

Kidney Supportive Care in Peritoneal Dialysis: Developing a Person-Centered Kidney Disease Care Plan

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Individuals receiving peritoneal dialysis (PD)—similar to those receiving hemodialysis—may experience high mortality coupled with a high symptom burden and reduced health-related quality of life. In this context, a discussion of the risks, benefits, and tradeoffs of PD and/or other kidney treatment modalities should be explored based on individual goals and preferences. Through these principles, kidney supportive care provides a person-centered approach to kidney disease care throughout the spectrum of kidney failure and earlier stages of chronic kidney disease. Kidney supportive care is offered in conjunction with life-prolonging therapies, including dialysis and kidney transplants, and is increasingly recognized as an integral part of advancing the care of PD patients. Using “My Kidney Care Roadmap” for shared decision making, kidney supportive care guides patients undergoing PD and their clinicians to (1) elicit patient goals, values, and priorities; (2) convey medical prognosis and suitable treatment options; and (3) ask “Which of these kidney treatment options will best help me achieve my goals and priorities?” to inform both current and future decisions, including choice of dialysis modalities, time-limited trials, and/or non-dialysis management. Recognizing that patient priorities and choices may evolve, this framework ultimately allows patients to continually reassess their PD care to better achieve goal-directed dialysis.

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Kidney Med. 4(2):100392
Published online December 2, 2021.

doi: 10.1016/j.xkme.2021.10.005

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WHAT IS KIDNEY SUPPORTIVE CARE AND WHY IS IT NEEDED IN PERITONEAL DIALYSIS?

Over the past decade, kidney supportive care has become an increasingly recognized, central aspect in advancing the care of patients with kidney failure and earlier stages of chronic kidney disease (CKD).¹⁻³ Kidney supportive care—also termed “kidney palliative care,” “renal supportive care,” or “renal palliative care” in various clinical or research settings—integrates palliative medicine principles in nephrology and focuses on providing an individualized approach to shared decision making (SDM), which is applied throughout the course of advanced CKD and dialysis decision making.⁴⁻⁶

At its core, kidney supportive care is the delivery of person-centered kidney disease care and the corresponding development of a person-centered kidney care plan. The definition of kidney supportive care has evolved over time, but the contemporary form of kidney supportive care includes kidney-specific symptom assessment and management; information-sharing, prognostication, and SDM through expert communication; interdisciplinary team support; nondialysis care (also called “conservative management”); and end-of-life care.³ Through a person-centered approach to kidney disease care, evidence-based practice continues to serve as a guide, but the locus of treatment decision making is shifted to reflect what is most important to the individual in achieving their goals and priorities.^{7,8}

Unfortunately, kidney supportive care continues to be underused.^{1,9} On a policy level, implementation of person-centered care in kidney disease management still requires substantial adjustments in financial structures and quality measures.² In clinical practice, misconceptions may be even

greater barriers to the implementation of kidney supportive care. First, kidney supportive care is not limited to end-of-life care, although the care of actively dying patients includes symptom control and family support, which are fundamental elements of kidney supportive care. Instead, kidney supportive care encompasses the spectrum of CKD and kidney failure management and provides longitudinal care throughout the illness trajectory, at points of critical illness, worsening clinical condition, or change in patient priorities.¹⁰ Second, kidney supportive care is not intended only for the care of elderly patients; despite the high prevalence of kidney failure and incidence of dialysis initiation in older individuals, supportive care is applicable to individuals of all ages.^{4,11} Finally, kidney supportive care is provided in conjunction with life-sustaining therapies such as dialysis and/or kidney transplants; it may include but is not equivalent to nondialysis care. In fact, the KDIGO 2018 Controversies Conference has explicitly recommended a shift away from a “one-size-fits-all” approach to dialysis, emphasizing the concept of “goal-directed dialysis’s in short, person-centered kidney care.¹²

Why is kidney supportive care important for patients undergoing PD? Current literature describing the need for kidney supportive care has focused on data from patients undergoing hemodialysis (HD), but little guidance exists specifically for patients receiving peritoneal dialysis (PD). As described subsequently in further detail, like HD patients, PD patients experience high mortality, which is frequently compounded by substantial and inadequately addressed burden of symptoms, limitations in prognostication, and treatment plans that may not be aligned with their goals and priorities.

