U.S. Department of Veterans Affairs

Public Access Author manuscript

Am J Kidney Dis. Author manuscript; available in PMC 2021 January 04.

Published in final edited form as:

Am J Kidney Dis. 2020 May ; 75(5): 744–752. doi:10.1053/j.ajkd.2019.07.024.

Medical Record Documentation of Goals-of-Care Discussions Among Older Veterans With Incident Kidney Failure

Christina L. Bradshaw,

Division of Nephrology, Stanford University School of Medicine

Randall C. Gale[†],

Center for Innovation to Implementation, VA Palo Alto VA Health Care System, Palo Alto

Alexis Chettiar,

Program of Health Policy, University of California San Francisco, San Francisco

Sharfun J. Ghaus,

Division of Nephrology, Stanford University School of Medicine

I-Chun Thomas,

Geriatric Research and Education Clinical Center, VA Palo Alto Health Care System, Palo Alto

Enrica Fung,

Division of Nephrology, VA Loma Linda Healthcare System, Loma Linda, CA

Karl Lorenz,

Geriatric Research and Education Clinical Center, VA Palo Alto Health Care System, Palo Alto

Steven M. Asch,

Center for Innovation to Implementation, VA Palo Alto VA Health Care System, Palo Alto

Shuchi Anand,

Division of Nephrology, Stanford University School of Medicine

Manjula Kurella Tamura

Division of Nephrology, Stanford University School of Medicine

Geriatric Research and Education Clinical Center, VA Palo Alto Health Care System, Palo Alto

Abstract

Rationale & Objective: Elicitation and documentation of patient preferences is at the core of shared decision making and is particularly important among patients with high anticipated

Address for Correspondence: Christina Bradshaw, MD, Division of Nephrology, Stanford University School of Medicine, 777 Welch Rd, Ste DE, Palo Alto, CA 94304. cbradsha@stanford.edu.

[†]Deceased.

Authors' Contributions: Research idea and study design: RCG, EF, MKT; data acquisition: RCG, AC, SG, IT; data analysis/interpretation: CB, EF, SAnand, MKT; statistical analysis: CB, IT, MKT; mentorship: KL, SAsch. RCG died before the manuscript was submitted; CB affirms that he contributed to the research idea, study design, and data acquisition, and vouches for his coauthorship status; all other authors approved the final author list. Except as noted, each author contributed important intellectual content during manuscript drafting or revision and accepts accountability for the overall work by ensuring that questions pertaining to the accuracy or integrity of any portion of the work are appropriately investigated and resolved.

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

mortality. The extent to which older patients with incident kidney failure undertake such discussions with their providers is unknown and its characterization was the focus of this study.

Study Design: Retrospective cohort study.

Setting & Participants: A random sample of veterans 67 years and older with incident kidney failure receiving care from the US Veterans Health Administration between 2005 and 2010.

Exposures: Demographic and facility characteristics, as well as predicted 6-month mortality risk after dialysis initiation and documentation of resuscitation preferences.

Outcomes: Documented discussions of dialysis treatment and supportive care.

Analytical Approach: We reviewed medical records over the 2 years before incident kidney failure and up to 1 year afterward to ascertain the frequency and timing of documented discussions about dialysis treatment, supportive care, and resuscitation. Logistic regression was used to identify factors associated with these documented discussions.

Results: The cohort of 821 veterans had a mean age of 80.9 ± 7.2 years, and 37.2% had a predicted 6-month mortality risk $> 20\%$ with dialysis. Documented discussions addressing dialysis treatment and resuscitation were present in 55.6% and 77.1% of patients, respectively. Those addressing supportive care were present in 32.4%. The frequency of documentation varied by mortality risk and whether the patient ultimately started dialysis. In adjusted analyses, the frequency and pattern of documentation were more strongly associated with geographic location and receipt of outpatient nephrology care than with patient demographic or clinical characteristics.

Limitations: Documentation may not fully reflect the quality and content of discussions, and generalizability to nonveteran patients is limited.

Conclusions: Among older veterans with incident kidney failure, discussions of dialysis treatment are decoupled from other aspects of advance care planning and are suboptimally documented, even among patients at high risk for mortality.

Advance care planning is important for all patients and critically important for patients with a serious illness such as advanced kidney failure, who will confront the decision of whether to start a potentially burdensome treatment such as maintenance dialysis. Guidelines endorse shared decision making to ensure treatment alignment with patient preferences and goals, especially in the elderly.^{1,2} However, patient surveys suggest that the quality of discussions surrounding dialysis decision making is poor. Patients report that alternatives to dialysis treatment, such as supportive care or hospice, are not routinely described.^{3,4} Others express a high level of regret about the decision to start dialysis.⁵ Compared with patients with cancer, an illness with similar prognosis and symptom burden, goals-of-care discussions among patients with advanced kidney failure occur less frequently.⁶

Documenting discussions around advance care planning and dialysis decision making is essential to facilitate coordination of care across providers and care settings. Although documentation of patient preferences does not always reflect the quality of these discussions, the absence of documentation can lead to confusion and unwanted high-intensity care when urgent situations arise.

