24(1):185. doi:10.1186/s12911-024-02588-y

115. Hargraves IG, Fournier AK, Montori VM, Bierman AS. Generalized shared decision making approaches and patient problems, adapting AHRQ's SHARE approach for purposeful SDM. *Patient Educ Couns.* 2020;103(10):2192-2199. doi:10.1016/j.pec.2020.06.022

116. Gurgel do Amaral MS, Reijneveld SA, Meems LMG, Almansa J, Navis GJ, de Winter AF. Multimorbidity prevalence and patterns and their associations with health literacy among chronic kidney disease patients. *J Nephrol.* 2022;35(6):1709-1719. doi:10.1007/s40620-021-01229-1

117. Gonzales KM, Koch-Weser S, Kenefick K, et al. Decision-making engagement preferences among older adults with CKD. *J Am Soc Nephrol.* 2024;35(6):772-781. doi:10.1016/ASN.0000000000000341

118. Resnickow K, Catley D, Goggin K, Hawley S, Williams GC. Shared decision making in health care: theoretical perspectives for why it works and for whom. *Med Decis Making.* 2022;42(6):755-764. doi:10.1177/0272989X21058068

119. Brennan F, Stewart C, Burgess H, et al. Time to improve informed consent for dialysis: an international perspective. *Clin J Am Soc Nephrol.* 2017;12(6):1001-1009. doi:10.2215/CJN.09740916

120. Selman LE, Shaw CB, Sowden R, et al. Communicating treatment options to older patients with advanced kidney disease: a conversation analysis study. *BMC Nephrol.* 2024;25(1):417. doi:10.1186/s12882-024-03855-w

121. UpToDate. Your Health Answers: treatment options for kidney failure. Accessed August 11, 2025. <https://patient.health-ce.wolterskluwer.com/DART/>

122. Kidney Supportive Care Research Group. Conservative kidney management (CKM). Accessed August 11, 2025. <https://www.ckmcare.com/>

123. Hole B, Coast J, Caskey FJ, et al. A choice experiment of older patients' preferences for kidney failure treatments. *Kidney Int.* 2025;107(1):130-142. doi:10.1016/j.kint.2024.08.032

124. Saeed F, Moss AH, Duberstein PR, Fiscella KA. Enabling patient choice: the "deciding not to decide" option for older adults facing dialysis decisions. *J Am Soc Nephrol.* 2022;33(5):880-882. doi:10.1681/ASN.20201081143

125. Lee T, Thamer M, Zhang Y, Zhang Q, Allon M. Outcomes of elderly patients after predialysis vascular access creation. *J Am Soc Nephrol.* 2015;26(12):3133-3140. doi:10.1681/ASN.2014090938

126. Allen R, Nakonechny A, Norton SA, Saeed F. Questions older people and caregivers ask about kidney therapies: a computer-assisted analysis. *Patient Educ Couns.* 2025;135:108713. doi:10.1016/j.pec.2025.108713

127. Gilbertson EL, Krishnasamy R, Foote C, Kennard AL, Jardine MJ, Gray NA. Burden of care and quality of life among caregivers for adults receiving maintenance dialysis: a systematic review. *Am J Kidney Dis.* 2019;73(3):332-343. doi:10.1053/j.ajkd.2018.09.006

128. Walavalkar A, Craswell A, Gray NA. Experiences of caregivers of patients with conservatively managed kidney failure: a mixed methods systematic review. *Can J Kidney Health Dis.* 2022;9:20543581221089080. doi:10.1177/20543581221089080

129. Chan KY, Yip T, Yap DY, et al. Enhanced psychosocial support for caregiver burden for patients with chronic kidney failure choosing not to be treated by dialysis or transplantation: a pilot randomized controlled trial. *Am J Kidney Dis.* 2016;67(4):585-592. doi:10.1053/j.ajkd.2015.09.021

130. Chu SY, Ibrahim N, Amit N, et al. Interventions to reduce caregiver burden among caregivers of chronic kidney disease (CKD) patients: a scoping review. *SAGE Open.* 2023;13(2):21582440231178703. doi:10.1177/21582440231178703

131. Wong SPY, Yu MK, Green PK, Liu CF, Hebert PL, O'Hare AM. End-of-life care for patients with advanced kidney disease in the US Veterans Affairs Health Care System, 2000-2011. *Am J Kidney Dis.* 2018;72(1):42-49. doi:10.1053/j.ajkd.2017.11.007