PD patients also face unique challenges that distinguish their needs from those receiving HD. First, PD patients commonly retain a higher degree of residual kidney function compared with those undergoing HD. At this earlier point in the kidney disease trajectory, patients often have more treatment options to consider and a higher need for repeated discussions related to treatment modality re-evaluations in the context of clinical and psychosocial changes. Second, while accurate prognostic information is as important for PD patients as it is for HD patients, clinical tools specifically for PD patients are limited, leaving patients with a greater degree of uncertainty about their illness trajectory. In addition, the symptoms experienced by PD patients often differ from those of HD patients, not only in distribution but also in consequence. For example, both are at risk of infectious complications related to catheter infection, but unlike in HD, repeated PD catheter infections may prompt discussion of the suitability of continued long-term dialysis and/or an alteration in treatment modality altogether. Last, patients undergoing PD are perhaps more likely—implicit to their eligibility and subsequent selection of this home-based modality—to have better functional status prioritizing autonomy and self-directed care, a higher degree of psychosocial support, or both.¹³

As a result, the need for kidney supportive care in PD patients may be even greater than that for those on HD because of (1) potentially greater decision-making complexity and a wider range of treatment options to consider, (2) the greater magnitude of prognostic uncertainty with fewer available prognostic tools, (3) possible differences in range or type of symptoms experienced, and (4) subsequent importance of understanding individual PD patient motivations. These issues necessitate attention to upstream, longitudinal, goal-directed conversations that adapt with PD patients' values and priorities over time.

Through a kidney supportive care person-centered approach to kidney disease care, PD patients and providers will be better equipped not only to make dialysis decisions through the lens of individual goals and priorities but also to continually reframe their kidney treatment choices in the larger context of an ongoing and potentially evolving disease course.

MORTALITY AND PROGNOSTICATION IN PATIENTS RECEIVING PD

Despite advances in kidney disease therapies, patients with kidney failure continue to experience very high mortality and abbreviated lifespans. Dialysis and kidney transplants may increase survival, but do not restore normal life expectancy.¹¹ In comparison with the general population, prevalent kidney failure patients over the age of 75—also the age group most likely to initiate dialysis—have less than one-third of the expected survival (approximately 3 vs 10 years), further highlighting the need to assess quality versus quantity of time remaining for the individual patient.¹¹

Currently, the mortality of maintenance dialysis patients is largely drawn from patients receiving HD, not PD.

Consensus among the nephrology community suggests that mortality on PD and HD are largely comparable. Most recent US Renal Data System data show that the median 5-year survival for both PD and HD patients is approximately 40%-45%.¹¹ Because of complex differences in the study population and study design, there remains a lack of concrete evidence supporting the benefit of one dialysis modality over another.¹⁴⁻¹⁶ Likewise, in a large systematic review and meta-analysis of propensity score-matched studies comparing the mortality between incident PD and in-center HD patients, the authors found survival to be equivalent.¹⁷ Comparison of PD and HD cohorts actually eligible to undergo both the dialysis modalities also showed that survival was similar regardless of the modality selected.¹⁵ Some have also suggested that there may be an early survival advantage with PD and/or a later mortality benefit with HD, but these findings are still awaiting further corroboration.¹⁸

Despite similarly high mortality in PD versus HD, however, prognostication in PD may require an even more nuanced approach because of several complex factors. Prognosis in PD—as with advanced CKD and kidney failure in general—is variable and largely dependent upon the presence and severity of comorbid conditions.¹⁹ For patients contemplating initiation of dialysis, the potential survival benefit conferred by dialysis is attenuated by risk factors such as older age, ischemic heart disease, frailty, poor functional status, and/or multiple comorbid conditions.^{3,25-30} Additional time gained on dialysis is also likely to be spent receiving dialysis or addressing complications of dialysis; these consequences must be recognized as potential tradeoffs.³

Further exacerbating this prognostic uncertainty is that while several mortality risk scores have been created for patients receiving HD, there are a limited number of prognostic tools validated to predict mortality in PD (Table 1).²⁰⁻²⁴ While HD patients are less likely to transition to PD at a later time owing to inherent barriers such as lack of residual kidney function, functional ability, and/or psychosocial support, which likely affected their eligibility and decision to select HD in the first place, PD patients may have a longer clinical course, prompting a need for not only adjustments to their PD regimen but also changes in modalities such as to HD, kidney transplant, or nondialysis care, and back again. Even a time-limited trial of HD carries a risk of accelerated loss of residual kidney function attributed to hemodynamic effects of HD and must be carefully discussed with patients receiving PD.

Prognosis encompasses not only survival (time), but also functional status and health-related quality of life (HRQoL). Particularly for older patients, functional status is likely to decline precipitously after starting dialysis.³¹ In a study of patients initiating dialysis at 80 years of age or older—of which nearly 45% received PD—30% were found to have a significant loss of function and independence within the first 6 months of dialysis.³² PD patients