Limited data suggest that even after dialysis is initiated, patients infrequently engage in goals-of-care discussions and their providers even more infrequently document their treatment preferences in an advance directive.^{7,8} Among patients who are approaching kidney failure, there is even less information about the frequency of elicitation and documentation of dialysis preferences and advance care planning and how that might vary by clinical and delivery system characteristics. We sought to evaluate the documentation, content, and timing of discussions about dialysis preferences in a national cohort of older veterans with incident kidney failure.

Methods

Data Sources and Study Population

We conducted a retrospective study using Veterans Health Administration (VA) medical records linked to Medicare claims and the US Renal Data System, a national registry of patients with end-stage kidney disease, to identify veterans with incident kidney failure between January 1, 2005, and December 31, 2010 (Fig 1). We defined incident kidney failure as progression to a sustained estimated glomerular filtration rate (eGFR) < 15 mL/min/1.73 m² using the Modification of Diet in Renal Disease (MDRD) Study equation or initiation of maintenance dialysis, as previously described.⁹ To satisfy the former criteria, we required that patients have: (1) at least 2 eGFRs < 15 mL/min/1.73 m² at least 5 days apart including 1 outpatient measurement,¹⁰ or (2) 1 outpatient eGFR < 15 mL/min/1.73 m² and 1 VA or Medicare claim for end-stage kidney disease within a 12-month period. Dialysis initiation was ascertained from the US Renal Data System and dialysis procedure codes. The incident kidney failure date was recorded as the first occurrence of progression to a sustained eGFR < 15 mL/min/1.73 m² or the date of dialysis initiation, whichever came first. We also conducted a sensitivity analysis excluding patients with any outpatient eGFR > 60 mL/min/1.73 m² within 6 months before incident kidney failure.

To identify veterans who received predominately VA care, we excluded veterans if they received only non-VA outpatient nephrology care before incident kidney failure (ascertained through Medicare claims), had fewer than 2 VA outpatient visits or no VA hospitalizations in the year preceding incident kidney failure, and were hospitalized at a non-VA facility for dialysis initiation. From the remaining cohort of 11,339 patients cared for at VA facilities in the US mainland, we randomly sampled 550 veterans who were treated with dialysis and 500 who were not treated with dialysis (10% of the eligible sample).

We oversampled those with an estimated 6-month dialysis mortality risk greater than 20% based on a risk score developed and validated by Thamer et al¹¹ among incident dialysis patients. This risk score takes into account age, functional status, serum albumin level, comorbid conditions, previous hospitalizations, and nursing home residence.^{12–15} We calculated the risk score for each patient after abstracting the individual components from the medical record. We defined high mortality risk as a score of at least 5, which in previous studies corresponded to a 6-month mortality risk with dialysis of $> 20\%$.¹⁶ During subsequent chart review, we identified 229 veterans who despite lacking a Medicare claim indicating such, were receiving only non-VA nephrology care. Exclusion of this group resulted in a final analytic cohort of 821 veterans.

Exposures

We obtained veterans' demographics from VA administrative data at the date of incident kidney failure. We ascertained comorbid conditions from VA and Medicare claims¹⁷ with a 2-year lookback window. Functional status, cognitive impairment, and hearing impairment were obtained through chart review. Impaired functional status was defined as any evidence in the medical record of assisted ambulation (ie, with a walker) or inability to ambulate. Cognitive impairment was defined as any documentation of dementia or cognitive impairment. Hearing impairment was defined as any mention of difficulty hearing or use of assisted hearing devices.

We recorded health system characteristics such as VA facility complexity (a composite score derived from metrics including facility census, academic affiliation, and availability of tertiary-care services^{18,19}) and geographic region, along with patient demographics. The setting of nephrology care was ascertained through chart review and was defined by the presence of any outpatient nephrology encounters within 12 months before incident kidney failure (not including dialysis or transplantation education classes).

Outcomes

We defined a discussion about dialysis preferences as any documentation in provider notes with the veteran or their surrogate about preparing for or initiating dialysis. We operationalized a composite measure of "supportive care" as any discussion of conservative management without dialysis, hospice or palliative care, a trial of dialysis, or withdrawal from dialysis after initiation.

For comparative purposes, we recorded whether there was documentation of resuscitation preferences. We defined a discussion about resuscitation preferences as any documentation in provider notes with the veteran or his or her surrogate about cardiopulmonary resuscitation (CPR) and/or intubation preferences that occurred apart from those stated in a treatment directive because the presence of an advance directive does not always reflect that a discussion with a provider has taken place. Documentation of a treatment directive or a health care proxy (including a durable power of attorney) was elicited separately.

Eliciting Documentation of Goals-of-Care Discussions

We conducted manual chart review using 2 VA portals (the Compensation and Pension Record Interchange and the Veterans Health Information Systems and Technology Architecture systems) to record documentation of discussions about treatment preferences and advance directives. We considered discussions that were recorded in a narrative format and that occurred in the context of considering broader prognosis and treatment goals. We imposed these criteria to avoid misinterpreting templated notes that provide little evidence of meaningful veteran-provider interaction. We accepted medical record entries completed by nonphysician health care providers (eg, advanced practitioners) that satisfied these criteria. We developed and applied a set of domain-specific search terms to medical record entries for manual abstraction of information. (See Item S1 for the list of chart review key word search terms; the complete protocol and instrument are available on request.)

