End-Stage Renal Disease Physician Level Measures Technical Expert Panel

Summary Report

In-Person Meeting

February 28, 2018

Baltimore, MD

Contents

Project Overview

The Centers for Medicare & Medicaid Services (CMS) has contracted with the University of Michigan Kidney Epidemiology and Cost Center (UM-KECC) to develop one or more quality measures related to care provided to ESRD dialysis patients by physicians and advanced practice providers. The contract name is End Stage Renal Disease (ESRD) Quality Measure Development, Maintenance, and Support. (CMS Contract number HHSM-500-2013-13017I). As part of its measure development process, CMS asks measure developers to convene groups of stakeholders and experts who contribute direction and thoughtful input to the measure developer during measure development and maintenance.

TEP Objectives

The TEP will use existing data and their expert opinion to formulate recommendations to UM-KECC regarding the development of new measures that address important quality gaps in measuring physician performance of care delivery. Recommended measures should be evidence based, scientifically acceptable (reliable and valid), feasible, and usable by CMS, practitioners, and the public. Key objectives include obtaining TEP input on the following:

- Review of existing NQF endorsed facility-level ESRD measures as well as physician-level measures in other health care settings
- Determine rules for attributing patients' care to individual physicians
- Draft measures including defining denominator, numerator and potential exclusion criteria
- Determine to what extent a new measure(s) can be harmonized with existing measures

TEP In-Person meeting

The in-person TEP meeting for the physician level measures TEP was held in Baltimore, MD on February 28, 2018.

The TEP consisted of individuals from the following areas of expertise or experience:

- Subject matter expertise: Adult and Pediatric Nephrology providers (Physicians, Nurse Practitioners and/or Physician Assistants), Physician-level metric development experts, Dialysis stakeholders (dialysis organizations and patients), and Dialysis Health policy experts.
- Consumer/patient/family (caregiver) perspective
- Performance measurement
- Quality improvement
- Purchaser perspective
- Healthcare disparities

The following individuals participated in this TEP:

Table 1. TEP Membership

Name, Credentials, and Professional Role	Organizational Affiliation, City, State	Conflict of Interest Disclosure
Jeffrey Berns, MD *Professor of Medicine and Pediatrics*	Perelman School of Medicine at the University of Pennsylvania Hospital of the University of Pennsylvania Philadelphia, PA	None
Stephanie Dixon *Dialysis Patient and Patient Advocate*	ESRD Network 2 National Coordinating Center Kidney Patient Advisory Committee Brooklyn, NY	None
Bernard Jaar, MD *Staff Nephrologist* *Assistant Professor of Medicine and Epidemiology*	Nephrology Center of Maryland Johns Hopkins Medical Institutions Baltimore, MD	None
Stephanie Jernigan, MD *Chief of Medicine* *Director of Pediatric Dialysis* *Assistant Professor of Pediatrics*	Emory University Children's Healthcare of Atlanta Atlanta, GA	None
Beckie Michael, DO *Nephrologist* *Clinical Associate Professor of Medicine*	Marlton Nephrology and Hypertension, LLC Rowan University School of Osteopathic Medicine Marlton, NJ	DaVita Dialysis Center Medical Director Consultant and shareholder for Sanderling Renal Services
Pius Charles Murray *Dialysis Patient and Patient Advocate*	Dialysis Patient Citizens Somersworth, NH	None
Maile Robb *Dialysis Patient and Patient Advocate*	ESRD Network 15 National Coordinating Center Reno, NV	None
Rebecca Schmidt, DO *Section Chief of Nephrology* *Professor of Medicine*	West Virginia University Morgantown, WV Renal Physicians Association	None
Jose Tovar, FNP-C *Nephrology/Internal Medicine Nurse Practitioner*	Nephrology Associates Medical Group Riverside, CA	None

Name, Credentials, and Professional Role	Organizational Affiliation, City, State	Conflict of Interest Disclosure
Daniel Weiner, MD *Nephrologist* *Associate Professor of Medicine*	Tufts Medical Center Tufts University School of Medicine Boston, MA	Receives support for his salary paid to his institution from DCI
Adam Weinstein, MD *Vice-President Medical Affairs*	DaVita Health Care Partners Stevensville, MD Renal Physicians Association	None

Contractor Staff University of Michigan Kidney Epidemiology and Cost Center (UM-KECC)
Joseph Messana, MD *Swartz Collegiate Professor of Nephrology, University of Michigan Health System and Director, UM-KECC*
Jonathan Segal, MD *Associate Professor of Nephrology, Internal Medicine/Nephrology,*
Abhijit Naik, MD *Assistant Professor of Nephrology, Internal Medicine/Nephrology*
Tammie Nehra, PhD *Principal Scientist*
Mia Wang *Research Analyst*
Jingya Gao *Research Analyst*
Casey Parrotte, PMP *Project Manager*
Jennifer Sardone, PMP *Project Manager*

1. Introduction

This report summarizes the discussions and recommendations of the End Stage Renal Disease (ESRD) Physician Level Measures Technical Expert Panel (TEP).

The TEP met for an in-person meeting on February 28, 2018 in Baltimore, MD. There was a pre-TEP teleconference held on February 15, 2018. Minutes for that call can be found in the Appendix.

2. Preliminary Activities

2.1 Environmental Scan and Literature Review

Prior to the in-person meeting, the TEP was provided with relevant background materials related to physician level quality measurement. Given the large number of pre-existing measures developed for the Physician Quality Reporting System (PQRS) and subsequently the Quality Payment Program (QPP), the focus for this project's Environmental Scan was to identify pre-existing quality measures recommended by national subspecialty provider organizations for use in CKD and or ESRD clinical areas. UM-KECC supplemented this rich quality measure environment with targeted literature search strategies to identify content related to physician quality measurement specific to physicians treating patients with end stage renal disease. The titles and abstract were reviewed for relevance and 16 were selected for inclusion. These references were supplemented by literature relevant to the general population, for a total of 33 articles included in the bibliography.

The final environmental scan and literature review can be found in the Appendix.

2.2 TEP Charter

The TEP Charter was posted publically with the nomination materials, and was distributed to the TEP for review. The final TEP Charter can be found in the Appendix.

2.3 Pre-TEP Teleconference Call

A 90-minute preliminary teleconference call was held on February 15, 2018. The call focused on the introduction of the TEP members, the role of the TEP, the TEP Charter, and the TEP objectives. UM-KECC gave an overview of a proposed method for physician practitioner assignment, and the TEP chairs reviewed existing facility-level quality measures that are currently used in CMS programs.

3. TEP Meeting

3.1 Introductions

Dr. Joe Messana opened the meeting by introducing himself as a clinical nephrologist and the Director of the University of Michigan Kidney Epidemiology and Cost Center. Dr. Messana asked TEP members to introduce themselves and provide any updates to their conflict of interest disclosure (originally provided when they applied for the TEP). The TEP Members introduced themselves and disclosed their conflicts of interest. The TEP member affiliations and conflicts of interests are documented above.

Jesse Roach, MD introduced himself as a nephrologist and the ESRD measures lead for Centers for Medicare & Medicaid Services (CMS). Dr. Roach (CMS) thanked the TEP members for their participation in this project. Elena Balovlenkov, RN (CMS) introduced herself as Dialysis Facility Compare (DFC) lead for Public Reporting.

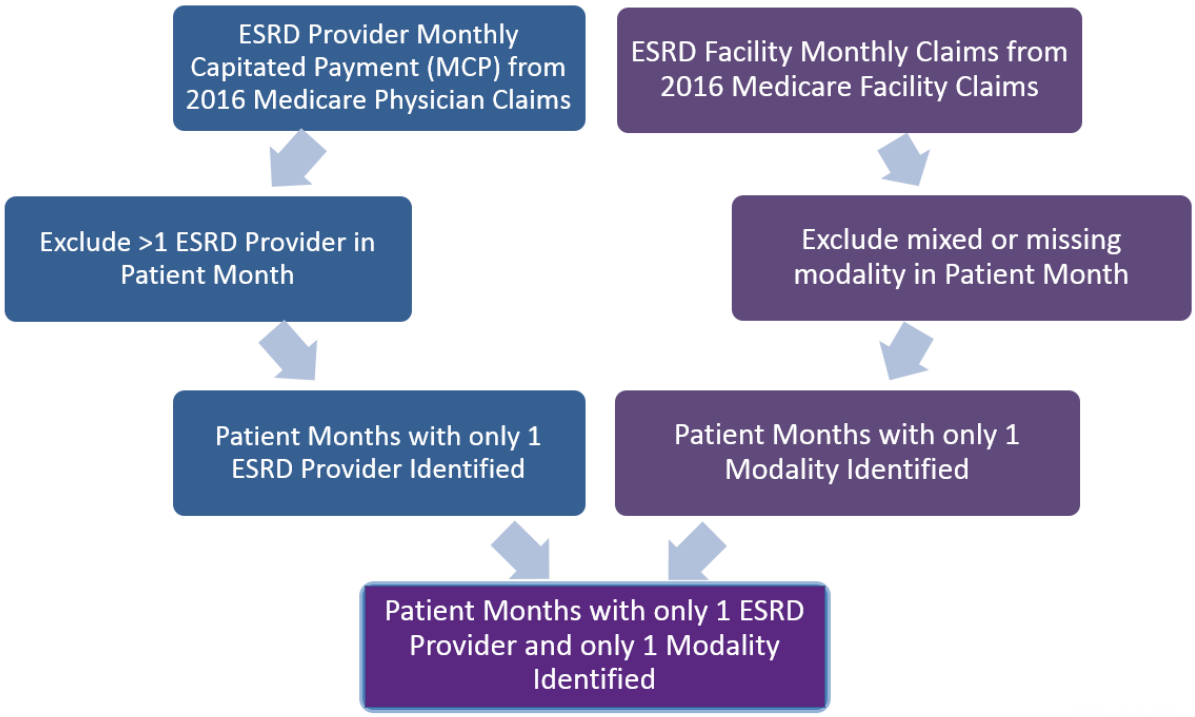
Other staff from UM-KECC were in attendance, and briefly introduced themselves and described their roles at the organization. Names and roles of UM-KECC staff are documented above.

3.2 Physician Practitioner Assignment and the Relationship to Clinical Data

Dr. Messana explained that while the proposed method for assigning physician practitioners to patient-months was reviewed on the pre-TEP conference call, there were a number of lingering questions from TEP members after the call. As a result, UM-KECC decided to provide the overview again, with additional information to explanation the methodology that UM-KECC has developed.

Dr. Messana began the discussion by describing how Medicare pays for dialysis (separate payments to the dialysis facility and to the practitioner). For each month or partial month a patient is dialyzed, the dialysis facility can submit a bill (Medicare Claim) for the dialysis services provided. Regular nephrologist/practitioner services are NOT paid out of this pool of money; the nephrologist/practitioner can submit a bill (Medicare Claim) for medical care of the patient. This nephrologist/practitioner payment is referred to as the monthly capitated payment (or MCP).

After providing that background, Dr. Messana reviewed the proposed method for physician assignment using Medicare claims data (see diagram below).



Dr. Messana explained that by using physician supplier claims from 2016, UM-KECC determined patient-months with only one ESRD practitioner identified (using NPIs). In parallel, using 2016 Medicare outpatient dialysis claims, UM-KECC determined the patient-months when dialysis was billed (Medicare paid claims), and excluded patient-months where more than one modality type was indicated (given that most potential quality measures would be modality-sensitive). These two databases were then merged, and the patient-months in common were kept to create a physician-level patient-month treatment file for analysis. In this file, each patient month has 1) only one physician provider and 2) only one modality indicated. Dr. Messana noted that there is a 95% overlap between the two databases.

One TEP member asked how non-Medicare patients would be included. Dr. Messana explained that non-Medicare primary patients are not included in this algorithm, since there is no reliable data source

for practitioner information at this time. Further, NPIs are currently not widely reported in CROWNWeb.

