Exploring Attributes of Nephrologists Ranking Favorably on Measures of Value
Supplementary Appendix

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Methods

Identifying practices based on their quality and spending performance

Data Sources:

IMS' PharMetrics Plus^{TM} Data is a proprietary database of U.S. commercial medical and pharmacy claims data that covers 150 million covered lives from 2006. Commercial insurance data reflects market prices, rather than prices set by Medicare and Medicaid, and allows analysis of the "all-in" cost of care for patients, including payments for drugs, emergency room visits, hospitalizations, lab testing and other services. The PharMetrics Plus^{TM} data is derived from health insurance plans across the US and represents a diverse mix of commercially insured patients. Approximately 71% of the patients in PharMetrics Plus^{TM} are covered by a PPO plan. There is limited inclusion of Medicaid patients. Data for eligible enrollees was extracted from PharMetrics Plus^{TM}. Eligible enrollees included only those aged 0-64 with 12 months' enrollment during the year, with prescription benefit for the duration of enrollment. Additionally, allowed amounts in the study year had to fall in the acceptable range of $10-$1,000,000. Our longitudinal management study made use of PharMetrics Plus^{TM} data from July 2010 – June 2013.

This claims data was combined with IMS' OneKey^{TM} Data, which provides comprehensive demographic information, address intelligence, affiliations and ownership relationships for over 4.4 million professionals and 500,000 health care facilities. The OneKey^{TM} data allowed for aggregation of providers at the provider group level.

Providers included for analysis in our study were nephrology groups identified by the OneKey^{TM} dataset. OneKey^{TM} Data was used to identify "physician clusters" or "medical groups". Physician clusters were defined as physicians affiliated and working with a defined outpatient medical practice, including multi-professional practices and sole physician practices. All cost and quality composite calculations described below took place at the medical group level.

Cost measures:

We took a total cost of care perspective, including all medical and prescription claims aggregated for a patient during each 12-month period in which they were eligible. The unit of observation of costs was the patient-year. Because we used three years of aggregated data, a single patient could appear as up to three observations.

All cost analytics described below were conducted for two types of cost: payer allowed (i.e., reflecting negotiated prices) and standardized (i.e., assessed against a fee schedule). The fee schedule for standardized cost was developed based on the average payer allowed cost for each service across the entire PharMetrics Plus^{TM} Dataset. Variation in standardized cost reflects differences in utilization and intensity of health care services, while payer allowed cost reflects those differences as well as differences driven by contractual arrangements.

Attribution:

Each eligible patient-year was attributed to the individual provider accounting for the highest percentage of costs associated with Evaluation and Management (E&M) claims in a given year. The percentage had to be at least 10% to reduce the risk of misattribution. In the case of ties, the following were applied as tie-breakers, in order of priority: (1) Count of E&M claims, (2) Earliest E&M claim, (3) Latest E&M claim and (4) Provider ID.

Providers with attributed patients were assigned to medical groups using OneKey^{TM} data as described previously and attributed patient-years were aggregated at the group level.

Adjustment and outlier trimming:

Risk-adjustment was performed using 3M^{TM} Clinical Risk Group (CRG) software, which assigned each patient-year observation to one of more than 1000 CRGs based on the diagnoses and procedures in their claims history. The average cost of all patient-year observations in each CRG constituted the "expected cost" used in cost scoring calculations described below. A given CRG was included in the analysis only if a minimum of 150 enrollees across the full sample fell into the CRG to ensure a stable baseline could be calculated.

Cost outlier trimming was performed within each CRG in order to eliminate abnormally low or high annual costs for patients with similar health statuses. Trim thresholds were determined separately for each CRG using an asymmetric LogMean methodology, whereby a patient's cost in a given year was excluded from analysis if its log transformation fell 5 standard deviations below or 2.5 standard deviations above the mean log transformation of all patient-year observations in that CRG.

After outlier trimming was performed, adjustments for inflation and geographic variation in input costs were made to the payer allowed cost measure. Claims were adjusted for inflation (by multiplying cost by the ratio of the consumer price index (CPI) for the latest year covered by the data over the CPI for the claim year). Geographic adjustment to correct for variation in input costs was accomplished using the relevant Centers for Medicare and Medicaid Services (CMS) Wage Index or Geographic Adjustment Factor. No adjustments were required in the case of standardized cost because these were calculated using a standardized fee schedule.