132. Wong SPY, Rubenzik T, Zelnick L, et al. Long-term outcomes among patients with advanced kidney disease who forgo maintenance dialysis: a systematic review. *JAMA Netw Open.* 2022;5(3):e222255. doi:10.1001/jamanetworkopen.2022.2255

133. Davison SN, Levin A, Moss AH, et al; Kidney Disease: Improving Global Outcomes. Executive summary of the KDIGO Controversies Conference on Supportive Care in Chronic Kidney Disease: developing a roadmap to improving quality care. *Kidney Int.* 2015;88(3):447-459. doi:10.1038/ki.2015.110

134. Neu S, Kjellstrand CM. Stopping long-term dialysis. an empirical study of withdrawal of life-supporting treatment. *N Engl J Med.* 1986;314(1):14-20. doi:10.1056/NEJM198601023140103

135. Qazi HA, Chen H, Zhu M. Factors influencing dialysis withdrawal: a scoping review. *BMC Nephrol.* 2018;19(1):96. doi:10.1186/s12882-018-0894-5

136. So S, Lei Li KC. Prognostication after dialysis withdrawal. *Kidney Int Rep.* 2024;9(7):2117-2124. doi:10.1016/j.kir.2024.04.045

137. Wachterman MW, Hailpern SM, Keating NL, Kurella Tamura M, O'Hare AM. Association between hospice length of stay, health care utilization, and Medicare costs at the end of life among patients who received maintenance hemodialysis. *JAMA Intern Med.* 2018;178(6):792-799. doi:10.1001/jamainternmed.2018.0256

138. Bursic AE, Schell JO. Hospice care in conservative kidney management. *Semin Nephrol.* 2023;43(1):151398. doi:10.1016/j.semephrol.2023.151398

139. Ernecoff NC, Bursic AE, Motter EM, Lagnese K, Taylor R, Schell JO. Description and outcomes of an innovative concurrent hospice-dialysis program. *J Am Soc Nephrol.* 2022;33(10):1942-1950. doi:10.1016/ASN.2022010064

140. Wachterman MW, Corneau EE, O'Hare AM, Keating NL, Mor V. Association of hospice payer with concurrent receipt of hospice and dialysis among US veterans with end-stage kidney disease: a retrospective analysis of a national cohort. *JAMA Health Forum.* 2022;3(10):e223708. doi:10.1001/jamahealthforum.2022.3708

141. Outland BE, Greenlee C, Vimalananda V, Candler S, Bering H, Arbaje A. Beyond the referral: principles of effective, ongoing primary and specialty care collaboration. Accessed August 11, 2025. https://www.acponline.org/sites/default/files/acp-policy-library/policies/beyond_the_referral_position_paper_2022.pdf

142. Diamantidis CJ, Powe NR, Jaar BG, Greer RC, Troll MU, Boulware LE. Primary care-specialist collaboration in the care of patients with chronic kidney disease. *Clin J Am Soc Nephrol.* 2011;6(2):334-343. doi:10.2215/CJN.06240710

143. Greer RC, Liu Y, Cavanaugh K, et al; National Kidney Foundation Education Committee. Primary care physicians' perceived barriers to nephrology referral and co-management of patients with CKD: a qualitative study. *J Gen Intern Med.* 2019;34(7):1228-1235. doi:10.1007/s11606-019-04975-y

144. Jiwa M, Chakera A, Dadich A, Ossolinski G, Hewitt V. The impact of the quality of communication from nephrologists to primary care practitioners: a literature review. *Curr Med Res Opin.* 2014;30(10):2093-2101. doi:10.1185/03007995.2014.936932

145. D'Ambruso SF, Coscarelli A, Hurvitz S, et al. Use of a shared mental model by a team composed of oncology, palliative care, and supportive care clinicians to facilitate shared decision making in a patient with advanced cancer. *J Oncol Pract.* 2016;12(11):1039-1045. doi:10.1200/JOP.2016.013722

146. Tam-Tham H, King-Shier KM, Thomas CM, et al. Prevalence of barriers and facilitators to enhancing conservative kidney management for older adults in the primary care setting. *Clin J Am Soc Nephrol.* 2016;11(11):2012-2021. doi:10.2215/CJN.04510416