Another TEP member asked the group to consider the point at which practitioners responsible for the outcome for a particular patient. Dr. Messana noted that the question of attribution is a separate consideration from the assignment algorithm; attribution will be discussed later in the meeting.

One of the patient members of the TEP pointed out that in their experience, patients may not see a doctor during a particular month but will still see a bill for a visit. Dr. Messana explained that claims can indicate the number of face to face visits a physician practitioner bills for, but they don't indicate the quality of the comprehensive visit. The TEP co-chairs acknowledged this problem, and the hope is that the physician level quality metrics discussed at this meeting would reward practitioners that provide comprehensive care.

One TEP member wanted to revisit the issue of non-Medicare patients. They understand the limitations of the available data, but they want to acknowledge the patients that are not being captured. Depending on the physician's patient population, non-Medicare patients could account for a significant percentage of the patients a physician sees. Another TEP member asked if the intent is for the measures discussed by the TEP to be implemented in the Merit-Based Incentive Program (MIPS)/QPP; if they are measures that will be available for a physician to select for the QPP, the measure should require reporting on all patients. Dr. Messana noted that the exact path for these measures is a CMS implementation decision, but he noted that the assignment algorithm that has been proposed by UM-KECC would not require any additional data submission by the practitioners (meaning, only patients with Medicare claims would be reported). Dr. Roach confirmed that CMS has no specific plans to implement the measures discussed today, as it is too early in the development process for such a discussion.

Dr. Messana then provided the group with an overview of CROWNWeb, which is the source of the clinical data for the prototype measures that will be discussed by the TEP. CROWNWeb is the *Consolidated Renal Operations in a Web-enabled Network's* web-based portal, which was implemented in May 2012 to facilitate direct reporting of information by dialysis facilities to CMS. Dialysis Facility Compare (DFC) currently reports measures of Hypercalcemia and Dialysis Adequacy (Kt/V) based on CROWNWeb data. The vascular access measures will be reported with CROWNWeb data beginning in October 2018.

Dr. Messana then presented a very high-level overview of all of the data sources UM-KECC may draw from to calculate quality measures, including: CROWNWeb, Medicare Claims, the Nursing Home Minimum Data Set (MDS), the Medicare Enrollment Database (EDB), and the Organ Procurement and Transplant Network (OPTN). He explained that, for a particular patient-month, UM-KECC knows a lot of information about a particular patient (such as age, dialysis modality, hospitalization history, comorbidities, etc.). The work done on practitioner assignment adds the MCP practitioner for each outpatient month to that suite of information.

Dr. Messana closed the discussion by explaining that the intent of the work performed by UM-KECC thus far was to create a basic practitioner assignment model for the TEP to use as a basis for discussion. The TEP will now discuss specific ways to implement this model in physician level quality metrics, including how and when to attribute patient outcomes to a particular practitioner.

3.3 Review of Prototype Measures

The group began their discussion of possible physician level measure topic areas by reviewing two sample prototype measures developed by UM-KECC. These measures were meant to illustrate how a facility-level metric could be adopted to the physician level, using the practitioner assignment method described above.

3.3.1 Tunneled Catheter Prototype Measure

The first measure presented to the TEP was a measure of tunneled catheter use, based on the facility level measure that will be reported on DFC in October 2018 (NQF #2978). The specifications for the prototype measure are described in Table 2.

Table 2: Specifications for Catheter Prototype Measure

Catheter Prototype Measure	
Description	Percent of total HD patient-months assigned to a practitioner in which a tunneled catheter was used for vascular access
Numerator	Number of HD patient months in which a tunneled catheter was reported as the last vascular access used. (Note: for patient months with > 1 active vascular access in CROWNWeb we use the most recent vascular access)
Denominator	Number of patient months for which the practitioner was the sole recipient of Medicare Capitated Payment (MCP), AND there was only one dialysis modality provided, AND there was evidence for a paid dialysis facility claim in the month.
Exclusion Criteria	PD patient months Pediatric patients Patients with limited life expectancy (hospice, cancer, end stage liver disease)
Data Elements	The last vascular access type listed in CROWNWeb during the month was used to determine whether a catheter was in use. A catheter was considered in use if the CROWNWeb "Access Type IDs" of 16,18,19,20 and 21 had been recorded for a given month, where "16" represents AV Fistula combined with a Catheter, "18" represents AV Graft combined with a Catheter, "19" represents Catheter only, "20" represents Port access only, "21" represents other/unknown. If there was no CROWNWeb vascular access type entry for a given month, we counted the vascular access type for that month as a catheter.

One of the TEP members raised a question about sample size, wondering if there was a minimum threshold for reporting. For example, some physicians work part time and therefore their results would be based on a small patient census, while others may not have many dialysis patients. Dr. Messana explained that DFC does suppress information from very small facilities, but these prototype measures do not exclude any practitioners based on patient census. One of the TEP co-chairs noted that the differences in the physician level catheter rate might not be statistically significant. Another TEP

member pointed out that the catheter rate may be influenced by external factors, such as access to vascular surgeons to perform initial surgeries and troubleshoot clotted accesses.

Dr. Messana responded to a number of clarification questions from TEP members about the measure, including the specifics of the cancer exclusion (which is specific to certain types of severe cancer diagnoses). He also noted that the measure is restricted to adult patients, and includes both incident and prevalent patients.

3.3.2 Kt/V Prototype Measure

The second measure presented to the TEP for discussion was a measure of Kt/V use, which based on the facility level measures that are currently reported on DFC (NQF #0249, #0318, #1423 and #2706). The specifications for the prototype measure are described in Table 3.

Table 3: Specifications for Kt/V Prototype Measure

Kt/V Prototype Measure	
Description	Percent of total patient months assigned to a dialysis practitioner in which minimum Kt/V was achieved
Numerator	Number of thrice weekly HD patient months with spKt/V ≥ 1.2 in current month PLUS the number of adult PD patient months with Kt/V (dialysis + RRF) ≥ 1.7 within the last 4 months PLUS the number of pediatric PD patient months with Kt/V (dialysis + RRF) ≥ 1.8 within the last 6 months.
Denominator	Number of patient months for which the practitioner was the sole recipient of Medicare Capitated Payment (MCP), AND there was only one dialysis modality provided, AND there was evidence for a paid dialysis facility claim in the month.
Data Elements	The last Kt/V collected (from any facility) during the reporting month for the patient was selected. If Kt/V was missing or out of range (Kt/V > 5.0) in CROWNWeb, then the Kt/V reported on the last eligible Medicare claim for the patient during the reporting month was used, when available.

3.3.3 Discussion

The group began their discussion by noting the high performance rate for the Kt/V measure; one TEP member explained that since performance on the facility-level and physician-level measure is generally very high, it may be hard to differentiate the quality of care being provided by individual physicians. The TEP member felt that there was more room in the catheter measure for improvement, but as previously mentioned, there may be other factors at play.

One TEP member explained that for pediatric patients, Kt/V is one of the few things that can be used for public reporting. The TEP member described the work performed by a pediatric nephrologist as encompassing all nephrology care (not just dialysis), and noted that they generally work as a group and consult on patients together, making true patient assignment difficult.

The group then discussed developing measures in clinical areas that were meaningful to patients. Several of the patient TEP members explained that Kt/V is stressed by their dialysis facilities as an important indicator to monitor, so that even if performance rates were high, it should still be included.

Another TEP member noted that Kt/V is important, but the high performance rate may mean that it is not something that CMS needs to monitor nationally. Regarding vascular access, one of the patient TEP members explained that they have had a catheter for many years with no significant issues, and noted that they wished that patient choice could play in to a measure of vascular access. One of the TEP co-chairs explained that patient choice is one of the biggest issues that is hard to address in quality measure development. The 2015 Vascular Access TEP discussed an exclusion for the facility level measure for patients who elect to not have a fistula or graft ("informed refusal"); however there were outstanding concerns about reliably collecting that data as well as the possibility for gaming. That TEP did add exclusion criteria for limited life expectancy to both the fistula and catheter measures as well as adjustment for the fistula measure for conditions that may reduce the likelihood of successful fistula placement. Dr. Messana noted that the group is free to consider revising those exclusions or adding new ones to a physician-level catheter measure.

The conversation then moved to attribution of clinical outcomes to individual physicians. One TEP member asked the group to consider a reasonable way to attribute a catheter to a particular physician, given possible external factors at play. The group then discussed the concept of grouping physicians together by practice; while 60% of patients see the same practitioner (identified by NPI) during a year, grouping physicians who practice at the same facility together may allow for a more accurate attribution of outcomes. A number of TEP members noted that physicians rotating coverage and care of patients with others in their practice is extremely common, and, as was noted earlier, pediatric nephrologists often treat as a team. UM-KECC explained that they have started to investigate what information is available on Medicare claims that could help group physicians by practice, but the information so far does not appear complete or reliable.

Another way of addressing attribution is to exclude a certain number of days or months that a patient is first assigned to a physician before attributing an outcome. For example, while Kt/V is something that can be managed on a per-treatment basis, it was noted by TEP members that vascular access is far more complicated and requires months to change. One TEP member specifically referenced the exclusion for the first 90 days of ESRD treatment that was part of the facility-level vascular access measures, until the 2015 TEP determined that it should be removed. That TEP member felt that placing a fistula and getting it ready for use within 90 days would be considered an excellent outcome since it often takes longer than that for many patients. UM-KECC noted that the facility-level metric does require a catheter to be present for three consecutive months before attributing to the facility; for the prototype measure, that requirement was not in place. TEP members were interested in the effect that requiring three consecutive months with a catheter and treated by the same physician would have on measure performance at the physician level.

3.4 Identifying Potential Measure Development Areas

At the beginning of this discussion, the TEP decided to take a vote to determine whether to recommend further development of the Kt/V and/or tunneled catheter measures as physician-level measures. For Kt/V, the results were 4-7 against continuing discussion of further development, and 9-2 in favor of continuing development of a tunneled catheter measure, with a note that UM-KECC would perform analyses following the TEP meeting regarding measure performance with different time requirements for physician attribution (i.e. three consecutive months, 2 of 3 consecutive months, etc).

3.4.1. Review of Existing ESRD Quality Measures

The next part of the discussion reviewed a number of measure topics for which there are existing facility-level quality metrics. The TEP co-chairs noted that the discussion may go beyond the list of measures currently reported on DFC and in the ESRD QIP, since there are other measures that are not publically reported that do have data available (such as transplant waitlist and emergency department visits). There are also a number of measures that are under development, but there currently are no data available (medication reconciliation, patient reported outcomes). There is also a set of measures developed by the Renal Physicians Association (RPA) that could be a jumping off point for discussion.

The discussion focused on which of these measures may be appropriately adapted to the practitioner level, trying to focus on measures that would be meaningful for both physicians and patients. A TEP co-chair noted that some of these measures at the facility level might actually be stronger at the physician level (meaning that the physician has more direct influence on the outcome than the facility).

Dr. Messana explained that the data sources available to UM-KECC at the present time include Medicare claims, CROWNWeb, OPTN and SRTR (for transplants), and the Nursing Home Minimum Data Set (MDS). It was noted that the TEP could suggest measures that do not currently have data, but implementation of such measures would be longer-term projects.

The following is a description of the discussion by topic area.

Mineral and Bone Disorder

One of the TEP co-chairs explained that a measure of Hypercalcemia is currently reported on DFC and in the ESRD QIP. In addition to calcium, phosphorus levels are also reported in CROWNWeb. There was little interest among TEP members in further discussion of this topic area for physician level development.

Anemia Management

One of the TEP co-chairs explained that Standardized Transfusion Ratio (STrR) is currently reported on DFC and in the ESRD QIP, and hemoglobin performance measures (<10 and >12) have been sunsetted in both public reporting programs due to concerns about unintended consequences and uncertainty regarding the appropriate targets. Hemoglobin data is available in Medicare claims and CROWNWeb. One TEP member expressed interest in exploring a lower bound hemoglobin measure (<9), but other TEP members noted that such a measure may be topped out.

Overall, there was little interest among TEP members in further discussion of this area for physician level development.