Scoring:

Medical groups were only included in cost scoring if they had at least 30 attributed patient-years. Each medical group's overall observed/expected (O/E) cost ratio was calculated by comparing the average annual health expenditures of attributed patients to the expected cost of their care. The expected cost for a medical group was calculated by multiplying the number of attributed patient-years in each CRG by the appropriate expected cost calculated for the relevant CRGs. Each medical group's overall O/E cost ratio was then calculated as the sum of observed costs for attributed patient-years divided by the medical group's expected costs. Put differently, a medical group's overall O/E ratio was the patient-volume-weighted average of the O/E cost ratio for each

CRG for which it had an attributed patient. Finally, for each qualifying medical group the percentile rank and confidence interval were estimated around the group's O/E cost ratio. This analysis was repeated for standardized costs.

Quality measures:

We developed a nephrology-specific composite composed of measures drawn from a library of validated measures provided by IMS Health. Considered measures relied on administrative claims data and fell into three broad domains:

- Medication management compliance
- Medication management monitoring
- Treatment process of care (POC)

Measures were selected using a two-step process. First, a practicing internist reviewed the library of measures and created a preliminary list of measures relevant to nephrology. This list was then finalized by a senior nephrologist who also assigned a subjective weight to each measure based on clinical importance. Table 2 below lists the specific quality measures grouped by domain as well as the components of and subjective weights assigned to each measure.

Attribution and exclusions:

Attribution was based on rendering providers having encounters over a measure-specific timeframe. An "encounter table" was created containing provider, patient and date of encounter; encounters were identified by CPT codes for outpatient encounters and dates varied by measure. The encounter dates covered the timeframe for eligibility (denominator) and numerator. To be eligible for attribution, a provider needed two or more encounters. A single provider was chosen who had the most frequent number of encounters over the timeframe for that measure. In the case of ties, the provider having the more recent encounter was chosen. Medication management measures unrelated to specific events were calculated similarly, with prescriptions taking the place of encounters and similar logic applied around timeframes and minimum prescriptions (2) for eligibility.

As with cost measures, providers were aggregated by OneKey^{TM} data for comparison at the medical group level.

Composite formation:

In addition to determining which measures merited inclusion, senior nephrologists engaged in subjectively weighting measures based on their clinical expertise. Each measure was rated as "Low", "Medium" or "High" clinical significance. These ratings were then used as the basis for constructing numerical weights used in composite score calculations.

Attribution of Care to Providers:

In order for a measure to be included in the analysis, the sum of observations must be at least 30. All attributed patients, regardless of whether the responsible group qualifies for scoring, are included in the calculation of peer rates.

In order for a medical group's composite to be calculated, that medical group had to satisfy the following requirements:
- Required number of observations for the medical group in the *composite*: The sum of the medical group's denominators across all individual measures that comprise the group's composite must be at least 30
- Required Number of Measures: A medical group can only get a composite score if they have a valid rate for at least 4 component measures

Medical groups' overall composite rating was constructed using indirect standardization of individual measures meeting the requirements outlined above. The Indirectly Standardized Composite (ISC) methodology produces a ratio of observed to expected numerators across the individual component measures, which are weighted according to the specified composite weights. In other words, for each measure for which a group had adequate sample size for scoring, an expected numerator was calculated by multiplying the peer group's rate by the number of quality opportunities (the denominator) the group had for the particular measure. A final number of expected quality opportunities met was calculated by summing the product of expected opportunities met for each measure and its subjective weight, normalized to account for the fact that a given group may be scored on less than the full complement of measures. That is, the subjective weights of the measures for which the provider is scored were adjusted to add up to one with their relative weights remaining as the same. The observed number of quality opportunities met was simply the sum of the products of the actual number of opportunities met for each measure multiplied by this same weight. This O/E ratio represents the clinically weighted indirectly standardized composite ratio. Groups were percentile ranked according to this ratio and a confidence interval was estimated for each group.

Results

The results of our analysis of longitudinal management medical groups are summarized in the following table, which shows:
- The number of medical groups contained in the OneKey™ database
- The number of medical groups with patients eligible for inclusion
- The number of these medical groups eligible for scoring from cost and quality perspectives
- The number of "exemplar" groups (i.e. top quartile on cost and quality, statistically significantly different than the mean)
- The number of "comparator" groups (i.e. 40th-60th percentile) on both payer allowed cost and the clinically weighted quality composite.