Table 1. Prognostic Tools for Patients Receiving PD

Prognostic Tool	Study Country	Patient Type	Score Measure or Model	Clinical Significance
Charlson Comorbidity Index (CCI) ²⁰	United States (University of Pittsburgh)	Incident PD patients (n = 268)	1 point: Myocardial infarction (history, no ECG changes only); Congestive heart failure; Peripheral vascular disease (includes aortic aneurysm ≥ 6 cm); Cerebrovascular disease: CVA with mild or no residual or TIA; Dementia; Chronic pulmonary disease; Connective tissue disease; Peptic ulcer disease; Mild liver disease (without portal hypertension, includes chronic hepatitis); Diabetes without end-organ damage (excludes diet-controlled alone). 2 points: Moderate or severe kidney disease; Diabetes with end-organ damage (retinopathy, neuropathy, nephropathy, or brittle diabetes); Tumor without metastases (exclude if >5 years from diagnosis); Leukemia (acute or chronic); Lymphoma. 3 points: Moderate or severe liver disease. 6 points: Metastatic solid tumor; AIDS (not just HIV positive). NOTE: For each decade >40 years of age, 1 point is added to the above score.	For every increase of 1 in the CCI score, the relative risk of death was 1.54 (95% confidence interval, RR, 1.36 to 1.74); mortality rate was 0 for patients with CCI of 2 or 3 and increased to approximately 50/100 patient-years for CCI score of 8 or greater.
Modified CCI in incident PD patients (mCCI-IPD) ²¹	Korea	Incident PD patients (n = 7,606; validation n = 664)	1 point: Mild liver disease; Chronic pulmonary disease. 2 points: Myocardial infarction; Hemiplegia; Congestive heart failure. 3 points: Diabetes; Any tumor (including leukemia and lymphoma); Cerebrovascular disease; Diabetes with end-organ damage. 4 points: Moderate to severe liver disease. 6 points: Metastatic solid tumor.	mCCI-IPD may better predict mortality for incident PD patients compared with CCI score.
Surprise Question ²²	Hong Kong, China	Prevalent PD patients (n = 367); 12-month mortality	"Would I be surprised if this patient died in the next 12 months?"	A clinical opinion of "No" (ie, "Not surprised if dies in the next 12 months") was an independent predictor of 12-month mortality and associated with 3.594 excess mortality risk (95% confidence interval: HR, 1.411 to 9.151, $P = 0.007$; positive predictive value 24.8%; negative predictive value 93.4%); "No" group had higher CCI scores, malnutrition—inflammation scores, prior peritonitis episodes; and lower serum albumin, total Kt/V, residual kidney function.
The Renal Epidemiology and Information Network (REIN) prognosis score ²³	France	Prevalent PD and HD patients >75 years of age; 6-month mortality	1 point: Diabetes; Dysrhythmia. 2 points: Body mass index <18.5 kg/m ² (2 points); Congestive heart failure stages III to IV; Peripheral vascular disease stages III to IV; Severe behavioral disorder; Unplanned dialysis. 3 points: Total dependency for transfers.	6-month mortality rate ranged from 8% in the lowest risk group (0 point) to 17% in the median group (2 points) and 70% in the highest risk group (≥ 9 points); age was not associated with early mortality.

(Continued)

Table 1 (Cont'd). Prognostic Tools for Patients Receiving PD

Prognostic Tool	Study Country	Patient Type	Score Measure or Model	Clinical Significance
Risk score to predict early death among elderly dialysis patients ²⁴	United States (United States Renal Data System [USRDS] data)	Incident PD and HD patients age 67 years and old (USRDS n = 98,678); 3- and 6-month mortality	0-3 points: Age (<70 years = 0; 70-74 years = 1; 75-79 years = 1; 80-84 years = 1; 85-89 years = 2; ≥90 years = 3). 1 point: Albumin level low (<3.5 g/dL) or unknown; Needs assistance in daily living; Lives in nursing home; Had or has cancer; Had or has heart failure; Hospitalized >1x or >1 month in last year.	3- and 6-month mortality ranged from 2 and 4%, respectively, in lowest score group (0 points) to 12% and 20%, respectively, with median score (3 points), and 39% and 55%, respectively, with highest scores (8 or more points).

Abbreviations: CVA, cerebrovascular accident; ECG, electrocardiogram; HD, hemodialysis; HR, hazard ratio; PD, peritoneal dialysis; RR, relative risk; TIA, transient ischemic attack.

have also been found to have lesser ability to engage in physical activity, work, and recreation than those with kidney transplants, but similar life participation compared with HD patients.³³ Since HRQoL may be maintained with minimal residual kidney function, the timing of initiation of PD also requires careful assessment of patient goals and priorities, and a time-limited trial of nondialysis care may be warranted before starting PD.^{28,29}

Anticipating an individual PD patient's illness trajectory can be challenging, and patients are likely to require repeated reframing and reassessment of their clinical situations over time. A person-centered, kidney supportive care approach to treatment decision-making conversations offers ongoing clarification of patient goals and priorities at each decision point.

SYMPTOM BURDEN AND HRQOL IN PATIENTS RECEIVING PD

Like HD patients, PD patients experience a high physical and psychosocial symptom burden and associated negative consequences that may affect their treatment choices and health-related outcomes. Important to note, however, is that the severity, pattern, and distribution of symptoms may differ in PD patients compared with those in HD patients. These potential differences should be recognized and carefully evaluated as patients contemplate the benefits and tradeoffs of each kidney treatment modality.