ICH CAHPS

ICH CAHPS survey data is currently reported in aggregate on DFC and in the ESRD QIP. A TEP co-chair noted that the survey contains only a small number of questions directed towards physicians, and low survey completion rates can make it relatively unstable. One TEP member noted that the CAHPS survey has five questions that are specifically about the physician the patient sees, which could be interesting to explore, although another TEP member explained that the survey lumps together multiple types of facility medical staff (physicians, nurses, dieticians, etc.) for some questions, which could be problematic.

Right now, it is not possible to link the survey results to a specific practitioner (as the data is not available to UM-KECC at the patient level) and the response rate is so low, but the TEP generally agreed that it was an important topic to pursue in the longer term.

Infection

One of the TEP co-chairs noted that an infection measure at the physician level is very interesting; however, the co-chair raised specific concerns regarding the accuracy of the NHSN bloodstream infection data that are currently used for reporting on DFC and in the ESRD QIP. One of the patient TEP members noted that infections were one of the most important measures to them, and the group generally agreed that infections were an important area for further exploration.

Mortality

The Standardized Mortality Ratio (SMR) is currently reported on DFC, however it was noted that the sample size would be far too small for most physicians to have a stable calculation. There were also concerns expressed by TEP members about attribution to a particular physician.

Communication/Education

While discussing the importance of a mortality measure to patients, the patient members of the TEP explained that practitioner communication and education are key characteristics they think of when they define what constituted quality care. For example, facilities teaching staff how to communicate with patients (and vice versa), responsive doctors who are available when patients have concerns, etc.

Hospitalization/Re-Hospitalization/Emergency Department Visits

A TEP co-chair began the discussion by explaining that hospitalization and re-hospitalization are particular areas where a physician may be able to effect outcomes. Existing measures at the facility level include the Standardized Hospitalization Ratio (SHR) and the Standardized Readmissions Ration (SRR), which are both reported on DFC. One TEP member noted that there are particular types of hospitalizations (for congestive heart failure, fluid overload, etc.) that could be more attributable to facilities/physicians than others could, which should be explored when pursuing development of a measure.

One of the patient TEP members asked if communication between the hospital and dialysis facility would be addressed by a hospitalization measure. A TEP co-chair explained that for readmission measures in particular, facilities are incentivized to obtain information from the hospital on the patient in order to coordinate care and reduce readmissions. One TEP member asked if there is a measure to evaluate information transfer (on the hospital and/or the dialysis facility side), given the concerns that are frequently raised about information sharing between the two facilities. A TEP co-chair explained that there is not a measure like that being collected at this time. Relatedly, another TEP member expressed interest in a measure of whether the dialysis facility sees the patient within one week of hospitalization, which seems like it would be calculable with Medicare claims data. One of the TEP co-chairs noted that the communication piece (either with the hospital or with the patient) is an intermediate step in a hospitalization measure, which are designed with the hope of stimulate nephrologists to change their practice to reduce hospitalizations.

TEP members were informed that UM-KECC is in the process of developing two measures of emergency department (ED) visits; one measures ED visits on a global level, and the other is a readmissions

measure similar to the SRR. Both measures included ED visits and observation stays, which are not captured by the SHR and SRR.

One TEP member lives in an area where there are limited choices other than emergency room referral for a lot of situations, given the small number of physicians in the immediate area. Another TEP member noted that patients may frequently use the ED for issues not related to dialysis, which would not necessarily reflect the quality of care they are receiving from their dialysis practitioner. Several patient TEP members stated that they felt the ED was overused for dialysis related problems that could be modifiable through physician interventions like extra treatments, diabetic foot checks, or immunizations. Another TEP member was concerned that an all-cause ED measure may cause facilities to start cherry-picking patients based on their health status.

A TEP co-chair then asked UM-KECC whether Medicare claims can be used to distinguish patients who received dialysis or ultrafiltration in the ED and then were discharged (which may indicate poor treatment from the dialysis facility). UM-KECC explained that they have identified non-admitting ED visits that have been associated with a dialysis treatment, however claims can't be used to definitively determine whether the treatment was medically necessary or out of convenience (if the person was scheduled to receive dialysis that day). One TEP member noted that they were more comfortable with the hospital readmissions measure than the ED readmission measure, since they felt that it would be hard for a physician to tell someone not go to the emergency room when they are calling with symptoms after hours.

Overall, the TEP generally felt that hospitalization and readmission are important quality areas, that there is a performance gap, and that it is modifiable by practitioners. This area was flagged for further development.

Volume Management

There are a number of measures of fluid management at the facility level, including the ultrafiltration rate reporting measure in the ESRD QIP and a monthly measure of dry weight assessment developed by the RPA. A TEP co-chair noted that the evidence base for ultrafiltration levels (current measures are set at 13 ml/kg/hr) is relatively weak. TEP members noted that volume management is one area where physicians and patients work together to influence outcomes, making it particularly relevant for physician-level measurement and worth exploring.

Medication Reconciliation

A number of members of the TEP felt that medication reconciliation would be an excellent measure at the physician level (fitting the criteria of important, performance gap, modifiable by the physician). However, data will not be available for several years.

Advanced care planning/end of life issues

One of the TEP members explained that the RPA has measures in this area, including a measure that determines the number of patients 65 or older with CKD 3, 4, 5 or ESRD that has an advance directive (via attestation). One patient TEP member noted that the Kidney Patient Advisory Council (KPAC) is working on supportive care, so more information may be available from that group in the future.

Several TEP members felt some measure of advance care planning would be highly valuable to implement and is modifiable by the practitioners.

Transplant

Many facets of the transplant process are potentially measurable at the physician level. One TEP member explained that the RPA has a measure of transplant referral during a 12-month period. Dr. Messana added that waitlist and transplantation data are available from OPTN and reported on the Dialysis Facility Reports (DFRs). Dr. Messana also noted that CMS has two waitlist measures in development that will be submitted to NQF this year. As background, Dr. Messana explained that the 2014 Access to Transplantation TEP felt that referral was the most proximate/high impact event for practitioners, but there are no nationally collected data. That TEP also noted difficultly in determining an exact definition of what referral entails.

One TEP member asked the group to specify the goal for a transplant measure. The TEP member indicated that the goal for physicians is to optimize transplant likelihood through communication and education *if that is the right thing for the patient and what the patient wants*. This TEP member would object to a flat transplant ratio, since there are many factors that lead to a patient being accepted by a transplant center (including financial requirements).

One of the patients noted that the Network that they work with has found discrepancies by race in transplant referrals, which is currently being investigated by CMS. Another patient TEP member noted that they were required to go through a class on dialysis and transplant options at the local hospital to inform their decision when they began dialysis, but choosing transplant was not required. Another patient TEP member is under the impression that most patients are assessed by their physician first, before the dialysis or transplant determination is made. The patient TEP members felt that patients should be informed of all options, even if they are not interested in pursuing them.

One of the TEP co-chairs explained that although the group would not be able to settle on a specific point of transplant process to measure during this meeting, there appeared to be general agreement that access to transplantation is important, that some parts of the process are potentially modifiable by physicians, and that there is likely a performance gap.

3.4.2 Summary of discussion

One of the TEP co-chairs distilled the discussion of measure topic areas into a list of areas for further development, categorized by data availability.

- Data readily available
    - Infection
    - Re-hospitalization
    - Dialysis access
- Insufficient data currently available
    - Transplant (ideally transplant referral)
    - Volume management (UFR, assessment of dry weight)
    - ICH CAHPS (questions from the provider category)
- No data currently available
    - Medication reconciliation
    - Advance care planning

The TEP attempted to rank the measure areas with 'data readily available' in order of importance; however the result was essentially a three-way tie.

3.5 Attribution

One of the TEP co-chairs asked the group to consider attribution rules for infection, re-hospitalization and dialysis access in general terms (for example, short, medium or long term).

While not explicitly defined during the TEP deliberations, the following is UM-KECC's interpretation of the implied time frames discussed by the TEP. Attribution refers to the duration of care prior to attributing the outcome or result to the provider. For example, duration of care of 0-90 days prior to an event could be defined as "short duration"; 90-180 days could be considered "medium duration"; and "long duration" could be greater than 180 days.

Infection

The discussion generally focused on attribution in the medium term (3-6 months) assuming a monthly visit between the practitioner and patient. It was noted vascular access related infections might be more complicated in terms of attribution (in terms of the practitioner responsible and the length of time for attribution).

Access

As previously discussed, the TEP proposed a three-month period for attribution at this time, with further discussion anticipated after UM-KECC performs additional analyses on the tunneled catheter prototype measure.

Hospitalization

Dr. Messana noted that for the existing hospitalization measures at the facility level, there is a built in 60 day grace period before the patient is attributed to the facility after they transfer in, in recognition that there was some delay in treatment effects on outcomes. A TEP co-chair noted that there are three time periods related to hospitalization:

1. The period after a hospitalization for which a readmission is a negative flagging event (most CMS measures use 30 days, so that is assumed for this discussion).
2. The duration of time (post index hospitalization discharge) the practitioner was involved in the care in the patient after which there was a readmission
3. The duration of time after a practitioner stops caring for a patient for which they are responsible for a readmission.

Although specific TEP recommendations were not agreed upon for length of care prior to attribution, several TEP members felt that shorter-term attribution rules would be appropriate for readmission measures.

3.6 Summary of Recommendations

The TEP identified the following as areas of interest for future measure development.

- Development of methodology for identification of organizational or group affiliation for individual practitioners to use in the development of attribution rules for specific measures.

- Data readily available
    - Infection
    - Re-hospitalization
    - Dialysis access
- Insufficient data currently available
    - Transplant (ideally transplant referral)
    - Volume management (UFR, assessment of dry weight)
    - ICH CAHPS (questions from the practitioner category)
- No data currently available
    - Medication reconciliation
    - Advance care planning

3.7 Public Comment

No public comments were received during the in-person meeting

Appendix

The following documents are included in the Appendix:

1. TEP Charter
2. Environmental Scan
3. Literature Review
4. Minutes from the February 15, 2018 TEP Conference Call
5. Slides from the February 28, 2018 in-person TEP Meeting

TECHNICAL EXPERT PANEL CHARTER

Project Title:

End-Stage Renal Disease Physician Level Measure Development

Dates:

January – September 2018

Project Overview:

The Centers for Medicare & Medicaid Services (CMS) has contracted with the University of Michigan Kidney Epidemiology and Cost Center (UM-KECC) to develop one or more quality measures related to care provided to ESRD dialysis patients by physicians and mid-level providers. The contract name is End Stage Renal Disease (ESRD) Quality Measure Development, Maintenance, and Support. (CMS Contract number HHSM-500-2013-13017I) As part of its measure development process, CMS asks measure developers to convene groups of stakeholders and experts who contribute direction and thoughtful input to the measure developer during measure development and maintenance.

Project Objectives:
The University of Michigan Kidney Epidemiology and Cost Center, through its contract with the Centers for Medicare and Medicaid Services, will convene a technical expert panel (TEP) to inform the development of a quality measure(s) related to physician performance in the clinical management of chronic dialysis care and its complications. Initially, likely topic areas for measure development include adequacy of dialysis and vascular access management. Additional topic areas for potential quality measure development in future years will be explored by the technical expert panel as time and resources allow.

TEP Objectives:
The TEP will use existing data and their expert opinion to formulate recommendations to UM-KECC regarding the development of new measures that address important quality gaps in measuring physician performance. Recommended measures should be evidence based, scientifically acceptable (reliable and valid), feasible, and usable by CMS, providers, and the public. Key objectives include obtaining TEP input on the following:

- Review of existing NQF endorsed facility-level ESRD measures as well as physician-level measures in other care settings
- Determine rules for attributing patients to individual physicians
- Draft measures including defining denominator, numerator and potential exclusion criteria
- Determine to what extent a new measure(s) can be harmonized with existing measures

Scope of Responsibilities:

The role of each TEP member is to provide advisory input to UM-KECC.