To ascertain documentation of each element of a goals-of-care discussion, all patients had a lookback of 2 years before the incident kidney failure date. For patients who did not start dialysis on the incident kidney failure date, there was an additional look forward period of up to 1 year, censoring at death or dialysis initiation. We calculated the median time from documented discussion until dialysis and/or death. Documentation occurring on or after the date of dialysis initiation was not included.

Manual chart review was performed by an experienced medically trained analyst (S.J.G.). Systematic secondary review of charts was conducted by the research team leader (R.C.G.), who has a doctorate in public health, and a nephrology nurse practitioner (A.C.). Review of charts occurred throughout the process to prevent “drift” in review and interpretation methods. For variables ascertained through chart review, we assessed inter-rater reliability by calculating Cohen κ on a 10% sample of charts. Two-way inter-rater reliability (κ) among the 3 reviewers ranged from 0.73 to 0.89 on individual items, indicating substantial (0.61–0.80) to almost perfect (0.81–1.0) agreement between reviewers, based on established interpretation of κ values.²⁰

Analysis

We compared patient characteristics by mortality risk using t tests and χ^2 tests when appropriate. We calculated the frequency of documented goals-of-care discussions, categorized as those pertaining to dialysis preferences, supportive care, resuscitation, and advance directives, stratifying by mortality risk. Among patients who had documented goals-of-care discussions, we calculated the median (interquartile range [IQR]) time from documentation until dialysis and/or death. We also examined the proportion of patients who had documented goals of care discussions stratifying by both mortality risk and receipt of dialysis.

We used logistic regression models to identify independent correlates of documented dialysis and supportive-care discussions. Models included sociodemographic characteristics, facility details, mortality risk score, measures of functional status, setting of nephrology care, and presence of treatment directives in the medical record. For comparison purposes, we included the same variables in each model; we chose variables that showed a significant association ($P < 0.1$) with at least 1 outcome in unadjusted analyses, with the exception of the variable for language, which we included based on its reported influence on patient-provider communication.^{21,22} After checking for multicollinearity, we excluded variables included in the mortality risk score. We also excluded dialysis initiation status because dialysis initiation would have occurred after documentation. Statistical analyses were performed using SAS, version 9.4 (SAS Institute, Inc).

This study was approved by the Stanford University Institutional Review Board and the VA Palo Alto Health Care System’s Office of Research and Development, which waived the requirement for informed consent.

Results

Veteran and Health System Characteristics

Mean age at incident kidney failure was 80.9 ± 7.2 years (Table 1). The cohort was almost exclusively men (98.7%) and a majority were white (70.2%). Veterans were well distributed across geographic regions and most (89.9%) were seen in high-complexity VA facilities. Seventy-four percent of veterans received some outpatient nephrology care before incident kidney failure. A total of 306 (37.2%) patients had a mortality risk score ≥ 5 , indicating 6-month mortality risk after dialysis initiation of $>20\%$. Compared with patients with a mortality risk score < 5 , patients with a high mortality risk score were older and were more likely to be black, have chronic conditions and functional impairments, be a nursing home resident, and to have had outpatient nephrology care before incident kidney failure (Table 1). Cohort characteristics stratified by receipt of dialysis are presented in Table S1.

Documentation of Goals-of-Care Discussions and Advance Care Planning

Among all veterans, documented discussions addressing preferences for resuscitation and dialysis were present in 71.3% and 55.6% of patients, respectively (Table 2). Overall, 32.4% of patients had a documented discussion of supportive care, but only 44% of patients at high risk for mortality with dialysis had evidence of such discussions. Among the supportive-care options documented, hospice and palliative care were most frequent, whereas a dialysis trial and dialysis withdrawal were documented in $<5\%$. Patients at high risk for mortality were equally likely to have documentation of dialysis preferences compared with lower risk patients and more likely to have documentation of resuscitation preferences and supportive care (Table 2). Documentation of a dialysis-preferences discussion and a supportive-care discussion was present in 216 (26.3%) patients, while the number of patients with all 3 types of discussions documented was 206 (25.1%). When we excluded patients with an outpatient eGFR > 60 mL/min/1.73 m² within the prior 6 months ($n = 88$), rates of documentation were similar (Table S2).

The pattern of documentation also varied according to whether the patient ultimately started dialysis. Irrespective of mortality risk, patients who did not start dialysis were more likely to have documented discussions about dialysis, supportive care, and resuscitation; resuscitation discussions were documented most frequently (Table 3). Among patients with a mortality risk score < 5 who started dialysis, $<10\%$ had a documented discussion about supportive care, and 40% had no documentation of any goals-of-care discussion. Among patients with a mortality risk score ≥ 5 who started dialysis, 23% had a documented discussion regarding supportive care and 24.5% had no documentation of any goals-of-care discussion.

Documented discussions addressing resuscitation preferences occurred earlier than documented discussions addressing dialysis (Table 4). Median time from documentation of dialysis discussions to the start of dialysis was 124 (IQR, 11–412) days, and median time from documentation to death was 380 (IQR, 75–894) days. Mean eGFR at the time of dialysis discussion was 16.4 ± 7.3 (SD) mL/min/1.73 m². Documentation of supportive-care options, when present, occurred late in the disease course; for example, hospice and palliative care were documented a median of 33 (IQR, 7–182) days before dialysis initiation.

and 47 (IQR, 13–244) days before death. Among patients who had a documented dialysis discussion, 55.6% occurred in the outpatient setting and 44.6% occurred with family present; 11.8% of dialysis decisions were made by a surrogate.