Over the past 2 decades, numerous studies have established the scope, complexity, and inter-relatedness of symptoms reported by patients with kidney failure treated by dialysis. In fact, the high symptom burden in maintenance dialysis patients is not only comparable to that of patients with cancer and other serious illnesses,³⁴⁻³⁶ but is also associated with impaired HRQoL.³⁶⁻³⁸ Systematic reviews describing symptom burden in maintenance dialysis concluded that patients commonly experience multiple symptoms, with at least pain, fatigue, pruritus, and constipation present in half of the individuals.^{25,39}

Studies dedicated to symptom burden experienced exclusively in patients with kidney failure receiving PD, rather than HD, are limited.^{40,41} One recent cross-sectional study, Broadening Options for Long-term Dialysis in the Elderly (BOLDE), directly compared PD and HD patients over the age of 65; it showed that patients receiving PD experienced a significantly fewer number of symptoms (8.6 and 9.7, respectively, $P = 0.039$) and less intrusion of the illness and/or treatment in their health ($P = 0.001$) than those receiving HD.⁴² Another comparison of symptom burden experienced by patients receiving PD, HD, and nondialysis advanced CKD (stage 4 or 5) demonstrated that the magnitude and severity of symptom burden may be lower in PD than in HD.⁴³ Patients receiving PD were most likely to experience fatigue (92.5%) as well as a >50% prevalence of constipation, decreased appetite, pruritus, and bone or joint pain. These differences in severity and distribution of symptoms suggest possible variations in symptom profiles based on dialysis modality.

What are the clinical implications of high symptom burden in PD patients? First, evidence suggests a comparable impact of high pain and symptom burden on HRQoL in both PD and HD patients. Unsurprisingly, high symptom burden is associated with serious negative consequences on HRQoL in patients receiving PD, mirroring results demonstrated in patients undergoing HD.³⁸ Multiple studies comparing patients receiving PD versus HD have reported comparable HRQoL and possibly higher treatment satisfaction with PD, but have not established a clear benefit of one modality over another.⁴⁴⁻⁴⁷ In the BOLDE study, the strongest determinant of negative impact on not only the self-reported physical and mental quality of life but also on depression scores was actually the number of symptoms experienced, exceeding the impact of multimorbidity. Moreover, the consequences of individual symptoms are interrelated; for example, chronic pain in dialysis patients is associated with increased depression and reduced HRQoL, and depression also negatively affects HRQoL in dialysis patients.^{45,48} Finally,

predialysis symptoms may also be predictors of prognosis with PD; in a study of over 800 incident PD patients, nausea and anorexia were found to be associated with short- and long-term mortality with PD.⁴⁹

Together, these studies highlight the importance of recognizing how high symptom burden in PD patients may not only affect health-related outcomes but also reflect the subjective patient perception of disease and, consequently, dialysis-related decision-making.

WHAT ARE PD PATIENTS' PRIORITIES?

Given the high mortality and symptom burden recognized in this population, understanding PD patients' goals, values, and priorities for their kidney disease and medical care allows clinicians to better provide goal-concordant recommendations. Although each patient's wishes must be assessed individually, prior studies provide important insight into the potential concerns and thought processes of PD patients that may affect current and future treatment decisions.

PD patients express wishes to have greater engagement in advance care planning with their kidney disease providers, but in reality, this does not occur for the majority of patients. A key study of end-of-life preferences of Canadian patients with stage 4 or 5 CKD (including 12% receiving PD) showed that not only did over 60% of patients regret their decision to start dialysis, but 90% did not recall discussing prognosis with their kidney providers, and only 38% had completed an advanced directive.⁵⁰ Likewise, studies have estimated that only approximately 40% of maintenance dialysis patients actually engage in advance care planning⁵¹ despite substantial evidence that dialysis patients wish to receive prognostic information and feel the need to have these discussions with their kidney disease providers.^{1,50,52}

In this context, uncovering patient perspectives is necessary and central to the kidney clinician's role.⁵³ Eligibility for PD most commonly depends on the assessment of physical function, cognitive dexterity, and psychosocial factors; however, patient preference for PD may be most strongly influenced by wishes to maintain "a normal life" and prioritize convenience and flexibility.⁵⁴ In a large qualitative study, PD patients emphasized quality of life, convenience of home treatment, and the ability to work as main factors in their choice of PD.⁵⁵ The Peritoneal Dialysis Outcomes and Practice Patterns Study (PDOPPS) of over 2,700 patients undergoing PD also revealed that individuals most frequently viewed receiving treatment at home and not requiring blood access as the major advantages of PD, while feeling abdominal fullness or bloating, having their home space taken up by PD supplies, and the impact or burden on family were the most severe disadvantages.⁵⁶ These perceived disadvantages were associated with a higher likelihood of transition to HD, lower HRQoL, and higher depression scores.