**Table 1. Results of quantitative method of analytically
identifying and characterizing performance of medical groups**

	In OneKey™ Database	Eligible	Scorable on Quality	Scorable on Cost	Scorable on both Cost and Quality	Cost and Quality Exemplar Pool	Cost and Quality Comparator Pool
Nephrology Practices (n)	7123	2663	819	519	307	9	12

Study Sample Characteristics

As previously mentioned, we partnered with IMS Health to run a data analysis on nephrology practice sites. They provided us with structural, geographic, patient-related, cost and quality OneKey™ information for the following groups:

1. High-Value Cohort – all sites that qualified as High-Value Practices on cost and quality
2. Average-Value Cohort – all sites that qualified as Average-Value Practices on cost and quality
3. Visited High-Value Practices
4. Visited Average-Value Practices

Table Descriptions

Table 2 displays a table of the CMS and National Quality Forum (NQF) selected quality metrics and subjective weights used to rank those metrics.

Tables 3-5 draw comparisons among the different groups to shed light on our process of selecting sites.

Table 3 compares the high-value visited sites to the high-value practice cohort, visited and non-visited, as a whole. In comparing the two, the cohort has a slightly larger percentage of independently owned sites and sees fewer patients with significant chronic disease in a single organ system but more patients with significant chronic disease in multiple organ systems. Both groups had similar quality performance and varied in cost performance.

Table 4 compares the average-value visited sites to the average-value practice cohort, which includes visited and non-visited sites. Overall, the visited sites have more specialists than the rest of the cohort. They are less likely to be single specialty and/or independently owned sites. However, they have better cost performance than the cohort and the same quality performance.

Table 5 displays the distribution of Clinical Risk Groups (CRGs) among the patient years for visited high and average-value sites within each specialty. High-value practices tend to see more patients with significant chronic disease in a single organ system while average-value practices tend to see more patients with significant chronic disease in multiple organ systems. The high-value practices could be doing a better job of preventing further deterioration among their patients or they could be seeing initially healthier patients. There is no evidence to sway the argument one way or another.

Table 6 depicts the scoring grid used by our qualitative research team to assess the degree to which each care attribute was present at visited sites.

Table 2: Selected Quality Metrics and Subjective Weights

Quality Domain	Quality Measure	Numerator	Denominator	Assigned Weight
Medication Management Compliance	The percentage of patients 18 years and older who met the Proportion of Days Covered (PDC) threshold of 80 percent during the measurement period. Angiotensin-converting enzyme (ACE) inhibitor or Angiotensin-receptor blocker (ARB) [†]	Patients 18 years and older who for at least 80% of the measurement period covered by prescription claims were prescribed an Angiotensin-converting enzyme (ACE) inhibitor or Angiotensin-receptor blocker (ARB)	Patients 18 years and older who meet continuous enrollment criteria for the measurement year	Low (0.0500)
	The percentage of patients 18 years and older who met the Proportion of Days Covered (PDC) threshold of 80 percent during the measurement period. Beta-blocker (BB) [†]	Patients 18 years and older who for at least 80% of the measurement period covered by prescription claims were prescribed a Beta-blocker (BB)	Patients 18 years and older who meet continuous enrollment criteria for the measurement year	Low (0.0500)
	The percentage of patients 18 years and older who met the Proportion of Days Covered (PDC) threshold of 80 percent during the measurement period. Renin Angiotensin System Antagonists[†]	Patients 18 years and older who for at least 80% of the measurement period covered by prescription claims were prescribed an Renin Angiotensin System Antagonist	Patients 18 years and older who meet continuous enrollment criteria for the measurement year	Low (0.0500)
Medication Management Monitoring	The percentage of patients 18 years of age and older on angiotensin converting enzyme (ACE) inhibitors or angiotensin receptor blockers (ARB) who received annual monitoring. [†]	At least one serum potassium and either a serum creatinine or a blood urea nitrogen therapeutic monitoring test in the measurement year	Patients 18 years and older who were on an Angiotensin-converting enzyme (ACE) inhibitor or Angiotensin-receptor blocker (ARB) for at least 80% of the measurement period	Medium (0.1875)
	The percentage of patients 18 years of age and older on diuretics who received annual monitoring. [†]	At least one serum potassium and either a serum creatinine or a blood urea nitrogen therapeutic monitoring test in the measurement year	Patients 18 years and older who were on a diuretic for at least 80% of the measurement period	Medium (0.1875)
Treatment Process of Care	To ensure that patients with chronic kidney disease (CKD) and ESKD are monitored for PTH levels at least once annually. [†]	Eligible members who received at least one PTH blood test during the measurement year	Patients with a confirmed diagnosis of CKD* or on dialysis who meet continuous enrollment criteria during the measurement year.	Low (0.0500)
	Proportion of patients with chronic kidney disease (CKD), but who are not on dialysis, who received at least one blood calcium level and at least one phosphorus level during the measurement year. [‡]	Eligible members who received at least one calcium blood test and one phosphorus blood test during the measurement year	Members with a confirmed diagnosis of CKD who meet continuous enrollment criteria during the measurement year	Low (0.0500)
	To ensure that patients with chronic kidney disease (CKD) who are not on dialysis have an evaluation of hemoglobin levels at least annually. [‡]	Eligible members who received at least one CBC or hemoglobin/hematocrit blood test during the measurement year	Patients with a confirmed diagnosis of CKD who meet continuous enrollment criteria during the measurement year.	Medium (0.1875)
	To ensure that all eligible patients identified as having Stage 3 or greater chronic kidney disease (CKD) receive lipid monitoring at least annually. [†]	Eligible members who received at least one lipid panel or LDL level during the measurement year	Patients 18 years and older, with a confirmed diagnosis of CKD or on dialysis who meet continuous enrollment criteria during the measurement year.	Medium (0.1875)