Correlates of Documented Discussions on Dialysis or Supportive Care

In adjusted analyses, facility region, outpatient nephrology care preceding incident kidney failure, and documentation of resuscitation preferences were independently associated with the odds of having a documented dialysis or supportive-care discussion (Table 5). Practice varied by region, with the West being less likely versus the rest of the country to document a dialysis-preferences discussion and more likely to document a supportive-care discussion. Outpatient nephrology care, while associated with higher odds of a documented dialysis discussion (odds ratio [OR], 6.39; 95% confidence interval [CI], 4.10–9.98), was also associated with a lower likelihood of supportive-care discussions (OR, 0.59; 95% CI, 0.35–0.99). After adjustment for all factors in Table 5, mortality risk was not associated with the odds of a documented dialysis or supportive-care discussion.

Discussion

The elicitation and documentation of patient preferences are considered standard of care in serious illness to ensure that treatments align with patient values. Furthermore, consistent and standardized documentation of patient preferences in the medical record is essential to overcoming the challenges of fragmented health care delivery. In a national cohort of older veterans with incident kidney failure, we found that documented discussions of supportive care as a treatment alternative to dialysis were uncommon, occurring in less than half the individuals with a high risk for mortality with dialysis. Documented discussions of resuscitation preferences with the patient or surrogate occurred at a much higher frequency than those regarding dialysis, although dialysis decisions were more imminent. These findings suggest that providers may not be presenting patients with a choice between maintenance dialysis and supportive care and consequently, many patients may not have their preferences appropriately elicited and documented.

One potential explanation is that physicians view dialysis differently than other life-sustaining therapies such as CPR, intubation, or artificial nutrition, for which providers more often explicitly elicit patient preferences. In a study by Feely et al⁷ examining the content of advance directives among patients receiving hemodialysis, only 10.6% of all advance directives mentioned dialysis at end of life—far less than the percentage of advance directives that addressed management of artificial nutrition, CPR, or mechanical ventilation. Similarly, we found that there was a much higher prevalence of discussions about resuscitation preferences than those focusing on dialysis treatment.

Wong et al²³ demonstrate in a recent study that many providers view dialysis as “the norm” and may encourage dialysis initiation over patient preferences. Interviews of patients with kidney failure support this finding; in a prior qualitative study of maintenance dialysis patients, 67% believed that they had no choice regarding dialysis initiation or modality.⁴ Others have found that the language around dialysis decision making often includes terms like “refusal” or “candidacy,” reflecting that providers, perhaps unconsciously, view

themselves as the arbiters of treatment decisions and may not account for patients' desires or values.²³

Ideally, advance care planning in advanced kidney disease should involve a standardized approach to eliciting patients' treatment preferences. One way to achieve this is to have concurrent discussions about dialysis preferences, supportive care, and resuscitation. We found that the timing of these discussions varied greatly, with discussions on supportive care occurring much later in the disease process than those involving resuscitation. This finding may indicate that uncertainty over whether patients will survive to reach kidney failure causes delay of supportive-care discussions until dialysis is imminent.²⁴ Uncertainty around the rate of progression to kidney failure may also play a role; patients who experience rapid progression of chronic kidney disease or acute kidney injury superimposed on chronic kidney disease have a compressed time frame for eliciting and documenting goals of care.

Our study also found regional variation in the likelihood of documented discussions of dialysis and supportive care, even after controlling for demographic characteristics and access to care (eg, driving distance to nearest VA). Patients in the West were more likely to have a documented supportive-care discussion and less likely to have a documented dialysis discussion. This observation may reflect regional differences in physician training and culture; previous studies have also shown differences in end-of-life physician practices across the country.^{18,25}

Well-developed approaches to discussing dialysis modality options and patient preferences for CPR and intubation are common.^{26,27} In contrast, there is less familiarity with how to initiate discussions about supportive care,²⁸ and many patients and providers equate supportive care with hospice entry or "giving up."^{23,29} Explicitly offering a dialysis trial or the option of dialysis withdrawal, particularly in the outpatient setting, is rare; we found that only 5% of documented supportive-care discussions referenced these options. To change how providers and patients view supportive care in advanced kidney failure, presentation of nonbinary treatment options may be warranted—especially given that it is difficult to predict how patients might view their quality of life on dialysis until they actually experience it. Thus, a trial of dialysis may be more palatable to some patients and providers.³⁰