Role of UM-KECC: As the CMS measure developer contractor, UM-KECC has a responsibility to support the development of quality measures for ESRD patients. The UM-KECC moderators will work with the TEP chair(s) to ensure the panel discussions focus on the development of draft measure specifications, as recommended to the contractor. During discussions, UM-KECC moderators may advise the TEP and chair(s) on the needs and requirements of the CMS contract and the timeline, and may provide specific guidance and criteria that must be met with respect to CMS and NQF review of revised candidate measures reflecting prevalent comorbidities.

Role of TEP chair(s): Prior to the in-person TEP meeting, one or two TEP members are designated as the chair(s) by the measure contractor and CMS. The TEP chair(s) are responsible, in partnership with the moderator, for directing the TEP to meet the expectations for TEP members, including provision of advice to the contractor regarding measure specifications.

Duties and Role of TEP members: According to the CMS Measure Management System Blueprint, TEPs are advisory to the measure contractor. In this advisory role, the primary duty of the TEP is to review any existing measures, provide input as to data sources and feasibility, and to suggest measure specifications. TEP members are expected to attend conference calls in 2018, and attend one in-person meeting in February of 2018 (specific dates to be determined) in Baltimore, MD, and be available for additional follow-up teleconferences and correspondence as needed in order to support the submission and review of the candidate measure(s) by NQF. Some follow up activities may be needed after testing has occurred.

The TEP will review, edit (if necessary), and adopt a final charter at the first teleconference. A discussion of the overall tasks of the TEP and the goals/objectives of the ESRD Physician Level Measure Development project will be described. TEP members will be provided with a summary of peer reviewed literature and other related quality measures prior to the in-person meeting. TEP members will have the opportunity to submit additional studies to be included in the literature review. A review of the CMS and NQF measure development criteria will also be covered during the teleconference.

During the In-Person Meeting: The TEP will review evidence to determine the basis of support for proposed measure(s). The key deliverables of the TEP at the in-person meeting include:

- Recommending draft measure specifications
- Assisting in completing the necessary documentation forms to support submission of the measures to CMS for review, and to the NQF for endorsement
- As needed TEP members may be asked to provide input to UM-KECC as they prepare responses to NQF and public comments

At the end of the in-person meeting the TEP chair(s) and TEP members will prepare a summary of recommendations. As necessary, the TEP chair(s) will have additional contact with UM-KECC moderators to work through any other issues. This will include votes for draft and final measures. After the In-Person Meeting (approximately March 2018): TEP members will review a summary

report of the TEP meeting discussions, recommendations, draft measure specifications, and other necessary documentation forms required for submission to the NQF for endorsement.

Guiding Principles:

Potential TEP members must be aware that:

- Participation on the Technical Expert Panel is voluntary
- Input will be recorded in the meeting minutes
- Proceedings of the in-person meeting will be summarized in a report that is disclosed to the general public
- Potential patient participants may keep their names confidential, if they wish to do so
- If a TEP member has chosen to disclose private, personal data, that material and those communications are not covered by patient-provider confidentiality
- All questions about confidentiality will be answered by the TEP organizers
- All potential TEP members must disclose any current and past activities that may pose a potential conflict of interest for performing the tasks required of the TEP
- All potential TEP members must commit to the expected time frame outlined for the TEP
- All issues included in the TEP summary report will be voted on by the TEP members
- Counts of the votes and written opinions of the TEP members will be included, if requested

Estimated Number and Frequency of Meetings:

- TEP members should expect to come together for one to two (1 – 2 hour) teleconference calls prior to the in-person meeting held February 2018, in Baltimore, MD
- One one-day in-person meeting (February 2018)
- After the in-person meeting, additional conference calls may be needed

Date Approved by TEP: TBD

TEP Membership: TBD

Expiration Notice: This notice expires on September 25, 2018

End Stage Renal Disease (ESRD) Quality Measure Development, Maintenance, and Support

Physician Level Measures
Technical Expert Panel
Environment Scan (Related Measures)

Contents

CAHPS In-Center Hemodialysis Survey

NQF #0258

Measure Description:
Comparison of services and quality of care that dialysis facilities provide from the perspective of ESRD patients receiving in-center hemodialysis care. Patients will assess their dialysis providers, including nephrologists and medical and non-medical staff, the quality of dialysis care they receive, and information sharing about their disease.

Three measures:

a. M1: Nephrologists' Communication and Caring
b. M2: Quality of Dialysis Center Care and Operations
c. M3: Providing Information to Patients

Three Global items:

a. M4: Rating of the nephrologist
b. M5: Rating of dialysis center staff
c. M6: Rating of the dialysis facility

The first three measures are created from six or more questions from the survey that are reported as one measure score. The three global items use a scale of 0 to 10 to measure the respondent's assessment

Numerator Statement:
Each measure encompasses the responses for all questions included in the particular measure. Missing data for individual survey questions are not included in the calculations. Only data from a "completed survey" is used in the calculations. The measures score averages the proportion of those responding to each answer choice in all questions. Each global rating will be scored based on the number of respondents in the distribution of top responses; e.g., the percentage of patients rating the facility a "9" or "10" on a 0 to 10 scale (with 10 being the best).

Denominator Statement:
Patients with ESRD receiving in-center hemodialysis at sampled facility for the past 3 months or longer are included in the sample frame. The denominator for each question is the sample members that responded to the particular question.

Proxy respondents are not allowed.

Only complete surveys are used. A complete survey is defined as a one where the sampled patient answered at least 50 percent of the questions that are applicable to all sample patients, which defines the completeness criteria.

Exclusions:

a. Patients less than 18 years of age
b. Patients not receiving dialysis at sampled facility for 3 months or more
c. Patients who are receiving hospice care
d. Any surveys completed by a proxy (mail only mode or mixed mode)
e. Any ineligible patients due to death, institutionalization, language barrier, physically or mentally incapable.

Risk Adjustment: Yes

Measure type: Outcome, PRO-PM

Chronic Kidney Disease (CKD): Monitoring Phosphorus

NQF #0570

Measure Description:
To ensure that members with chronic kidney disease (CKD) who are not on dialysis are monitored for blood phosphorus levels at least once annually.

Numerator Statement:
Members with phosphorus level blood tests during the measurement year.

Denominator Statement:
Members with at least 1 inpatient diagnosis of chronic kidney disease during the year prior to the measurement year or members with at least 2 diagnoses of chronic kidney disease in an outpatient setting during the measurement year or year prior (at least 1 of which must be during the year prior to the measurement year).

All physicians who saw the patient during the measurement year are scored on this measure.

Exclusions:
Members who are on dialysis or in hospice during the measurement year. Members who were hospitalized during the numerator time frame and did not fulfill numerator criteria.

Risk Adjustment: No

Measure Type: Process

Angiotensin Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy

NQF #1662

Measure Description:
Percentage of patients aged 18 years and older with a diagnosis of CKD (not receiving RRT) and proteinuria who were prescribed ACE inhibitor or ARB therapy within a 12-month period.

Numerator Statement:
Patients who were prescribed ACE inhibitor or ARB therapy within a 12-month period.

*The above list of medications/drug names is based on clinical guidelines and other evidence. The specified drugs were selected based on the strength of evidence for their clinical effectiveness. This list of selected drugs may not be all-inclusive or current. Physicians and other health care professionals should refer to the FDA's web site page entitled "Drug Safety Communications" for up-to-date drug recall and alert information when prescribing medications.

Definitions:
Prescribed – May include prescription given to the patient for ACE Inhibitor or ARB therapy OR patient already taking ACE Inhibitor or ARB therapy as documented in the current medication list.

Denominator Statement:
All patients aged 18 years and older with the diagnosis of CKD (Stages 1-5, not receiving RRT) and proteinuria

Definitions:
Proteinuria:

1. >300mg of albumin in the urine per 24 hours OR
2. ACR >300 mcg/mg creatinine OR
3. Protein to creatinine ratio > 0.3 mg/mg creatinine

RRT (Renal Replacement Therapy)-For the purposes of this measure, RRT includes hemodialysis, peritoneal dialysis, and kidney transplantation

Exclusions:
Documentation of medical reason(s) for not prescribing ACE inhibitor or ARB therapy (eg, pregnancy, history of angioedema, cough due to ACE Inhibitor or ARB therapy, allergy to medications, other medical reasons).

Documentation of patient reason(s) for not prescribing ACE inhibitor or ARB therapy (patient declined, other patient reasons).

Risk Adjustment: No

Measure Type: Process

Optimal End Stage Renal Disease (ESRD) Starts

NQF #2594

Measure Description:
Optimal End Stage Renal Disease (ESRD) Starts is the percentage of new adult ESRD patients during the measurement period who experience a planned start of renal replacement therapy by receiving a preemptive kidney transplant, by initiating home dialysis, or by initiating outpatient in-center hemodialysis via arteriovenous fistula or arteriovenous graft.

Numerator Statement:
The number of new ESRD patients age 18 and over who initiate renal replacement therapy in the twelve month measurement period with an optimal ESRD therapy (specific optimal ESRD therapies are defined in section S.6).

Denominator Statement:
The number of patients age 18 and over who receive a preemptive kidney transplant or initiate long-term dialysis therapy (do not recover kidney function by 90 days) for the first time in the twelve month measurement period.