* Confirmed diagnosis of CKD defined as patients with CKD Stages 3-5, determined by diagnostic code [†]Metric applies to patients with CKD and ESRD, [‡]Metric applies to patients with CKD, and excludes patients with ESR

Table 3. Comparison of High-Value Practices: Visited to Cohort
("cohort" refers to both visited and non-visited high-value sites)

	Visited	Cohort
Practices, *n*	4	9
Mean Number of Specialists (SD)	2.3 (0.6)	2.4 (1.5)
Single Specialty	4 (100)	9 (100)
Independently Owned	3 (75)	7 (78)
Mean Attributed Patient Years per Practice per Specialist (SD)	56 (42.2)	54 (32.1)
Mean Case Mix Index (SD)	.826 (0.010)	.822 (0.237)
Patient Years by CRG, *n* (%)	224 (100)	487 (100)
Healthy	7 (3)	19 (4)
History of Significant Acute Disease	3 (1)	9 (2)
Single Minor Chronic Disease	3 (1)	6 (1)
Minor Chronic Disease in Multiple Organ Systems	4 (2)	8 (2)
Significant Chronic Disease	68 (30)	120 (25)
Significant Chronic Disease in Multiple Organ Systems	97 (43)	254 (52)
Dominant Chronic Disease in Three or More Organ Systems	25 (11)	46 (9)
Dominant Metastatic Malignancy	2 (1)	3 (1)
Catastrophic	15 (7)	22 (5)
Mean risk-adjusted per capita spending, $ (SD)	1279.8 (50.2)	1252.1 (121.2)
Weighted O/E Ratio	1.12	1.11
Number of Measures	8	8

Table 4. Comparison of Average-Value Practices: Visited to Cohort
("cohort" refers to both visited and non-visited average-value sites)

	Visited	Cohort
Practices, *n*	3	12
Mean Number of Specialists (SD)	10.0 (7.6)	5.0 (4.85)
Single Specialty	2 (67)	9 (75)
Independently Owned	1 (33)	8 (67)
Mean Attributed Patient Years per Practice per Specialist (SD)	263 (220.0)	221 (166.0)
Mean Case Mix Index (SD)	1.297 (0.296)	1.171 (0.284)
Patient Years by CRG, *n* (%)	788 (100)	2653 (100)
Healthy	25 (3)	117 (4)
History of Significant Acute Disease	10 (1)	52 (2)
Single Minor Chronic Disease	5 (1)	35 (1)
Minor Chronic Disease in Multiple Organ Systems	8 (1)	22 (1)
Significant Chronic Disease	184 (23)	613 (23)
Significant Chronic Disease in Multiple Organ Systems	428 (54)	1368 (52)
Dominant Chronic Disease in Three or More Organ Systems	70 (9)	235 (9)
Dominant Metastatic Malignancy	9 (1)	27 (1)
Catastrophic	49 (6)	184 (7)
Mean risk-adjusted per capita spending, $ (SD)	1683.1 (16.5)	1695.8 (54.0)
Weighted O/E Ratio	1.03	1.03
Number of Measures	8	8