Patient attitudes toward dialysis responsibility and coping strategies may also influence decision making. In a large survey in Germany of over 600 maintenance patients, investigators showed that patient attitudes regarding dialysis may differ between patients electing PD versus HD; PD patients prioritized autonomy and/or taking control of their own care in dialysis modality selection.¹³ Coping strategies most often used by PD patients in the Empowering Patients on Choices for Renal Replacement Therapy (EPOCH-RRT) cohort were cognitive restructuring and problem solving; although social support was also identified as a coping strategy for some, it was not as frequently employed by HD patients.⁵⁷

These results provide insight into some of the most prominent patient-described perspectives and motivations of PD patients. Patient priorities affect both health-related behaviors and treatment choices and should be carefully explored in the processes of contemplating and undergoing PD.

USING THE KIDNEY SUPPORTIVE CARE ROADMAP TO ACHIEVE PERSON-CENTERED KIDNEY DISEASE PLANNING AND TREATMENT

For patients contemplating PD or any type of dialysis, the overarching role of kidney supportive care is to help patients and families develop a person-centered kidney care plan by integrating the patient's individualized values, goals, and priorities with their symptoms, prognosis, and treatment options through SDM.

In the international nephrology community, SDM has been increasingly recognized as a standard of advanced CKD care and is recommended by clinical guidelines, particularly for patients with older age and/or multimorbidity.⁵⁸⁻⁶⁰ This may begin with predialysis education regarding treatment options (HD, PD, kidney transplant, medical management, or nondialysis care)⁶¹ but must be coupled with an in-depth exploration of patient hopes, worries, and priorities what is most important to the patient in the context of their kidney disease state to achieve a goal-concordant treatment plan.³

Kidney disease patient decision aids have been increasingly recognized as important clinical tools in SDM. A detailed comparison of existing patient decision aids for kidney disease decision making is beyond the scope of this review; however, for further analyses, several recent reviews are available.^{58,62}

Existing data support the use of patient decision aids in kidney treatment decision making, with early but promising results.⁶² For example, multiple kidney disease patient decision aids—such as "My Kidneys, My Choice," "SHERPA," "My Life, My Dialysis Choice," and "Preparing for Kidney Treatment"—are easily accessible to patients and families and foster improvement in understanding of kidney treatment options.^{58,63-66} Implementation of an interdisciplinary plan-of-care patient decision aid ("My Dialysis Plan")