Though discussions regarding dialysis modality frequently fall under the purview of nephrology, there is controversy over which specialty is responsible for discussing resuscitation preferences and supportive-care options^{31–33}—even as many nephrologists may provide the majority of primary care for their patients with advanced kidney disease.³⁴ Confusion surrounding this issue may result in failure to elicit and document patient preferences in any setting. In our study, outpatient nephrology care in the year preceding incident kidney failure was correlated with a reduced likelihood of having a supportive-care discussion documented—even after controlling for measures of health status such as mortality risk, age, and cognitive or hearing impairment. Wong et al²³ described a similar finding; patients who decided to forego maintenance dialysis were less likely to have been seen regularly by a nephrologist in the preceding year. These observations suggest that providers may assume an implicit consent to pursue dialysis in a patient establishing care with a nephrologist. Similarly, providers may be more likely to document discussions when

a decision has been made not to pursue dialysis, and these patients may not be referred to nephrology for further care. Other reasons may include time constraints, prioritization of quality measures, inexperience or discomfort with supportive-care discussions, poor infrastructure for coordinating care, or deferral of responsibility to a provider with a more developed relationship with the patient.^{29,32,35}

Our study has many strengths. We use data from the largest integrated health care system in the United States, allowing us to capture a comprehensive look into the outpatient and inpatient care of veterans. Our chart review method used a broad set of search terms and identified narrative forms of documentation, which likely represent more meaningful goals-of-care discussions than those in template form. This method also allowed us to describe multiple facets of disease counseling (ie, discussions about dialysis preferences and modality, supportive care, and resuscitation) and their relationships with one another. Finally, by stratifying our analyses by mortality risk, which can be estimated at the time of incident kidney failure, we were able to describe real-world counseling practices.

Our study also has limitations. First, our results may not be generalizable to nonveteran populations, particularly patients who receive care outside the VA health system who may undergo goals-of-care discussions at lower rates.³⁶ Second, we did not capture the type and specialty of the provider documenting discussions. Because there has been a time lapse since cohort development during which physician awareness of engaging in goals-of-care discussions has potentially increased, our findings may underestimate the current frequency of these discussions. Finally, documentation in the medical record may not reflect the full content or quality of discussions with patients. Nevertheless, the medical record is the primary way in which providers document patient preferences and communicate with one another.

In summary, discussions surrounding dialysis preferences, including supportive care, are infrequently documented and often decoupled from other aspects of advance care planning, which may result in dialysis decisions that are discordant with patient goals. A systematic redesign of the advance care planning process that encourages integration of these discussions into routine nephrology care is needed to ensure that the goals and preferences of persons with advanced kidney disease are better elicited and reflected in their treatment plans.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

Support: This work was supported by HX001262 from the Department of Veterans Affairs. The funders had no role in study design; collection, analysis, and interpretation of data; writing the report; and the decision to submit the report for publication.

References

1. Davison SN, Levin A, Moss AH, et al. 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. [PubMed: 25923985]
2. Renal Physicians Association and American Society of Nephrology. In: *Shared Decision-Making in the Appropriate Initiation of and Withdrawal From Dialysis*. 2nd ed. Rockville, MD: Renal Physicians Association (RPA); 2010:39–92.
3. Ladin K, Lin N, Hahn E, Zhang G, Koch-Weser S, Weiner DE. Engagement in decision-making and patient satisfaction: a qualitative study of older patients' perceptions of dialysis initiation and modality decisions. *Nephrol Dial Transplant.* 2017;32(8):1394–1401. [PubMed: 27576590]
4. Song MK, Lin FC, Gilet CA, Arnold RM, Bridgman JC, Ward SE. Patient perspectives on informed decision-making surrounding dialysis initiation. *Nephrol Dial Transplant.* 2013;28(11):2815–2823. [PubMed: 23901048]
5. Davison SN. End-of-life care preferences and needs: perceptions of patients with chronic kidney disease. *Clin J Am Soc Nephrol.* 2010;5(2):195–204. [PubMed: 20089488]
6. Wachterman MW, Lipsitz SR, Lorenz KA, Marcantonio ER, Li Z, Keating NL. End-of-life experience of older adults dying of end-stage renal disease: a comparison with cancer. *J Pain Symptom Manage.* 2017;54(6):789–797. [PubMed: 28843455]
7. Feely MA, Hildebrandt D, Edakkanambeth Varayil J, Mueller PS. Prevalence and contents of advance directives of patients with ESRD receiving dialysis. *Clin J Am Soc Nephrol.* 2016;11(12):2204–2209. [PubMed: 27856490]
8. Kurella Tamura M, Montez-Rath ME, Hall YN, Katz R, O'Hare AM. Advance directives and end-of-life care among nursing home residents receiving maintenance dialysis. *Clin J Am Soc Nephrol.* 2017;12(3):435–442. [PubMed: 28057703]
9. Kurella Tamura M, Thomas IC, Montez-Rath ME, et al. Dialysis initiation and mortality among older veterans with kidney failure treated in Medicare vs the Department of Veterans Affairs. *JAMA Intern Med.* 2018;178(5):657–664. [PubMed: 29630695]
10. Hemmelgarn BR, James MT, Manns BJ, et al. Rates of treated and untreated kidney failure in older vs younger adults. *JAMA.* 2012;307(23):2507–2515. [PubMed: 22797451]
11. 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. [PubMed: 26123861]
12. Athienites NV, Miskulin DC, Fernandez G, et al. Comorbidity assessment in hemodialysis and peritoneal dialysis using the index of coexistent disease. *Semin Dial.* 2000;13(5):320–326. [PubMed: 11014695]
13. Cohen LM, Ruthazer R, Moss AH, Germain MJ. Predicting six-month mortality for patients who are on maintenance hemodialysis. *Clin J Am Soc Nephrol.* 2010;5(1):72–79. [PubMed: 19965531]
14. Davies SJ, Russell L, Bryan J, Phillips L, Russell GI. Comorbidity, urea kinetics, and appetite in continuous ambulatory peritoneal dialysis patients: their interrelationship and prediction of survival. *Am J Kidney Dis.* 1995;26(2):353–361. [PubMed: 7645541]
15. Miskulin DC, Martin AA, Brown R, et al. Predicting 1 year mortality in an outpatient haemodialysis population: a comparison of comorbidity instruments. *Nephrol Dial Transplant.* 2004;19(2):413–420. [PubMed: 14736967]
16. Ivory SE, Polkinghorne KR, Khandakar Y, et al. Predicting 6-month mortality risk of patients commencing dialysis treatment for end-stage kidney disease. *Nephrol Dial Transplant.* 2017;32(9):1558–1565. [PubMed: 28073820]
17. Quan H, Sundararajan V, Halfon P, et al. Coding algorithms for defining comorbidities in ICD-9-CM and ICD-10 administrative data. *Med Care.* 2005;43(11):1130–1139. [PubMed: 16224307]
18. Gao J, Moran E, Almenoff PL, Render ML, Campbell J, Jha AK. Variations in efficiency and the relationship to quality of care in the veterans health system. *Health Aff (Millwood).* 2011;30(4): 655–663. [PubMed: 21471486]