Exclusions: None

Risk Adjustment: No

Measure Type: Process

MIPS quality measures relevant to Nephrology

Measure Title	eMeasure ID	eMeasure NQF	NQF	Quality Number (Q#)	Measure Description	NQS Domain	Measure Type	Measure ID	High Priority	Appropriate Use	Primary Measure Steward	Submission method	Registry/ QCDR Benchmark	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10	Topped Out
Diabetes: Hemoglobin A1c (HbA1c) Poor Control (>9%)	CMS122v5	N/A	0059	001	Percentage of patients 18-75 years of age with diabetes who had hemoglobin A1c > 9.0% during the measurement period	Effective Clinical Care	Intermediate Outcome	Q001-Outcome/High Priority	X		National Committee for Quality Assurance	Registry/ QCDR	Y	83.10 - 68.19	68.18 - 53.14	53.13 - 40.66	40.65 - 30.20	30.19 - 22.74	22.73 - 16.82	16.81 - 10.33	<= 10.32	No
Medication Reconciliation Post-Discharge	N/A	N/A	0097	046	The percentage of discharges from any inpatient facility (e.g. hospital, skilled nursing facility, or rehabilitation facility) for patients 18 years and older of age seen within 30 days following discharge in the office by the physician, prescribing practitioner, registered nurse, or clinical pharmacist providing on-going care for whom the discharge medication list was reconciled with the current medication list in the outpatient medical record. This measure is reported as three rates stratified by age group: • Reporting Criteria 1: 18-64 years of age • Reporting Criteria 2: 65 years and older • Total Rate: All patients 18 years of age and older	Communication and Care Coordination	Process	Q046-High Priority	X		National Committee for Quality Assurance	Registry/ QCDR	Y	91.97 - 98.02	98.03 - 99.99	--	--	--	--	--	100	Yes
Care Plan	N/A	N/A	0326	047	Percentage of patients aged 65 years and older who have an advance care plan or surrogate decision maker documented in the medical record or documentation in the medical record that an advance care plan was discussed but the patient did not wish or was not able to name a surrogate decision maker or provide an advance care plan	Communication and Care Coordination	Process	Q047-High Priority	X		National Committee for Quality Assurance	Registry/ QCDR	y	16.52 - 38.11	38.12 - 59.14	59.15 - 74.99	75.00 - 88.71	88.72 - 96.29	96.30 - 99.17	99.18 - 99.99	100	No
Prevention of Central Venous Catheter (CVC) - Related Bloodstream Infections	N/A	N/A	N/A	076	Percentage of patients, regardless of age, who undergo central venous catheter (CVC) insertion for whom CVC was inserted with all elements of maximal sterile barrier technique, hand hygiene, skin preparation and, if ultrasound is used, sterile ultrasound techniques followed	Patient Safety	Process	Q076-High Priority	X		American Society of Anesthesiologists	Registry/ QCDR	Y	89.66 - 95.99	96.00 - 99.99	--	--	--	--	--	100	Yes
Preventive Care and Screening: Influenza Immunization	CMS147v5	N/A	0041	110	Percentage of patients aged 6 months and older seen for a visit between October 1 and March 31 who received an influenza immunization OR who reported previous receipt of an influenza immunization	Community/Population Health	Process	Q110			Physician Consortium for Performance Improvement	Registry/ QCDR	Y	11.57 - 21.39	21.40 - 31.39	31.40 - 41.31	41.32 - 51.13	51.14 - 62.04	62.05 - 74.27	74.28 - 91.83	>= 91.84	No
Pneumococcal Vaccination Status for Older Adults	CMS127v5	N/A	0043	111	Percentage of patients 65 years of age and older who have ever received a pneumococcal vaccine.	Community/Population Health	Process	Q111			National Committee for Quality Assurance	Registry/ QCDR	Y	12.24 - 24.02	24.03 - 36.34	36.35 - 48.51	48.52 - 58.95	58.96 - 68.05	68.06 - 77.77	77.78 - 90.19	>= 90.20	No
Diabetes: Medical Attention for Nephropathy	CMS134v5	N/A	0062	119	The percentage of patients 18-75 years of age with diabetes who had a nephropathy screening test or evidence of nephropathy during the measurement period.	Effective Clinical Care	Process	Q119			National Committee for Quality Assurance	Registry/ QCDR	Y	66.24 - 73.41	73.42 - 79.16	79.17 - 83.01	83.02 - 86.95	86.96 - 90.47	90.48 - 94.51	94.52 - 99.70	>= 99.71	No
Adult Kidney Disease: Blood Pressure Management	N/A	N/A	N/A	122	Percentage of patient visits for those patients aged 18 years and older with a diagnosis of chronic kidney disease (CKD) (stage 3, 4, or 5, not receiving Renal Replacement Therapy [RRT]) with a blood pressure < 140/90 mmHg OR ≥ 140/90 mmHg with a documented plan of care	Effective Clinical Care	Intermediate Outcome	Q122-Outcome/High Priority	X		Renal Physicians Association	Registry/ QCDR	Y	60.62 - 67.49	67.50 - 75.46	75.47 - 87.87	87.88 - 94.33	94.34 - 96.35	96.36 - 97.77	97.78 - 99.74	>= 99.75	No
Diabetes Mellitus: Diabetic Foot and Ankle Care, Peripheral Neuropathy – Neurological Evaluation	N/A	N/A	0417	126	Percentage of patients aged 18 years and older with a diagnosis of diabetes mellitus who had a neurological examination of their lower extremities within 12 months	Effective Clinical Care	Process	Q126			American Podiatric Medical Association	Registry/ QCDR	Y	10.34 - 18.46	18.47 - 28.94	28.95 - 41.66	41.67 - 60.23	60.24 - 75.20	75.21 - 89.89	89.90 - 99.99	100	No
Diabetes Mellitus: Diabetic Foot and Ankle Care, Ulcer Prevention – Evaluation of Footwear	N/A	N/A	0416	127	Percentage of patients aged 18 years and older with a diagnosis of diabetes mellitus who were evaluated for proper footwear and sizing	Effective Clinical Care	Process	Q127			American Podiatric Medical Association	Registry/ QCDR	Y	4.26 - 11.10	11.11 - 22.80	22.81 - 39.99	40.00 - 61.69	61.70 - 79.56	79.57 - 93.74	93.75 - 99.99	100	No

Source: Renal Physicians Association http://www.renalmd.org/page/physiciandevelopment

Measure Title	eMeasure ID	eMeasure NQF	NQF	Quality Number (Q#)	Measure Description	NQS Domain	Measure Type	Measure ID	High Priority	Appropriate Use	Primary Measure Steward	Submission method	Registry/ QCDR Benchmark	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10	Topped Out
Preventive Care and Screening: Body Mass Index (BMI) Screening and Follow-Up Plan	CMS69v5	N/A	0421	128	Percentage of patients aged 18 years and older with a BMI documented during the current encounter or during the previous six months AND with a BMI outside of normal parameters, a follow-up plan is documented during the encounter or during the previous six months of the current encounter Normal Parameters: Age 18 years and older BMI => 18.5 and < 25 kg/m2	Community/Population Health	Process	Q128			Centers for Medicare & Medicaid Services	Registry/ QCDR	Y	39.80 - 45.63	45.64 - 50.91	50.92 - 56.68	56.69 - 64.88	64.89 - 75.81	75.82 - 87.12	87.13 - 97.33	>= 97.34	No
Documentation of Current Medications in the Medical Record	CMS68v6	N/A	0419	130	Percentage of visits for patients aged 18 years and older for which the eligible professional attests to documenting a list of current medications using all immediate resources available on the date of the encounter. This list must include ALL known prescriptions, over-the-counters, herbals, and vitamin/mineral/dietary (nutritional) supplements AND must contain the medications' name, dosage, frequency and route of administration.	Patient Safety	Process	Q130-High Priority	X		Centers for Medicare & Medicaid Services	Registry/ QCDR	Y	61.27 - 82.11	82.12 - 91.71	91.72 - 96.86	96.87 - 99.30	99.31 - 99.99	--	--	100	Yes
Pain Assessment and Follow-Up	N/A	N/A	0420	131	Percentage of visits for patients aged 18 years and older with documentation of a pain assessment using a standardized tool(s) on each visit AND documentation of a follow-up plan when pain is present	Communication and Care Coordination	Process	Q131-High Priority	X		Centers for Medicare & Medicaid Services	Registry/ QCDR	Y	8.91 - 26.13	26.14 - 50.11	50.12 - 72.57	72.58 - 91.42	91.43 - 99.02	99.03 - 99.99	--	100	No
Radiology: Exposure Dose or Time Reported for Procedures Using Fluoroscopy	N/A	N/A	N/A	145	Final reports for procedures using fluoroscopy that document radiation exposure indices, or exposure time and number of fluorographic images (if radiation exposure indices are not available)	Patient Safety	Process	Q145-High Priority	X	X	American College of Radiology	Registry/ QCDR	Y	67.86 - 77.99	78.00 - 84.61	84.62 - 89.77	89.78 - 93.41	93.42 - 96.66	96.67 - 99.59	99.60 - 99.99	100	No
Falls: Risk Assessment	N/A	N/A	0101	154	Percentage of patients aged 65 years and older with a history of falls that had a risk assessment for falls completed within 12 months	Patient Safety	Process	Q154-High Priority	X		National Committee for Quality Assurance	Registry/ QCDR	Y	7.81 - 19.99	20.00 - 38.12	38.13 - 57.62	57.63 - 84.16	84.17 - 99.82	99.83 - 99.99	--	100	No
Falls: Plan of Care	N/A	N/A	0101	155	Percentage of patients aged 65 years and older with a history of falls that had a plan of care for falls documented within 12 months	Communication and Care Coordination	Process	Q155-High Priority	X		National Committee for Quality Assurance	Registry/ QCDR	Y	20.00 - 41.43	41.44 - 62.11	62.12 - 75.44	75.45 - 85.99	86.00 - 93.32	93.33 - 98.07	98.08 - 99.99	100	No
Diabetes: Foot Exam	CMS123v5	N/A	0056	163	The percentage of patients 18-75 years of age with diabetes (type 1 and type 2) who received a foot exam (visual inspection and sensory exam with mono filament and a pulse exam) during the measurement year	Effective Clinical Care	Process	Q163			National Committee for Quality Assurance	Registry/ QCDR	Y	6.14 - 14.70	14.71 - 25.57	25.58 - 39.80	39.81 - 55.87	55.88 - 72.21	72.22 - 86.43	86.44 - 98.03	>= 98.04	No
Functional Outcome Assessment	N/A	N/A	2624	182	Percentage of visits for patients aged 18 years and older with documentation of a current functional outcome assessment using a standardized functional outcome assessment tool on the date of the encounter AND documentation of a care plan based on identified functional outcome deficiencies on the date of the identified deficiencies	Communication and Care Coordination	Process	Q182-High Priority	X		Centers for Medicare & Medicaid Services	Registry/ QCDR	Y	94.35 - 97.47	97.48 - 99.20	99.21 - 99.99	--	--	--	--	100	Yes
Preventive Care and Screening: Tobacco Use: Screening and Cessation Intervention	CMS138v5	N/A	0028	226	Percentage of patients aged 18 years and older who were screened for tobacco use one or more times within 24 months AND who received cessation counseling intervention if identified as a tobacco user	Community/Population Health	Process	Q226			Physician Consortium for Performance Improvement	Registry/ QCDR	Y	76.67 - 85.53	85.54 - 89.87	89.88 - 92.85	92.86 - 95.14	95.15 - 97.21	97.22 - 99.10	99.11 - 99.99	100	No
Controlling High Blood Pressure	CMS165v5	N/A	0018	236	Percentage of patients 18-85 years of age who had a diagnosis of hypertension and whose blood pressure was adequately controlled (<140/90mmHg) during the measurement period	Effective Clinical Care	Intermediate Outcome	Q236-Outcome/High Priority	X		National Committee for Quality Assurance	Registry/ QCDR	Y	51.00 - 58.20	58.21 - 63.56	63.57 - 68.27	68.28 - 72.40	72.41 - 76.69	76.70 - 82.75	82.76 - 91.06	>= 91.07	No

Measure Title	eMeasure ID	eMeasure NQF	NQF	Quality Number (Q#)	Measure Description	NQS Domain	Measure Type	Measure ID	High Priority	Appropriate Use	Primary Measure Steward	Submission method	Registry/ QCDR Benchmark	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10	Topped Out
Use of High-Risk Medications in the Elderly	CMS156v5	N/A	0022	238	Percentage of patients 66 years of age and older who were ordered high-risk medications. Two rates are reported. a. Percentage of patients who were ordered at least one high-risk medication. b. Percentage of patients who were ordered at least two different high-risk medications.	Patient Safety	Process	Q238-High Priority	X		National Committee for Quality Assurance	Registry/ QCDR	Y	20.00 - 15.02	15.01 - 10.54	10.53 - 6.23	6.22 - 2.64	2.63 - 1.00	0.99 - 0.29	0.28 - 0.01	0	No
Falls: Screening for Future Fall Risk	CMS139v5	N/A	0101	318	Percentage of patients 65 years of age and older who were screened for future fall risk during the measurement period.	Patient Safety	Process	Q318-High Priority	X		National Committee for Quality Assurance	Registry/ QCDR	Y	0.11 - 0.11	0.12 - 0.14	0.15 - 0.20	0.21 - 0.28	0.29 - 0.50	0.51 - 55.23	55.24 - 92.20	>= 92.21	No
Pediatric Kidney Disease: Adequacy of Volume Management	N/A	N/A	N/A	327	Percentage of calendar months within a 12-month period during which patients aged 17 years and younger with a diagnosis of End Stage Renal Disease (ESRD) undergoing maintenance hemodialysis in an outpatient dialysis facility have an assessment of the adequacy of volume management from a nephrologist	Effective Clinical Care	Process	Q327-High Priority	X		Renal Physicians Association	Registry/ QCDR	N									
Pediatric Kidney Disease: ESRD Patients Receiving Dialysis: Hemoglobin Level < 10 g/dL	N/A	N/A	1667	328	Percentage of calendar months within a 12-month period during which patients aged 17 years and younger with a diagnosis of End Stage Renal Disease (ESRD) receiving hemodialysis or peritoneal dialysis have a hemoglobin level < 10 g/dL	Effective Clinical Care	Intermediate Outcome	Q328-Outcome/High Priority	X		Renal Physicians Association	Registry/ QCDR	N									
Adult Kidney Disease: Catheter Use at Initiation of Hemodialysis	N/A	N/A	N/A	329	Percentage of patients aged 18 years and older with a diagnosis of End Stage Renal Disease (ESRD) who initiate maintenance hemodialysis during the measurement period, whose mode of vascular access is a catheter at the time maintenance hemodialysis is initiated	Effective Clinical Care	Outcome	Q329-Outcome/High Priority	X		Renal Physicians Association	Registry/ QCDR	N									
Adult Kidney Disease: Catheter Use for Greater Than or Equal to 90 Days	N/A	N/A	N/A	330	Percentage of patients aged 18 years and older with a diagnosis of End Stage Renal Disease (ESRD) receiving maintenance hemodialysis for greater than or equal to 90 days whose mode of vascular access is a catheter	Patient Safety	Outcome	Q330-Outcome/High Priority	X	X	Renal Physicians Association	Registry/ QCDR	N									
Surgical Site Infection (SSI)	N/A	N/A	N/A	357	Percentage of patients aged 18 years and older who had a surgical site infection (SSI)	Effective Clinical Care	Outcome	Q357-Outcome/High Priority	X		American College of Surgeons	Registry/ QCDR	N									
Patient-Centered Surgical Risk Assessment and Communication	N/A	N/A	N/A	358	Percentage of patients who underwent a non-emergency surgery who had their personalized risks of postoperative complications assessed by their surgical team prior to surgery using a clinical data-based, patient-specific risk calculator and who received personal discussion of these risks with the surgeon	Person and Caregiver-Centered Experience and Outcomes	Process	Q358-HighPriority	X		American College of Surgeons	Registry/ QCDR	Y	8.47 - 27.02	27.03 - 78.25	78.26 - 95.23	95.24 - 99.99	--	--	--	100	Yes
One-Time Screening for Hepatitis C Virus (HCV) for Patients at Risk	N/A	N/A	N/A	400	Percentage of patients aged 18 years and older with one or more of the following: a history of injection drug use, receipt of a blood transfusion prior to 1992, receiving maintenance hemodialysis, OR birthdate in the years 1945-1965 who received one-time screening for hepatitis C virus (HCV) infection	Effective Clinical Care	Process	Q400			Physician Consortium for Performance Improvement	Registry/ QCDR	Y	1.19 - 1.33	1.34 - 1.53	1.54 - 1.71	1.72 - 2.09	2.10 - 2.92	2.93 - 8.32	8.33 - 20.01	>= 20.02	No
Adult Kidney Disease: Referral to Hospice	N/A	N/A	N/A	403	Percentage of patients aged 18 years and older with a diagnosis of ESRD who withdraw from hemodialysis or peritoneal dialysis who are referred to hospice care	Person and Caregiver-Centered Experience and Outcomes	Process	Q403-High Priority	X		Renal Physicians Association	Registry/ QCDR	N									