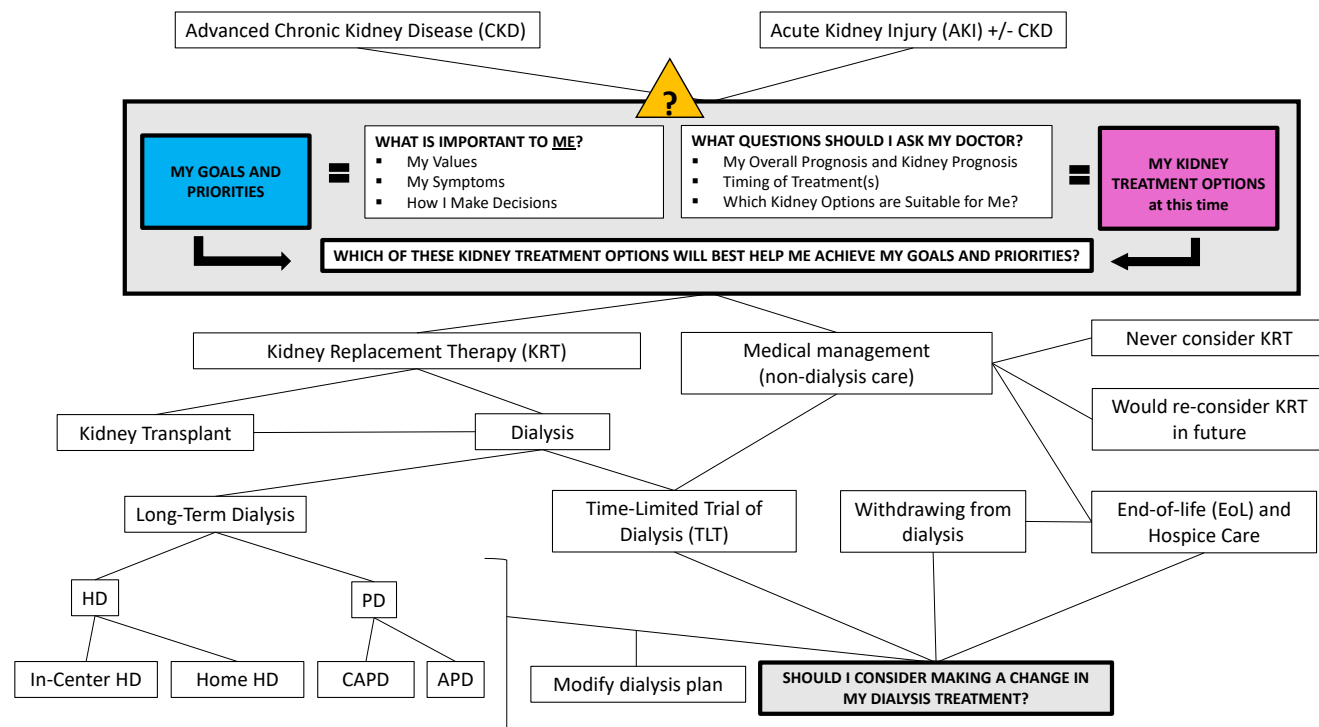


Figure 1. My Kidney Care Roadmap. APD, automated peritoneal dialysis; CAPD, continuous ambulatory peritoneal dialysis; HD, hemodialysis; PD, peritoneal dialysis.

in HD patients allowed for individualization of treatment preferences and increased care team understanding of patient behaviors and motivations; this may be applied in the future to other care settings to improve the dialysis experience.^{66,67} A recent randomized controlled trial of a web-based patient decision aid designed as part of the EPOCH-RRT Study for patients considering initiation of in-patient HD versus PD also demonstrated lower decisional conflict and higher knowledge following use.⁶⁸

However, recent kidney disease patient decision aids commonly focus on only a single segment or time point in the kidney disease illness trajectory. For example, some emphasize making a decision between types of dialysis (eg, in-center HD, home HD, automated PD, continuous ambulatory PD), while others compare more upstream decisions on kidney replacement therapy versus non-dialysis care.^{58,62} None of these patient decision aids offers a comprehensive picture of kidney disease care decisions over time how kidney disease or symptoms may evolve throughout the illness trajectory, how these changes may affect their goals and priorities (if at all), and how each choice may affect future concerns and treatment decisions.

In Fig 1, we offer a person-centered “My Kidney Care Roadmap,” which brings together the key components of existing kidney disease patient decision aids to show a “big-picture” view of the potential kidney care decision points that patients may encounter in the course of their

disease over time. It cannot be overemphasized that the central piece of any person-centered SDM conversation should not only contain the health care provider’s clinical assessment but also focus on eliciting and defining the patient’s goals and priorities. To this end, for any patient experiencing either an acute kidney injury or progression of CKD, the first step in the kidney supportive care roadmap is to ask, “What is important to me?” and “What questions should I ask my doctor?” in order to arrive at an understanding of “my goals and priorities” and “my kidney treatment options,” respectively; this allows the patient to ultimately determine “Which of these kidney treatment options will best help me achieve my goals and priorities?” Key considerations can be further explored in a more detailed checklist of patient (values, symptoms, and decision-making preferences) and provider (prognostication and treatment suitability) topics to be discussed in the SDM process, shown in Fig 2. The lines between treatment options are bidirectional, and at each branch point thereafter in the decision tree, the patient is encouraged to re-ask these questions as new clinical contexts arise.

The Kidney Care Roadmap can be used to make focused treatment decisions in the present moment but may also be a tool for patients and providers to use to look ahead broadly and develop a care plan for future conditions, recognizing that a patient’s goals and priorities may change over time as their kidney disease and/or health states change.⁶⁹ For example, using My Kidney