19. Korom-Djakovic D, Canamucio A, Lempa M, Yano EM, Long JA. Organization complexity and primary care providers' perceptions of quality improvement culture within the Veterans Health Administration. *Am J Med Qual.* 2016;31(2):139–146. [PubMed: 25414376]
20. McHugh ML. Interrater reliability: the kappa statistic. *Biochem Med (Zagreb).* 2012;22(3):276–282. [PubMed: 23092060]
21. Partida Y. Language barriers and the patient encounter. *Virtual Mentor.* 2007;9(8):566–571. [PubMed: 23218152]
22. Sudore RL, Landefeld CS, Perez-Stable EJ, Bibbins-Domingo K, Williams BA, Schillinger D. Unraveling the relationship between literacy, language proficiency, and patient-physician communication. *Patient Educ Couns.* 2009;75(3): 398–402. [PubMed: 19442478]
23. 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. [PubMed: 30667475]
24. Potok OA, Nguyen HA, Abdelmalek JA, Beben T, Woodell TB, Rifkin DE. Patients', nephrologists', and predicted estimations of ESKD risk compared with 2-year incidence of ESKD. *Clin J Am Soc Nephrol.* 2019;14(2):206–212. [PubMed: 30630859]
25. Barnato AE, Herndon MB, Anthony DL, et al. Are regional variations in end-of-life care intensity explained by patient preferences? A study of the US Medicare population. *Med Care.* 2007;45(5):386–393. [PubMed: 17446824]
26. Covic A, Bammens B, Lobbedez T, et al. Educating end-stage renal disease patients on dialysis modality selection. *NDT Plus.* 2010;3(3):225–233. [PubMed: 28657058]
27. Lacson E Jr, Wang W, DeVries C, et al. Effects of a nationwide predialysis educational program on modality choice, vascular access, and patient outcomes. *Am J Kidney Dis.* 2011;58(2): 235–242. [PubMed: 21664016]
28. van Biesen W, van de Luijngaarden MW, Brown EA, et al. Nephrologists' perceptions regarding dialysis withdrawal and palliative care in Europe: lessons from a European Renal Best Practice survey. *Nephrol Dial Transplant.* 2015;30(12):1951–1958. [PubMed: 26268713]
29. Ladin K, Pandya R, Kannam A, et al. Discussing conservative management with older patients with CKD: an interview study of nephrologists. *Am J Kidney Dis.* 2018;71(5):627–635. [PubMed: 29396240]
30. Scherer JS, Holley JL. The role of time-limited trials in dialysis decision making in critically ill patients. *Clin J Am Soc Nephrol.* 2016;11(2):344–353. [PubMed: 26450932]
31. Ladin K, Pandya R, Perrone RD, et al. Characterizing approaches to dialysis decision making with older adults: a qualitative study of nephrologists. *Clin J Am Soc Nephrol.* 2018;13(8):1188–1196. [PubMed: 30049850]
32. O'Hare AM, Szarka J, McFarland LV, et al. Provider perspectives on advance care planning for patients with kidney disease: whose job is it anyway? *Clin J Am Soc Nephrol.* 2016;11(5): 855–866. [PubMed: 27084877]
33. Song MK, Ward SE. Decisions about dialysis and other life-sustaining treatments should not be made separately. *Am J Kidney Dis.* 2014;64(5):817.
34. Berns JS, Szczech LA. What is the nephrologist's role as a primary care provider? We all have different answers. *Clin J Am Soc Nephrol.* 2007;2(3):601–603. [PubMed: 17699469]
35. Mandel EI, Bernacki RE, Block SD. Serious illness conversations in ESRD. *Clin J Am Soc Nephrol.* 2017;12(5):854–863. [PubMed: 28031417]
36. Yadav KN, Gabler NB, Cooney E, et al. Approximately one in three US adults completes any type of advance directive for end-of-life care. *Health Aff (Millwood).* 2017;36(7):1244–1251. [PubMed: 28679811]

Figure 1.
Cohort assembly diagram. Abbreviation: VA, Veterans Health Administration.