End Stage Renal Disease (ESRD) Quality Measure Development, Maintenance, and Support

Physician Level Measures
Technical Expert Panel Bibliography

Literature Review Summary

UM-KECC's Literature Review and Environmental Scan supporting the Physician Level Measures Technical Expert Panel began in December. Given the large number of pre-existing measures developed for PQRS and subsequently QPP, our main focus for this project's Environmental Scan was to identify pre-existing quality measures recommended by national subspecialty provider organizations for use in CKD and or ESRD clinical areas. In addition, we supplemented this rich quality measure environment with targeted literature search strategies decsribed briefly here. For this review, a series of searches were undertaken iteratively to identify pertinent PubMed and Google Scholer content discussing physician quality measurement specific to physicians treating patients with end stage renal disease. The titles and abstract were reviewed for relevancy and 16 were selected for inclusion. These references were supplemented by literature relevent to the general population, for a total of 33 articles included in the bibliography.

Literature relevent to the ESRD population

Campbell, Stephen M., David Reeves, Evangelos Kontopantelis, Bonnie Sibbald, and Martin Roland. **Effects of pay for performance on the quality of primary care in England.** *New England Journal of Medicine 361, no. 4 (2009): 368-378.*

Abstract:
Background: A pay-for-performance scheme based on meeting targets for the quality of clinical care was introduced to family practice in England in 2004.

Methods: We conducted an interrupted time-series analysis of the quality of care in 42 representative family practices, with data collected at two time points before implementation of the scheme (1998 and 2003) and at two time points after implementation (2005 and 2007). At each time point, data on the care of patients with asthma, diabetes, or coronary heart disease were extracted from medical records; data on patients' perceptions of access to care, continuity of care, and interpersonal aspects of care were collected from questionnaires. The analysis included aspects of care that were and those that were not associated with incentives.

Results: Between 2003 and 2005, the rate of improvement in the quality of care increased for asthma and diabetes (P<0.001) but not for heart disease. By 2007, the rate of improvement had slowed for all three conditions (P<0.001), and the quality of those aspects of care that were not associated with an incentive had declined for patients with asthma or heart disease. As compared with the period before the pay-for performance scheme was introduced, the improvement rate after 2005 was unchanged for asthma or diabetes and was reduced for heart disease (P=0.02). No significant changes were seen in patients' reports on access to care or on interpersonal aspects of care. The level of the continuity of care, which had been constant, showed a reduction immediately after the introduction of the pay-for-performance scheme (P<0.001) and then continued at that reduced level.

Conclusions: Against a background of increases in the quality of care before the pay-for-performance scheme was introduced, the scheme accelerated improvements in quality for two of three chronic conditions in the short term. However, once targets were reached, the improvement in the quality of care for patients with these conditions slowed, and the quality of care declined for two conditions that had not been linked to incentives. Continuity of care was reduced after the introduction of the scheme.

DeOreo, Peter B. **The use of patient-based instruments to measure, manage, and improve quality of care in dialysis facilities.** *Advances in renal replacement therapy* 8, no. 2 (2001): 125-130.

Abstract: Continuous quality improvement requires analysis of data and the variation in those data to improve the process of care. Traditionally, physicians assign a higher value to quantitative data gathered from laboratory and physiologic testing than to data gathered from querying patients. There is a growing literature validating the use of patient-assessed health status as primary data in measuring and managing quality improvement. There are a range of patient-assessed data, from simple complaints to psychometrically validated health status instruments. Each has its own use. Each are increasingly available for use in the routine conduct of care. Patient-assessed health status predicts important outcomes of care such as death, hospitalization, depression, and physical capacity. Providers can use them to plan and monitor

care. The ongoing challenge is to align the patients' expectations for issues related to process of care with issues associated with outcomes of care.

Geetha D, Lee SK, Srivastava AJ, Kraus ES, Wright SM. **Clinical excellence in nephrology: Examples from the published literature.** *BMC Nephrol. 2015 Aug 15;16:141.*

Abstract:
Background: Provision of exceptional medical care is a goal for the medical profession because this is what the public needs and deserves. Academic medical centers that value excellent clinicians may have the best chance to recruit and retain these faculty members. When our institution hoped to launch the Miller Coulson Academy of Clinical Excellence to measure and reward master clinicians, a critical first step was to use rigorous methods to develop a definition of clinical excellence. Published papers have illustrated that this general definition of clinical excellence is applicable to fields of psychiatry, cardiology, and pediatrics.

Summary: In this manuscript, we apply the definition of clinical excellence to nephrology. Using the same framework, we reviewed the literature to find clinical cases and exemplary nephrologists that highlight the specific domains. This collection of reports in nephrology illustrates that the definition of clinical excellence set forth by the Miller Coulson Academy is highly applicable to physicians caring for individuals with kidney disease. Relating the definition of clinical excellence to renal medicine is worthwhile in that it can help to exemplify the model to which physicians and trainees may seek to aspire.

Key message: Many examples of clinical excellence in renal medicine can be found in the published medical literature. The domains of clinical excellence, described by the Miller-Coulson Academy of Clinical Excellence, apply very well to the field of nephrology.

Himmelfarb, Jonathan, Arnold Berns, Lynda Szczech, and Donald Wesson. **Cost, quality, and value: the changing political economy of dialysis care.** *Journal of the American Society of Nephrology 18, no. 7 (2007): 2021-2027.*

Abstract: Clinical nephrology, perhaps more than any other medical subspecialty, has been shaped by a single medical procedure, namely the provision of dialysis. Several medical historians and students of the ESRD program in the United States have commented extensively on how legacies associated with Medicare's funding of ESRD have helped frame policy choices made by Congress, Medicare, and the nephrology community. Nephrology care as it exists today is a direct result of Congress's establishing the Medicare entitlement for treatment of individuals with ESRD in 1972.3 It is interesting that congressional consent to this provision was partly predicated on a 1967 Gottschalk Committee report, which estimated an incidence of approximately 40 cases of ESRD per million persons per year, or roughly 12% of the current actual rate. The Gottschalk Committee estimates were based on the assumption that the treated ESRD population would be limited to individuals who were 14 to 45 yr of age and free of comorbid conditions.

Himmelfarb, Jonathan, Brian JG Pereira, Donald E. Wesson, Paul C. Smedberg, and William L. Henrich. **Payment for quality in end-stage renal disease.** *Journal of the American Society of Nephrology 15, no. 12 (2004): 3263-3269.*

Abstract: The Centers for Medicare and Medicaid Services (CMS) End-Stage Renal Disease (ESRD) Program has served as a model for health care policy innovation because of several unique features: the program provides dialysis and kidney transplantation services where the alternative to renal replacement therapy is death; the program has a circumscribed, easily tracked population of patients; and the cost associated with the program has afforded administrators and providers opportunity for innovation and improvement in care delivery over the past three decades (1). Additionally, the wealth of detailed information available from unique databases such as the United States Renal Data System that have been designed to follow the ESRD population have facilitated assessment of the effect of evidence-based guidelines that have shaped health care delivery and policy. The recent publication of the Final Physician Fee Schedule Rule by CMS, the release of the Medicare Payment Advisory Commission (MedPAC) report on payment for out-patient dialysis, and the Medicare Modernization Act (MMA) of 2003 have focused attention on the goal of linking payments to quality care in the ESRD setting. The leadership of the American Society of Nephrology and the National Kidney Foundation recently convened a working group of experts to examine whether the ESRD system of payment can be redesigned to encourage quality-based care delivery. The deliberations of this group (Appendix) helped formulate this article.

Hirth RA, Turenne MN, Wheeler JR, Pan Q, Ma Y, Messana JM. **Provider monitoring and pay-for-performance when multiple providers affect outcomes: An application to renal dialysis.** *Health Serv Res. 2009 Oct;44(5 Pt 1):1585-602.*

Abstract:
OBJECTIVE:

To characterize the influence of dialysis facilities and nephrologists on resource use and patient outcomes in the dialysis population and to illustrate how such information can be used to inform payment system design.

DATA SOURCES:

Medicare claims for all hemodialysis patients for whom Medicare was the primary payer in 2004, combined with the Medicare Enrollment Database and the CMS Medical Evidence Form (CMS Form 2728), which is completed at onset of renal replacement therapy.

STUDY DESIGN:

Resource use (mainly drugs and laboratory tests) per dialysis session and two clinical outcomes (achieving targets for anemia management and dose of dialysis) were modeled at the patient level with random effects for nephrologist and dialysis facility, controlling for patient characteristics.

RESULTS:

For each measure, both the physician and the facility had significant effects. However, facilities were more influential than physicians, as measured by the standard deviation of the random effects.

CONCLUSIONS:

The success of tools such as P4P and provider profiling relies upon the identification of providers most able to enhance efficiency and quality. This paper demonstrates a method for determining the extent to which variation in health care costs and quality of care can be attributed to physicians and institutional providers. Because variation in quality and cost attributable to facilities is consistently larger than that attributable to physicians, if provider profiling or financial incentives are targeted to only one type of provider, the facility appears to be the appropriate locus.