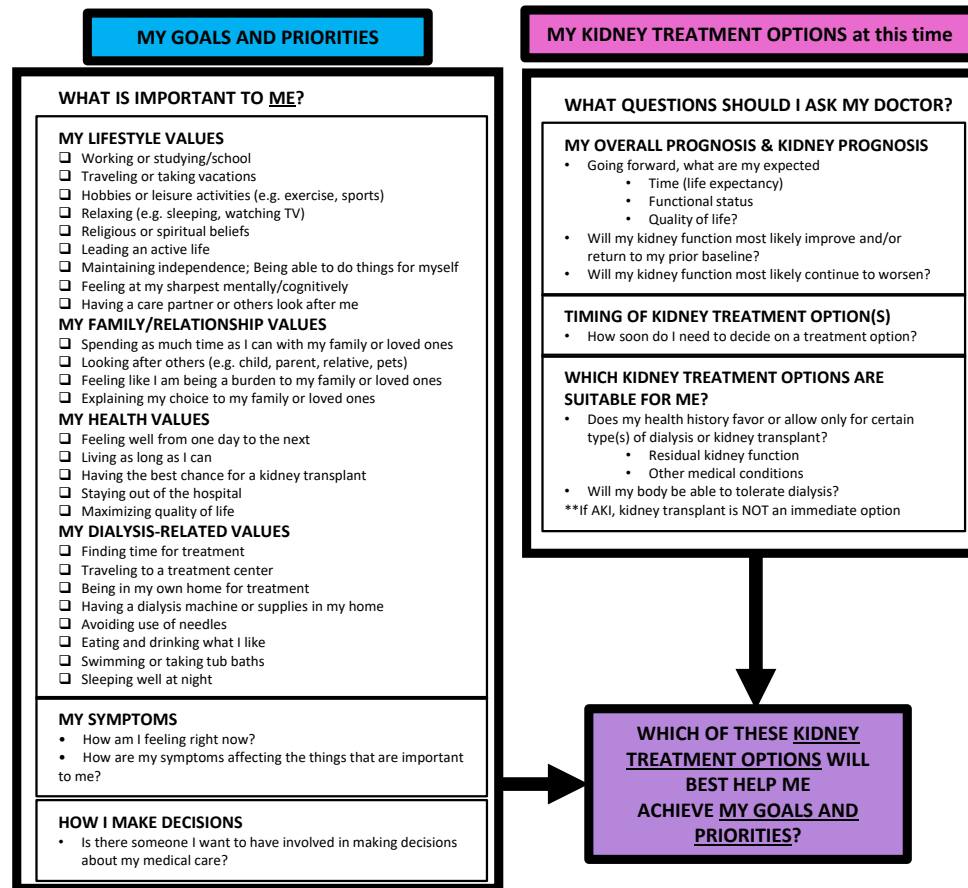


Figure 2. Defining kidney treatment options: What is important to me? What should I ask my doctor?

Care Roadmap, a patient with acute kidney injury on advanced CKD who is approaching indications for dialysis may identify lifestyle and health values that are most important to them, such as ensuring the ability to continue working and optimizing mental and cognitive acuity. Based on these priorities, the patient may make the decision to pursue long-term dialysis via PD. In addition to this, however, by increasing patient awareness of the next potential decision points shown in the kidney supportive care roadmap, the patient, at the time of PD initiation, may also share with their providers that in the future, they would wish to consider a time-limited trial of HD if at some point PD is no longer able to achieve the target clearance levels that would allow the patient to maintain the current high level of cognitive function. While these wishes would certainly need to be reassessed again if that situation were truly to arise, this is valuable information for the patient's care team and may help direct future conversations.

DEVELOPING A PERSON-CENTERED PD PRESCRIPTION THROUGH GOAL-DIRECTED STRATEGIES

For patients who elect PD as their kidney treatment modality, kidney supportive care principles in SDM continue

to provide a framework for achieving “goal-directed dialysis” by emphasizing ongoing discussion of PD prescription and treatment options.

PD prescription decision making is largely shaped by patient goals and priorities.⁷⁰ Upon PD initiation, choices regarding the type, timing, and composition of PD prescription are most frequently influenced by lifestyle values and may include selecting between beginning with continuous ambulatory PD versus automated PD, incremental versus full-dose strategies, and/or glucose versus nonglucose solution types.⁷⁰

After patients have achieved a stable PD prescription, it is equally important for patients to recognize that their kidney disease trajectory may continue to evolve, thereby potentially necessitating changes in kidney treatment plans. Kidney supportive care provides support to patients and families by focusing on the continual reassessment of symptoms and prognosis.⁴ Through a structured approach to periodic “check-ins,” for example, at regular PD clinic visits, patients are empowered to review their personal goals and priorities in the context of their current care and ask, “Should I consider making a change to my PD treatment?” Patients and their providers may use outlined questions to facilitate further conversation (see Fig 3). Depending on whether the current PD prescription is still allowing the patient to achieve their goals and priorities