Table 1.
 Characteristics of Older Veterans With Incident Kidney Failure, Stratified by Mortality Risk

Characteristic	Mortality Risk Score			P
	All (N = 821)	<5 (n = 515)	5 (n = 306)	
Age at incident kidney failure, y	80.9 ± 7.2	78.7 ± 6.4	84.7 ± 7.0	<0.001
Male sex	98.7%	98.5%	99.0%	0.8
Race				0.005
White	70.2%	72.2%	66.7%	
Black	20.2%	16.9%	25.8%	
Other/unknown	9.6%	10.9%	7.5%	
English speaking	98.7%	99.2%	97.7%	0.1
Zip code median income, \$10K	5.0 ± 1.8	5.0 ± 1.8	5.0 ± 1.8	0.7
Missing	1.3%	1.6%	1.0%	
Driving distance to closest VA, miles	32.0 ± 34.0	34.4 ± 34.5	28.1 ± 32.7	0.01
High-complexity VA	89.9%	91.1%	87.9%	0.09
Missing	1.3%	1.6%	1.0%	
Geographic region				0.006
Midwest	29.5%	29.5%	29.4%	
Northeast	23.1%	20.2%	28.1%	
Southeast	29.2%	33.0%	22.9%	
West	18.1%	17.3%	19.6%	
Diabetes	44.9%	40.8%	52.0%	0.002
Ischemic heart disease	28.5%	24.5%	35.3%	0.001
Heart failure	38.5%	19.0%	71.2%	<0.001
Cancer	30.1%	19.0%	48.7%	<0.001
Nursing home resident	19.7%	4.7%	45.1%	<0.001
Unable to ambulate independently	54.3%	38.3%	81.4%	<0.001
Cognitive impairment	24.7%	18.1%	35.9%	<0.001
Hearing impairment	39.3%	34.4%	47.7%	<0.001
Albumin < 3.5 g/dL or missing	63.7%	50.5%	85.9%	<0.001

Characteristic	Mortality Risk Score			P
	All (N = 821)	<5 (n = 515)	5 (n = 306)	
eGFR at incident kidney failure, mL/min/1.73 m ²	14.4 ± 9.0	14.4 ± 9.7	14.4 ± 7.6	0.9
Missing	9.2%	8.5%	10.1%	
Rate of eGFR decline before incident kidney failure ^a				0.1
<5 mL/min/1.73 m ² /y	15.8%	15.9%	10.1%	
5-<10 mL/min/1.73 m ² /y	23.1%	19.8%	20.6%	
10 mL/min/1.73 m ² /y	61.1%	51.7%	55.6%	
Missing	15.0%	12.6%	13.7%	
Mortality risk score	3.9 ± 1.9	2.6 ± 1.1	6.0 ± 0.9	<0.001
No. of days in hospital in year before incident kidney failure	12.6 ± 20.9	6.5 ± 15.8	22.8 ± 24.2	<0.001
Hospitalized >1× or >1 mo in last year	45.9%	23.5%	83.7%	<0.001
Outpatient nephrology care in year before incident kidney failure	74.2%	70.8%	79.7%	0.005

Note: Data given as percentage or mean ± standard deviation, as appropriate.

Abbreviations: eGFR, estimated glomerular filtration rate; VA, Veterans Health Administration.

^aCalculated as follows: [(eGFR 2 years but 90 days before incident kidney failure – eGFR at incident kidney failure)/days between eGFR assessments] × 365.25.⁹ A total of 714 of 821 patients had eGFR assessments done during this period.

Table 2.

Medical Record Documentation of Dialysis Treatment Discussions and Advance Care Planning Among Older Veterans With Incident Kidney Failure, Stratified by Mortality Risk Score

	Mortality Risk Score			Risk Difference (95% CI) ^a	P
	All Patients (N = 821)	<5 (n = 515)	5 (n = 306)		
Discussion related to:					
Resuscitation preferences	71.3%	66.0%	80.1%	-14.1 % (-20.1 % to -8.0%)	<0.001
Dialysis preferences	55.6%	52.4%	58.2%	-5.7% (-12.8% to 1.3%)	0.1
Any supportive care option	32.4%	25.6%	43.8%	-18.2% (-24.9% to -11.4%)	<0.001
Conservative management	18.0%	13.6%	25.5%	-11.9% (-17.6% to -6.2%)	<0.001
Hospice or palliative care	25.0%	18.5%	36.0%	-17.5% (-23.8% to -11.2%)	<0.001
Dialysis trial	1.3%	1.2%	1.6%	-0.5% (-2.2% to 1.2%)	0.6
Dialysis withdrawal	3.9%	2.9%	5.6%	-2.6% (-5.6% to 0.3%)	0.06
Advance directive/POLST ^b	41.8%	35.9%	51.6%	-15.7% (-22.7% to -8.8%)	<0.001
Health care proxy	11.6%	8.2%	17.3%	-9.2% (-14.0% to -4.3%)	<0.001

Note: Documentation was assessed during the period from 2 years before incident kidney failure and up to 1 year after incident kidney failure but before the start of dialysis. When we included treatment directives as evidence of a goals-of-care discussion, the frequency of documentation was 74.9% overall: 69.9% in the low-mortality-risk group and 83.3% in the high-mortality-risk group; risk difference, -13.4 (95% CI, -19.1 to -7.7).