Krishnan M, Brunelli SM, Maddux FW, Parker TF 3rd, Johnson D, Nissenson AR, Collins A, Lacson E Jr. **Guiding principles and checklist for population-based quality metrics.** *Clin J Am Soc Nephrol. 2014 Jun 6;9(6):1124-31.*

Abstract: The Centers for Medicare and Medicaid Services oversees the ESRD Quality Incentive Program to ensure that the highest quality of health care is provided by outpatient dialysis facilities that treat patients with ESRD. To that end, Centers for Medicare and Medicaid Services uses clinical performance measures to evaluate quality of care under a pay-for-performance or value-based purchasing model. Now more than ever, the ESRD therapeutic area serves as the vanguard of health care delivery. By translating medical evidence into clinical performance measures, the ESRD Prospective Payment System became the first disease-specific sector using the pay-for-performance model. A major challenge for the creation and implementation of clinical performance measures is the adjustments that are necessary to transition from taking care of individual patients to managing the care of patient populations. The National Quality Forum and others have developed effective and appropriate population-based clinical performance measures quality metrics that can be aggregated at the physician, hospital, dialysis facility, nursing home, or surgery center level. Clinical performance measures considered for endorsement by the National Quality Forum are evaluated using five key criteria: evidence, performance gap, and priority (impact); reliability; validity; feasibility; and usability and use. We have developed a checklist of special considerations for clinical performance measure development according to these National Quality Forum criteria. Although the checklist is focused on ESRD, it could also have broad application to chronic disease states, where health care delivery organizations seek to enhance quality, safety, and efficiency of their services. Clinical performance measures are likely to become the norm for tracking performance for health care insurers. Thus, it is critical that the methodologies used to develop such metrics serve the payer and the provider and most importantly, reflect what represents the best care to improve patient outcomes.

Kliger, Alan S. **Quality measures for dialysis: time for a balanced scorecard.** *Clinical Journal of the American Society of Nephrology (2015): CJN-06010615.*

Abstract: Recent federal legislation establishes a merit-based incentive payment system for physicians, with a scorecard for each professional. The Centers for Medicare and Medicaid Services evaluate quality of care with clinical performance measures and have used these metrics for public reporting and payment to dialysis facilities. Similar metrics may be used for the future merit-based incentive payment system. In nephrology, most clinical performance measures measure processes and intermediate outcomes of care. These metrics were developed from population studies of best practice and do not identify opportunities for individualizing care on the basis of patient characteristics and individual goals of treatment. The In-Center Hemodialysis (ICH) Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey examines patients' perception of care and has entered the arena to evaluate quality of care. A balanced scorecard of quality performance should include three elements: population-based best clinical practice, patient perceptions, and individually crafted patient goals of care.

McClellan, William M., Emily Hodgin, Stephen Pastan, Lisa McAdams, and Michael Soucie. **A randomized evaluation of two health care quality improvement program (HCQIP) interventions to improve the adequacy of hemodialysis care of ESRD patients: feedback alone versus intensive intervention.** *Journal of the American Society of Nephrology 15, no. 3 (2004): 754-760.*

Abstract: End-stage renal disease (ESRD) Networks are quality improvement organizations that collect, analyze, and report information to clinicians and allied health providers about discrepancies between observed patterns of care of ESRD patients and what has been recommended by clinical practice guidelines. The Networks facilitate response to this information by assisting ESRD treatment centers to develop quality improvement programs to redress inadequate care. The authors evaluated this process of quality improvement by selecting 42 treatment centers in a single ESRD Network with the lowest facility-specific mean urea reduction ratio (URR). The treatment centers were randomly assigned to two intervention strategies: (1) feedback alone; (2) an intensive intervention that included feedback, workshops, distribution of educational materials and clinical practice guidelines, technical assistance with the development of quality improvement plans, and continued monitoring. The intensive intervention had greater improvement in the increased proportions of patients dialyzed with prescribed blood flow (P = 0.02) and documented review of prescription (P = 0.01). Furthermore, the mean center URR increased nearly 3% among intensive intervention centers (from 68.1 to 70.9) but only 0.09% among the feedback centers (68.2 to 69.1) (P = 0.002). Similarly, time on dialysis increased 7.5 min on average among patients in intervention centers but decreased 2 min for patients in comparison centers (P = 0.03). These results demonstrate that Network feedback, coupled with the intensive intervention, resulted in improvement in care that would otherwise not have occurred.

Moss, Alvin H., and Sara N. Davison. **How the ESRD quality incentive program could potentially improve quality of life for patients on dialysis.** *Clinical Journal of the American Society of Nephrology 10, no. 5 (2015): 888-893.*

Abstract: For over 20 years, the quality of medical care of the Medicare ESRD Program has been a concern. The Centers for Medicare and Medicaid Services have implemented the ESRD Quality Incentive Program, which uses the principles of value-based purchasing; dialysis providers are paid for performance on predefined quality measures, with a goal of improving patient outcomes and the quality of patient care. The ESRD Quality Incentive Program measures have been criticized, because they are largely disease oriented and use easy-to-obtain laboratory-based indicators, such as Kt/V and hemoglobin, that do not reflect outcomes that are most important to patients and have had a minimal effect on survival or quality of life. A key goal of improving quality of care is to enhance quality of life, a patient-important quality measure that matters more to many patients than even survival. None of the ESRD Quality Incentive Program measures assess patient-reported quality of life. As outlined in the National Quality Strategy, the Centers for Medicare and Medicaid Services are holding providers accountable in six priority domains, in which quality measures have been and are being developed for value-based purchasing. Three measures-patient experience and engagement, clinical care, and care coordination-are particularly relevant to quality care in the ESRD Program; the 2014 ESRD Quality Incentive Program includes six measures, none of which provide data from a patient-centered perspective. Value-based purchasing is a well intentioned step to improve care of patients on dialysis. However, the Centers for Medicare and Medicaid Services need to implement significant change in what is measured for the ESRD Quality Incentive Program to be patient centered and aligned with patients' values, preferences, and needs. This paper provides examples of potential quality measures for patient experience and engagement, clinical care, and care coordination, which if implemented, would be much more likely to enhance quality of life for patients with ESRD than present ESRD Quality Incentive Program measures.

Nissenson, Allen R., Franklin W. Maddux, Ruben L. Velez, Tracy J. Mayne, and Jess Parks. **Accountable care organizations and ESRD: The time has come.** *American Journal of Kidney Diseases 59, no. 5 (2012): 724-733.*

Abstract: Accountable care organizations (ACOs) are a newly proposed vehicle for improving or maintaining high-quality patient care while controlling costs. They are meant to achieve the goals of the Medicare Shared Savings Program mandated by the Patient Protection and Affordable Care Act (PPACA) of 2010. ACOs are voluntary groups of hospitals, physicians, and health care teams that provide care for a defined group of Medicare beneficiaries and assume responsibility for providing high-quality care through defined quality measures at a cost below what would have been expected. If an ACO succeeds in achieving both the quality measures and reduced costs, the ACO will share in Medicare's cost savings. Health care for patients with end-stage renal disease is complex due to multiple patient comorbid conditions, expensive, and often poorly coordinated. Due to the unique needs of patients with end-stage renal disease receiving dialysis, ACOs may be unable to provide the highly specialized quality care these patients require. We discuss the benefits and risks of a renal-focused ACO for dialysis patients, as well as the kidney community's prior experience with an ACO-like demonstration project.

Smith, Kimberly A., and Rodney A. Hayward**. Performance measurement in chronic kidney disease.** *Journal of the American Society of Nephrology 22, no. 2 (2011): 225-234.*

Abstract: Do Americans receive high-value health care? Value only improves by advancing key indicators in one of two directions: increasing quality, decreasing cost, or both. In the face of unyielding mortality rates and the relentless expense of end-stage renal disease, government agencies and professional organizations are now focusing on new quality measures for patients with advancing chronic kidney disease. These performance measures are in early stages of refinement but reflect efforts of payers to slow the incidence of progressive renal disease across the population. To improve quality of care, one must study the performance measures themselves and determine how to capture the necessary data efficiently, identify the appropriate patients for measurement, and assign accountability to providers. Here, we discuss the challenges of doing this well.

Sugarman, Jonathan R., Pamela R. Frederick, Diane L. Frankenfield, William F. Owen, and William M. McClellan**. Developing clinical performance measures based on the Dialysis Outcomes Quality Initiative Clinical Practice Guidelines: process, outcomes, and implications 1, 2.** *American journal of kidney diseases 42, no. 4 (2003): 806-812.*

Abstract:

Background:

The National Kidney Foundation-Dialysis Outcomes Quality Initiative (NKF-DOQI) Clinical Practice Guidelines established a widely accepted set of recommendations for high-quality dialysis care. To enhance the End-Stage Renal Disease Core Indicators Project, an ongoing effort to assess and improve dialysis care in the United States, the Centers for Medicare and Medicaid Services (CMS) commissioned a project to develop clinical performance measures (CPMs) based on the NKF-DOQI guidelines.

Methods:

The CMS contracted with Qualis Health, a private nonprofit organization serving as a Medicare Quality Improvement Organization, to facilitate a 9-month project to develop dialysis CPMs with the participation of a broad range of stakeholders from the renal community. Work groups were established to develop CPMs addressing 4 areas: hemodialysis adequacy, peritoneal dialysis adequacy, vascular access management, and anemia management. The NKF-DOQI guidelines were prioritized based on the strength of the evidence supporting the guidelines, the feasibility of developing performance measures, and the significance of the areas addressed to the quality of care delivered to dialysis patients. Expert panels developed data specifications, sampling approaches, data-collection tools, and analytic strategies.

Results:

Sixteen CPMs were developed based on 22 of 114 NKF-DOQI guidelines. After establishing reliability through field-testing of data-collection instruments, the CPMs were applied to a sample of 8,838 randomly selected hemodialysis patients and 1,650 randomly selected adult peritoneal dialysis patients in summer 1999.

Conclusion:
The development of CPMs based on the NKF-DOQI Clinical Practice Guidelines for dialysis care was accomplished in a timely and effective manner by engaging a broad range of stakeholders and technical experts. The CPMs are important tools to assess and improve the quality of dialysis care in the United States. Few comparable efforts exist in other fields of medicine.

Toussaint ND, McMahon LP, Dowling G, Soding J, Safe M, Knight R, Fair K, Linehan L, Walker RG, Power DA. **Implementation of renal key performance indicators: promoting improved clinical practice.** *Nephrology (Carlton). 2015 Mar;20(3):184-93.*

Abstract:
AIM:
In the Australian state of Victoria, the Renal Health Clinical Network (RHCN) of the Department of Health Victoria established a Renal Key Performance Indicator (KPI) Working Group in 2011. The group developed four KPIs related to chronic kidney disease and dialysis. A transplant working group of the RHCN developed two additional KPIs. The aim was to develop clinical indicators to measure performance of renal services to drive service improvement.

METHODS:
A data collection and benchmarking programme was established, with data provided monthly to the Department using a purpose-designed website portal. The KPI Working Group is responsible for analysing data each quarter and ensuring indicators remain accurate and relevant. Each indicator has clear definitions and targets, and assess (i) patient education, (ii) timely creation of vascular access for haemodialysis, (iii) proportion of patients dialysing at home, (iv) incidence of dialysis-related peritonitis, (v) incidence of pre-emptive renal transplantation, and (vi) timely listing of patients for deceased donor transplantation.

RESULTS:
Most KPIs have demonstrated improved performance over time with limited gains notably in two: the proportion of patients dialysing at home (KPI 3) and timely listing patients for transplantation (KPI 6).

CONCLUSION:
KPI implementation has been established in Victoria for 2 years, providing performance data without additional funding. The six Victorian KPIs are measurable, relevant and modifiable, and implementation relies on enthusiasm and goodwill of physicians and nurses involved in collecting data. The KPIs require further evaluation, but adoption of a similar programme by other jurisdictions could lead to improved national outcomes.

Turenne MN, Hirth RA, Pan Q, Wolfe RA, Messana JM, Wheeler JR. **Using knowledge of multiple levels of variation in care to target performance incentives to providers.** *Med Care. 2008 Feb;46(2):120-6.*

Abstract:

BACKGROUND:
In developing pay-for-performance and capitation systems that provide incentives for improving the quality and efficiency of care, policymakers need to determine which healthcare providers to evaluate and reward.

OBJECTIVES:
This study demonstrates methods for determining and understanding the relative contributions of facilities and physicians to the quality and cost of care. Specifically, this study distinguishes levels of variation in resource utilization (RU), based on research to support the development of an expanded Medicare dialysis prospective payment system.