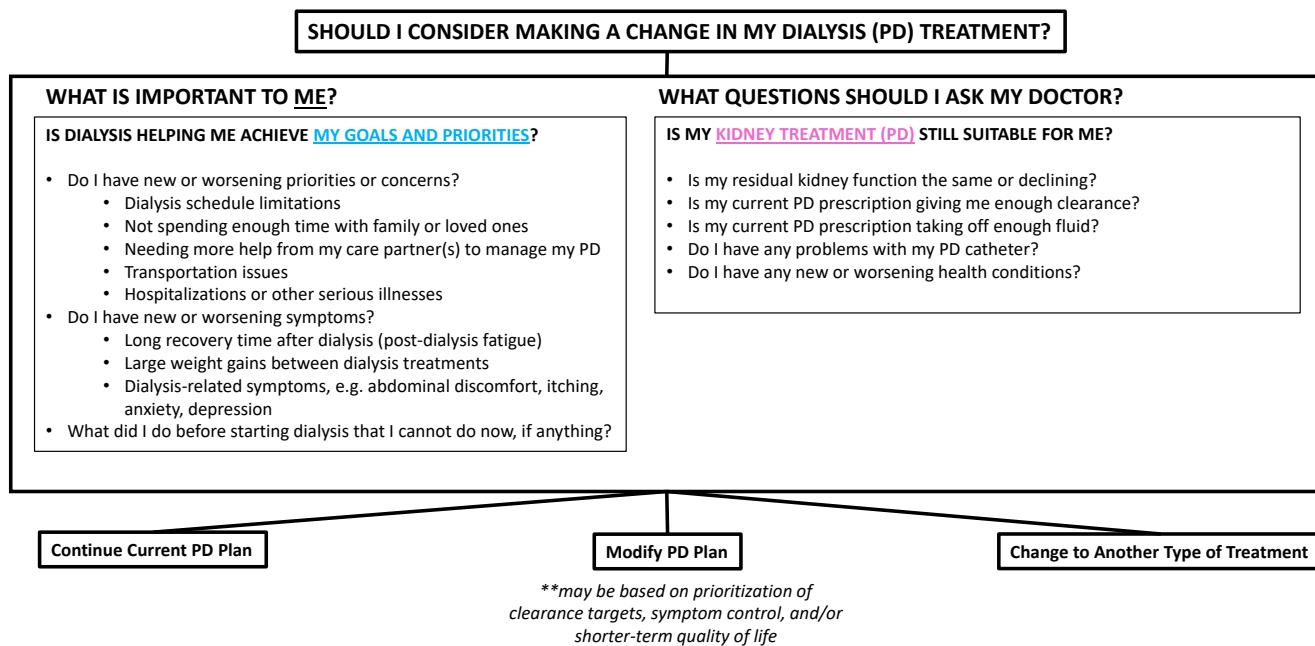


Figure 3. Should I consider making a change in my dialysis (PD) treatment? PD, peritoneal dialysis.

and continuing to be a suitable treatment option, the patient may wish to continue the current therapy, modify the treatment plan, or change to an alternative therapy (eg, switch to another type of dialysis long-term or via a time-limited trial, or consider withdrawal from dialysis, as shown in Fig 1).

Modifications in PD prescription may be tailored by kidney providers to reflect these specific patient-defined priorities. Although small solute clearance has been the basis for dialysis adequacy in clinical practice guidelines and standard dialysis care metrics, there is a lack of clear evidence linking these targets to clinical outcomes.¹² For patients with progressive decline in kidney function or limited life expectancy, prioritizing short-term HRQoL, symptom control, and/or physical function over traditional solute clearance targets may also become an increasingly prominent consideration for patients and families, particularly as patients approach the end of life.^{4,6,12,71} Furthermore, for older patients—for whom solute clearance targets have not been validated—this may also decrease both patient dialysis burden and caregiver burden.⁷²

Sometimes termed “low-intensity PD” or “palliative PD,” this goal-directed approach may offer an intermediate treatment option between conventional “full” dialysis and nondialysis care.^{69,71–73} Proposed strategies based on patient priorities are outlined in Box 1. Thus, goal-directed dialysis can allow for adaptation to the current prognosis and realistic expectations.

However, barriers to the implementation of goal-directed dialysis remain. Perhaps most strikingly, in the United States, where dialysis adequacy and dialysis center

performance continue to be measured by attainment of target small solute clearance levels (Kt/V), providers may encounter conflicts between the prioritization of patient goals and the ability to meet the established standard of care. The need for future adaptations in quality metrics and realignment of financial incentives continue to present challenges to the delivery of fully person-centered dialysis.^{12,71}

Box 1. Possible adjustments in peritoneal dialysis (PD) prescription based on patient goals and priorities

Possible PD plan modifications to consider based on patient-described goals and priorities:

If the patient's goal is to **prioritize clearance targets:**

- Adjust PD prescription:
 - ◇ Add a day dwell or manual exchange
 - ◇ Increase dwell volume and/or number of exchanges or cycles
 - ◇ Consider nonglucose fluids or different strength solutions

If the patient's goal is to **prioritize short-term quality of life and/or symptom management:**

- Adjust PD prescription:
 - ◇ Add day(s) off
 - ◇ Decrease dwell volume and/or number of exchanges or cycles
 - ◇ Increase number of exchanges or cycles (**if symptoms are expected to improve with increased clearance)
- Liberalize diet and/or fluid intake
- Minimize medication/pill burden

CONCLUSION

Through a kidney supportive care application of person-centered care in PD, patients and providers can (1) build both individual patient priorities and prognostic uncertainty into kidney care planning; (2) approach kidney care choices as part of a continuum, rather than as static or permanent states; and (3) continue to reassess and reframe next steps in their kidney disease care throughout the illness trajectory.

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Support: None.

Financial Disclosure: The authors declare that they have no relevant financial interests.

Acknowledgments: We thank Dr Jaime Uribarri for his insights regarding PD care planning and review of our manuscript.

Peer Review: Received May 27, 2021 in response to an invitation from the journal. Evaluated by 3 external peer reviewers with direct editorial input from an Associate Editor and a Deputy Editor. Accepted in revised form October 21, 2021.

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