Table 5. Patient Year CRG Breakdown by Value for Visited Sites

	High-Value Practice	Average-Value Practice
Practices, *n*	4	3
Patient Years by CRG, *n* (%)	224 (100)	788 (100)
Healthy	7 (3)	25 (3)
History of Significant Acute Disease	3 (1)	10 (1)
Single Minor Chronic Disease	3 (1)	5 (1)
Minor Chronic Disease in Multiple Organ Systems	4 (2)	8 (1)
Significant Chronic Disease	68 (30)	184 (23)
Significant Chronic Disease in Multiple Organ Systems	97 (43)	428 (54)
Dominant Chronic Disease in Three or More Organ Systems	25 (11)	70 (9)
Dominant Metastatic Malignancy	2 (1)	9 (1)
Catastrophic	15 (7)	49 (6)

There was no significant difference in CRG distribution between High-Value Practices and Average-Value Practices.

Table 6. Scoring grid to rate the presence of each feature at visited sites

Prevention of costly health deterioration and acute crisis

Rapidly adjustable office visit frequency for unstable patients

For "Rapidly adjustable office visit frequency for unstable patients" to be considered present the site must exhibit the following elements:
1. Patients can call the practice and receive advice and/or be worked into the schedule on that day.
2. Patients identified as requiring close monitoring are scheduled for frequent office visits until their condition is stabilized.

Close monitoring and management to preserve renal function.

For "close monitoring and management to preserve renal function" to be considered present the site must exhibit the following elements:
1. The practice has methods to identify patients whose illness requires close management to prevent disease progression.
2. The practice sees identified patients regularly to manage the underlying disease process.

Rapid access to surgeon for vascular access problems.

For "Rapid access to surgeon for vascular access problems" to be considered present the site must exhibit the following element:
1. They track and monitor fistula issues.
2. They have a close relationship with a vascular surgeon who provides rapid access to address fistula issues.

Supporting patient self-care.

Multidimensional medication management at every visit.

For "Multidimensional medication management at every visit" to be considered present the site must exhibit at least four of the following elements:
1. Tailoring the medication regimen to desired outcomes.
2. At every visit review and adjust as necessary:
a. Monitoring for desired outcomes/effectiveness.
b. Review of medications from other prescribers.
c. Assessment of patient adherence.
d. Assessment of polypharmacy and reducing number of medications.
3. Patient education on medication and changes including written instructions.

Education to support self-management at every contact.

For "Education to support self-management at every contact" to be considered present the site must exhibit the following elements:
1. Education is provided with clear instructions on what symptoms to monitor and when to contact the provider.
2. Written instructions and handouts are provided, often with tailored patient-specific information added.
3. Education is provided and reinforced at every contact with a member of the care team.

Maximizing effectiveness of office visits.

Pre-visit preparation

For "Pre-visit preparation" to be considered present the site must exhibit the following elements:
1. A member of the care team systematically reviews patient charts several days before the appointment date.
2. The patient is contacted to obtain missing information or to schedule lab work.

Early planning for and execution of vascular access.
For "Early planning for and execution of vascular access" to be considered present the site must exhibit the following elements:

1. Patients are educated early about the need for vascular access.

2. The practice has a relationship with a preferred vascular access surgeon.

In-office infusion for anemia management.
For "In-office infusion for anemia management" to be considered present the site must exhibit the following element:
The practice provides IV iron infusion in the office for pre-dialysis and dialysis patients.

Developing infrastructure to support collaboration.

Encouragement of autonomous practice by advanced practice providers (APPs) for less complex patients.
For "Encouragement of autonomous practice by advanced practice providers (APPs) for less complex patients" to be considered present the site must exhibit the following elements:
1. APP's must practice collaboratively, but with a high-level of autonomy.
2. APP's must see their own panel of patients.
3. APP's must provide a high degree of follow-up care and additional care that would not otherwise happen, e.g. urgent care, extended, or more frequent follow-up visits.

Upshifted staff roles – Medical Assistants.