Abbreviations: CI, confidence interval; POLST, physician order for life-sustaining treatment.

^aDifferences are given in percentage-point, not relative, terms.

^bPOLST made up 1.0% of all treatment directives.

Table 3.
Frequency of Documented Goals-of-Care Discussions, Stratified by Mortality Risk and Dialysis Status

Topic of Documented Discussion	Dialysis (n = 349)	No Dialysis (n = 472)	Risk Difference (95% CI) ^a	P
Low mortality risk (score < 5)				
Dialysis	42.7%	58.9%	16.2% (7.5% to 24.9%)	<0.001
Supportive care	8.3%	37.2%	29.0% (22.4% to 35.5%)	<0.001
Resuscitation	49.0%	77.4%	28.3% (20.1 % to 36.6%)	<0.001
None	39.8%	13.6%	-26.2% (-33.9% to -18.5%)	<0.001
High mortality risk (score ≥ 5)				
Dialysis	53.2%	62.6%	9.4% (-1.6% to 20.3%)	0.1
Supportive care	23.1%	62.0%	38.9% (28.7% to 49.1%)	<0.001
Resuscitation	66.4%	92.0%	25.6% (16.8% to 34.4%)	<0.001
None	24.5%	6.1%	-18.3% (-26.3% to -10.4%)	<0.001

Abbreviation: CI, confidence interval.

^aDifferences are given in percentage-point, not relative, terms.

Table 4.

Timing of Documentation in the Medical Record

Discussion Related to	N	Median Days From First Discussion to Dialysis	N	Median Days From First Discussion to Death
Resuscitation preferences	153	343 [110–589]	391	572 [155–997]
Dialysis preferences ^a	164	124 [11–412]	417	380 [75–894]
Any supportive care option				
Conservative management	29	112 [24–333]	147	121 [14–494]
Hospice or palliative care	29	33 [7–182]	203	47 [13–244]
Dialysis trial	2	15 [13–16]	11	195 [12–605]
Dialysis withdrawal	7	69 [29–270]	32	182 [14–679]
Advance directive	94	362 [164–1,175]	310	528 [138–1,165]
Health care proxy	34	215 [48–420]	34	395 [195–1,121]

Note: Values in bracket are interquartile range.

^aMean estimated glomerular filtration rate at time of documented discussion of dialysis preferences was 16.4 ± 7.3 mL/min/1.73 m².

Table 5.**Correlates of Documented Dialysis and Supportive-Care Discussions**

Correlate	Dialysis Discussion	Supportive Care Discussion
Demographics		
Age at incident kidney failure, per 1-y older	1.00 (0.97–1.03)	1.05 (1.02–1.08)
Race		
White	1.00 (reference)	1.00 (reference)
Black	1.01 (0.65–1.55)	1.02 (0.64–1.64)
Other/unknown	1.66 (0.91–3.03)	1.14 (0.62–2.07)
English speaking	1.83 (0.45–7.50)	1.03 (0.18–5.92)
Driving distance to nearest VA hospital, per 10 miles greater	1.01 (0.96–1.07)	0.96 (0.90–1.02)
Hospital Characteristics		
VISN region		
West	1.00 (reference)	1.00 (reference)
Midwest	1.81 (1.08–3.03)	0.53 (0.31–0.90)
Northeast	2.00 (1.16–3.44)	0.50 (0.28–0.90)
Southeast	1.94 (1.16–3.25)	0.41 (0.23–0.71)
High-complexity facility ^a	2.66 (1.36–5.21)	2.04 (0.94–4.45)
Outpatient nephrology care preceding incident kidney failure	6.39 (4.10–9.98)	0.59 (0.35–0.99)
Comorbid Conditions		
High mortality risk (score ≥ 5) ^b	0.81 (0.55–1.20)	1.42 (0.95–2.14)
Cognitive impairment	0.76 (0.51–1.14)	2.52 (1.67–3.79)
Hearing impairment	1.01 (0.70–1.45)	1.03 (0.70–1.52)
Medical Record Documentation		
Discussion of resuscitation preferences	1.89 (1.24–2.87)	8.54 (4.32–16.90)
AD/POLST	1.18 (0.81–1.72)	1.94 (1.33–2.84)
HCP	1.62 (0.94–2.79)	0.44 (0.25–0.75)
Discussion of supportive care	5.67 (3.67–8.74)	—
Discussion of dialysis	—	5.58 (3.62–8.63)

Note: Values given as odds ratio (95% confidence interval). Logistic regression models included all variables presented in the table; n = 821 for both models.

Abbreviations: AD, advance directive; HCP, health care proxy; POLST, physician order for life-sustaining treatment; VA, Veterans Affairs; VISN, Veterans Integrated Service Networks.

^aCompared to medium/low.

^bCalculated using the Thamer mortality risk score.¹¹