For "Upshifted staff roles – Medical Assistants" to be considered present the site must exhibit the following elements:
1. Very clearly defined role of the Medical Assistants: standardized (protocol-supported) approach to prepare and process the office visit.
2. Upshifted role, e.g. by supporting pre- visit and in-visit preparation, coordinating care, documenting, educating patients, communicating results.
3. Assigned Medical Assistants vs. flexible use of Medical Assistants.

Investing dialysis based revenue into supporting pre-dialysis patients
For "Investing dialysis-based revenue into supporting pre-dialysis patients" to be considered present the site must exhibit the following element:
The practice uses APPs to provide routine care in dialysis units and either funds additional practice resources with the revenue savings or uses the same APPs in clinic.

Care Team Site Visit Guide		
Agenda Item	**Open-ended questions**	**Data points to capture**
Opening discussion (Questions that can be used to kick-off any meeting)	1. What 3 things do you think account for your ability to deliver high quality care for your patients? 2. What 3 things do you think account for your ability to keep total costs of care low?	1. The features that account exceptional quality 2. The features that explain success in managing total cost of care
Tour and overview of site	Observation of their: 1. Office space and resources on site 2. Staffing and team interactions 3. Patient population and flow	1. The office space and resources onsite 2. Who works at the practice site (e.g. nephrologists, other specialists on staff or hosted, physician extenders, MAs, administrative staff) 3. How the office is structured to support team working and patient flow
Meeting with the lead clinician on clinical processes	1. Tell us about a typical day for you 2. What is your estimated breakdown of patients with different stages of kidney disease (Stage 1 or 2, Stage 3a and 3b, Stage 4, and Stage 5? What is the percentage of your patients that are on dialysis? Broken down by different dialysis modalities? 3. How does your care differ by CKD stage? How do you prevent the progression of CKD? Are there incentives in place for you to do so? How do you avoid health complications? 4. Question around managing costs of drugs? Follow-up question on ESAs 5. How does the clinical and non-clinical staff on site support you to manage patient care? 6. How do you decide when it is appropriate to start dialysis and on what modality? 7. What systems and processes do you have in place to help you manage your patient care? For example how would you know if a patient had attended their specialist visit or fulfilled their care plan outside of the office visit? Attended dialysis?	1. Approach to care for patients with different stages of disease 2. Percentage of patients by disease stage and dialysis modality 3. Formal and/or informal policies and protocols that underpin clinical processes (collect artifacts) 4. Formal or informal policies for prescribing and medication management 5. Use of team to help manage patient care 6. Approach to care for patients when there are different treatment options and trade offs for the patient (e.g. dialysis modality or dialysis versus different end stage treatment options) 7. Systems to segment, track, monitor and manage patients in and outside of the clinic Capture any tools or resources they use.

Tour of dialysis clinic and unstructured time for observation	1. Dialysis clinic set-up and resources on site 2. Staffing and team interactions 3. Patient flow	1. The office space and resources onsite 2. Who works at the dialysis site (e.g. nephrologists, other specialists on staff or hosted, physician extenders, MAs, administrative staff) 3. How the office is structured to support patient flow
Meeting with the administrative lead at the dialysis center	1. Tell us about a typical day for you 2. What systems and processes do you have in place to help you do your job? 3. How does the clinic manage patient follow-up for symptom control or missed appointments? 4. How do you organize your dialysis unit to be efficient	1. Roles and responsibilities 2. Formal and/or informal policies or protocols that underpin non-clinical processes (e.g. access and scheduling) 3. Systems for tracking and following up with patients 4. Features that promote efficient care (e.g. volume/scale) Collect artifacts.
Meeting with the physicians and mid-levels at the dialysis clinic on their approach to dialysis care	1. Tell us about a typical day for you 2. What is your approach to patient access? 3. Talk us through the patient journey for the different patient groups you have on dialysis. 4. How are decisions made about when to start a patient on dialysis? 5. How do you work together to manage patient care? 6. How do you help your patients avoid serious health complications? 7. What resources do you have in place to support patients at home?	1. Roles and responsibilities 2. Their approach to access, including extended hours 3. Formal and/or informal policies or protocols that underpin clinical processes (collect artifacts) 4. Support for patients (and their families) to make decisions where there are different treatment options and trade offs for the patient (e.g. in-center versus home dialysis). Capture any tools or resources the use. 5. Systems to cooperatively manage care 6. Systems to monitor and manage dialysis and symptom control including any closed loop systems 7. Resources available to patients in the clinic and at home
Meeting with a primary care provider who often refers to this practice	1. How do you work with the nephrologists at this practice 2. How are decisions made about what patients you manage versus patients that would benefit from having a nephrologist? 3. How do you keep informed about the care your patients are receiving at the nephrology practice and dialysis center?	1. Processes/protocols to help primary care physician manage care for patients with a relevant chronic disease or condition, but are low risk 2. Threshold for referral and referral process

	4. What education/counseling does this practice provide primary care physicians with?	3. Systems that help the primary care physician keep informed about their patient care outside of their office 4. Educational programs and the media through which they are delivered
Meeting with multiple MAs (15-30 minute sessions)	1. Tell us about a typical day for you 2. What are you key responsibilities? 3. How do you interact the clinical and non-clinical staff 4. How do you interact with the dialysis clinic	1. Roles and responsibilities of the MAs 2. Processes/protocols in place that help the MAs fulfill their roles and responsibilities
Meeting with the clinician to discuss quality management	1. How do you judge the quality of the care you provide? Do you collect and analyze internal data? Do you work with payers to collect additional data? How do you benchmark and/or set goals? 2. How frequently do you internally measure and monitor cost? Do you have insight into total cost of care? How do you benchmark yourselves and/or set goals? 3. What else do you measure/monitor?	1. The existence/structure of a quality group and staffing/skill mix 2. Measures collected, process of project selection 3. Example projects (and impact on cost and quality), and future projects.
Meeting with practice manager and clinician with lead responsibility for non-clinical processes	1. What is your role? 2. What is your role in the practice's finances? 3. How do you know what is and isn't appropriate utilization? 4. What types of reimbursements do you receive for patient care? 5. What are other sources of revenue for your group? 6. How are clinical and non-clinical staff compensated? Are their any incentives? 7. How do you measure financial and economic success? 8. What contracts do you have (if any) with external providers	1. Duties of the clinic manager 2. Role in managing the clinic's finances 3. Systems and processes for managing utilization 4. The reimbursement model (breakdown of patients by payor and revenue by payor) 5. Other revenue sources and how they contribute to controlling costs 6. Their clinical and non-clinical staff compensation model 7. Cost controlling mechanisms 8. External contracts
Discussion with the person doing scheduling	1. What is your approach to patient access? 2. Describe your approach to patient scheduling 3. How would you know if a patient had missed their appointment at the clinic or their dialysis appointment at the dialysis clinic?	1. How access is organized access and any systems and/or processes in place to help them manage this 2. System for scheduling patients 3. Systems for monitoring and managing patient appointments

Care Team Interview Guide

The wrap-up with the site leadership will be an opportunity for the site visit team to share what they've learned from the site visit with the leadership and provide feedback on the key impressive takeaways from the visit. It also provides an opportunity to further clarify on any outstanding questions using the opening guide hypotheses as a potential guide to surface any areas that might have been missed.

1.   What does a typical day look like for you?

2.   How do you interact with the clinical and non-clinical staff?

3.   What systems, protocols and procedures are in place that help you do your job?

4.   What do you think contributes to your ability to provide high quality care?

5.   What do you think contributes to your ability to keep health spending low for your patients?

6.   How do you help patients avoid serious health complications/hospitalizations?

7.   What is your role in helping patients keep their appointments, either at the clinic or with PCPs and other specialists?

Clinical Scenarios [to be used if the Opening Questions do not generate sufficient detail/specific care features]

1. **Renal replacement therapy selection and vascular access:**

   What is your general approach for renal replacement therapy selection?

   What is your referral threshold and process for dialysis?

   How do you support your patients on in-home peritoneal dialysis? What resources do you provide them (either in or out of the office?)

2. **Renal artery stenosis management:**

   What is your strategy for controlling complex patients' blood pressure?

   When do you refer patients for renal artery stenting? What is your threshold?

3. **ACE inhibitor/angiotensin receptor blocker use:**

   What are your approaches to antihypertensive selection? How often, and in what contexts do you use angiotensin-converting-enzyme inhibitors and angiotensin—receptor blockers (including combination therapy, if needed)?

4. **Renal transplant evaluation:**

   What is your evaluation approach for renal transplants? What criteria do you use? Do you have any disqualifiers, and if so, what are they?

   How often and in what contexts do you refer for renal transplants?