RESEARCH DESIGN:
Mixed models were used to estimate the variation in RU across institutional providers, physicians, patients, and months (within patients), after adjusting for case-mix.

SUBJECTS:
The study includes 10,367 Medicare hemodialysis patients treated in a 4.2% stratified random sample of dialysis facilities in 2003.

MEASURES:
Monthly RU was measured by the average Medicare allowable charge per dialysis session for separately billable dialysis-related services (mainly injectable medications and laboratory tests) from Medicare claims.

RESULTS:
There was financially significant variation in RU across institutional providers and to a lesser degree across physicians, after adjusting for differences in case-mix. The remaining variation in RU reflects unexplained differences across patients that persist over time and transitory fluctuations for individual patients.

CONCLUSIONS:
The greater variation in RU occurring across dialysis facilities than across physicians is consistent with targeting payments to facilities, but alignment of incentives between facilities and physicians remains an important goal. Similar analytic methods may be useful in designing payment policies that reward providers for improving the quality of care.

Wintz R, Rosenthal B, Fadem SZ. **The Physician Quality Reporting Initiative: a practical approach to implementing quality reporting.** *Adv Chronic Kidney Dis. 2008 Jan;15(1):56-63.*

Abstract: The Physician Quality Reporting Initiative (PQRI) is a voluntary program in which Medicare encourages eligible physicians in the United States to report on specific quality measures. This article is a case study of the implementation of PQRI reporting by Kidney Associates, a nephrology practice in Houston, TX. After reviewing and discussing 74 potential measures, the group narrowed the selection to 5 and chose 1 office measure and 2 dialysis measures. PQRI reporting was established through an Encounter Note template that forced a required entry for whether a patient was diabetic. For each diabetic, blood pressures were entered in the template and appropriate G-codes were created, which were then selected and linked with the diabetes International Classification of Diseases, Ninth Revision code and electronically submitted for billing. The dialysis measures were automatically selected from the urea reduction rate and hematocrit (hemoglobin x 3) measures that were received for each patient on a regular basis from a large dialysis chain. Software was developed to parse these data, evaluate them, and generate the appropriate G-codes. At the end of the billing cycle, these data were exported through a standard spreadsheet formatting along with the billing G codes, and claims were submitted. The system was cost-effective to implement, required minimal education, and achieved 100% cooperation through feedback education and rapid correction of systems issues. Kidney Associates was able to show that PQRI reporting is easy to implement with minimal expense and staff labor. Sharing these methods with other practices should facilitate the implementation of efficient reporting systems.

Literature relevent to the general population

Bardach NS, Wang JJ, De Leon SF, Shih SC, Boscardin WJ, Goldman LE, Dudley RA. **Effect of pay-for-performance incentives on quality of care in small practices with electronic health records: a randomized trial.** *25. JAMA. 2013 Sep 11;310(10):1051-9.*

Abstract:
IMPORTANCE: Most evaluations of pay-for-performance (P4P) incentives have focused on large-group practices. Thus, the effect of P4P in small practices, where many US residents receive care, is largely unknown. Furthermore, whether electronic health records (EHRs) with chronic disease management capabilities support small-practice response to P4P has not been studied.

OBJECTIVE: To assess the effect of P4P incentives on quality in EHR-enabled small practices in the context of an established quality improvement initiative.

DESIGN, SETTING, AND PARTICIPANTS: A cluster-randomized trial of small (<10 clinicians) primary care clinics in New York City from April 2009 through March 2010. A city program provided all participating clinics with the same HER software with decision support and patient registry functionalities and quality improvement specialists offering technical assistance.

INTERVENTIONS: Incentivized clinics were paid for each patient whose care met the performance criteria, but they received higher payments for patients with comorbidities, who had Medicaid insurance, or who were uninsured (maximum payments: $200/patient; $100,000/clinic). Quality reports were given quarterly to both the intervention and control groups.

MAIN OUTCOMES AND MEASURES: Comparison of differences in performance improvement, from the beginning to the end of the study, between control and intervention clinics for aspirin or antithrombotic prescription, blood pressure control, cholesterol control, and smoking cessation interventions. Mixed-effects logistic regression was used to account for clustering of patients within clinics, with a treatment by time interaction term assessing the statistical significance of the effect of the intervention.

RESULTS: Participating clinics (n,Äâ=,Äâ42 for each group) had similar baseline characteristics, with a mean of 4592 (median, 2500) patients at the intervention group clinics and 3042 (median, 2000) at the control group clinics. Intervention clinics had greater adjusted absolute improvement in rates of appropriate antithrombotic prescription (12.0% vs 6.1%, difference: 6.0% [95% CI, 2.2% to 9.7%], P,Äâ=,Äâ.001 for interaction term), blood pressure control (no comorbidities: 9.7% vs 4.3%, difference: 5.5% [95% CI, 1.6% to 9.3%], P,Äâ=,Äâ.01 for interaction term; with diabetes mellitus: 9.0% vs 1.2%, difference: 7.8% [95% CI, 3.2% to 12.4%], P,Äâ=,Äâ.007 for interaction term; with diabetes mellitus or ischemic vascular disease: 9.5% vs 1.7%, difference: 7.8% [95% CI, 3.0% to 12.6%], P,Äâ=,Äâ.01 for interaction term), and in smoking cessation interventions (12.4% vs 7.7%, difference: 4.7% [95% CI, -0.3% to 9.6%], P,Äâ=,Äâ.02 for interaction term). Intervention clinics performed better on all measures for Medicaid and uninsured patients except cholesterol control, but no differences were statistically significant.

CONCLUSIONS AND RELEVANCE: Among small EHR-enabled clinics, a P4P incentive program compared with usual care resulted in modest improvements in cardiovascular care processes and outcomes. Because most proposed P4P programs are intended to remain in place more

than a year, further research is needed to determine whether this effect increases or decreases over time.

Epstein RM, Hundert EM. **Defining and assessing professional competence.** *JAMA. 2002 Jan 9;287(2):226-35.*

Abstract:

CONTEXT: Current assessment formats for physicians and trainees reliably test core knowledge and basic skills. However, they may underemphasize some important domains of professional medical practice, including interpersonal skills, lifelong learning, professionalism, and integration of core knowledge into clinical practice.

OBJECTIVES: To propose a definition of professional competence, to review current means for assessing it, and to suggest new approaches to assessment.

DATA SOURCES: We searched the MEDLINE database from 1966 to 2001 and reference lists of relevant articles for English-language studies of reliability or validity of measures of competence of physicians, medical students, and residents.

STUDY SELECTION: We excluded articles of a purely descriptive nature, duplicate reports, reviews, and opinions and position statements, which yielded 195 relevant citations.

DATA EXTRACTION: Data were abstracted by 1 of us (R.M.E.). Quality criteria for inclusion were broad, given the heterogeneity of interventions, complexity of outcome measures, and paucity of randomized or longitudinal study designs.

DATA SYNTHESIS: We generated an inclusive definition of competence: the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and the community being served. Aside from protecting the public and limiting access to advanced training, assessments should foster habits of learning and self-reflection and drive institutional change. Subjective, multiple-choice, and standardized patient assessments, although reliable, underemphasize important domains of professional competence: integration of knowledge and skills, context of care, information management, teamwork, health systems, and patient-physician relationships. Few assessments observe trainees in real-life situations, incorporate the perspectives of peers and patients, or use measures that predict clinical outcomes.

CONCLUSIONS: In addition to assessments of basic skills, new formats that assess clinical reasoning, expert judgment, management of ambiguity, professionalism, time management, learning strategies, and teamwork promise a multidimensional assessment while maintaining adequate reliability and validity. Institutional support, reflection, and mentoring must accompany the development of assessment programs.

Finn AP, Borboli-Gerogiannis S, Brauner S, Peggy Chang HY, Chen S, Gardiner M, Greenstein S, Kloek C, Miller JW, Chen TC. **Assessing Resident Cataract Surgery Outcomes Using Medicare Physician Quality Reporting System Measures.** *8. J Surg Educ. 2016 Sep-Oct;73(5):774-9.*

Abstract:

OBJECTIVES: To assess resident cataract surgery outcomes at an academic teaching institution using 2 Physician Quality Reporting System (PQRS) cataract measures, which are intended to serve as a proxy for quality of surgical care.

DESIGN: A retrospective review comparing cataract surgery outcomes of resident and attending surgeries using 2 PQRS measures: (1) 20/40 or better best-corrected visual acuity following cataract surgery and (2) complications within 30 days following cataract surgery requiring additional surgical procedures.

SETTING: An academic ophthalmology center.

PARTICIPANTS: A total of 2487 surgeries performed at the Massachusetts Eye and Ear Infirmary from January 1, 2011 to December 31, 2012 were included in this study.

RESULTS: Of all 2487 cataract surgeries, 98.95% achieved a vision of at least 20/40 at or before 90 days, and only 0.64% required a return to the operating room for postoperative complications. Of resident surgeries, 98.9% (1370 of 1385) achieved 20/40 vision at or before 90 days follow-up. Of attending surgeries, 99.0% (1091 of 1102) achieved 20/40 vision at or before 90 days ($p = 1.00$). There were no statistically significant differences between resident and attending cases regarding postoperative complications needing a return to the operating room (i.e., 0.65%, or 9 of 1385 resident cases vs 0.64%, or 7 of 1102 attending cases; $p = 1.00$).

CONCLUSIONS: Using PQRS Medicare cataract surgery criteria, this study establishes new benchmarks for cataract surgery outcomes at a teaching institution and supplemental measure for assessing resident surgical performance. Excellent cataract outcomes were achieved at an academic teaching institution, with results exceeding Medicare thresholds of 50%. There appears to be no significant difference in supervised trainee and attending cataract surgeon outcomes using 2 PQRS measures currently used by Medicare to determine physician reimbursement and quality of care.

Hess BJ, Weng W, Holmboe ES, Lipner RS**. The association between physicians' cognitive skills and quality of diabetes care.** *Acad Med. 2012 Feb;87(2):157-63.*

Abstract:
PURPOSE: To examine the association between physicians' cognitive skills and their performance on a composite measure of diabetes care that included process, outcome, and patient experience measures.

METHOD: The sample was 676 physicians from the United States with time-limited certification in general internal medicine between 2005 and 2009. Scores from the American Board of Internal Medicine (ABIM) internal medicine maintenance of certification (MOC) examination were used to measure practicing physicians' cognitive skills (scores reflect fund of medical knowledge, diagnostic acumen, and clinical judgment). Practice performance was assessed using

a diabetes composite measure aggregated from clinical and patient experience measures obtained from the ABIM Diabetes Practice Improvement Module.

RESULTS: Using multiple regression analyses and controlling for physician and patient characteristics, MOC examination scores were significantly associated with the diabetes composite scores (Œ≤ = .22, P < .001). The association was particularly stronger with intermediate outcomes than with process and patient experience measures. Performance in the endocrine disease content domain of the examination was more strongly associated with the diabetes composite scores (Œ≤ = .19, P < .001) than the performance in other medical content domains (Œ≤ = .06-.14).

CONCLUSIONS: Physicians' cognitive skills significantly relate to their performance on a comprehensive composite measure for diabetes care. Although significant, the modest association suggests that there are unique aspects of physician competence captured by each assessment alone and that both must be considered when assessing a physician's ability to provide high-quality care.

Hess BJ, Weng W, Lynn LA, Holmboe ES, Lipner RS. **Setting a fair performance standard for physicians' quality of patient care.** *J Gen Intern Med. 2011 May;26(5):467-73.*

Abstract:
BACKGROUND: Assessing physicians' clinical performance using statistically sound, evidence-based measures is challenging. Little research has focused on methodological approaches to setting performance standards to which physicians are being held accountable.

OBJECTIVE: Determine if a rigorous approach for setting an objective, credible standard of minimally-acceptable performance could be used for practicing physicians caring for diabetic patients.

DESIGN: Retrospective cohort study.

PARTICIPANTS: Nine hundred and fifty-seven physicians from the United States with time-limited certification in internal medicine or a subspecialty.

MAIN MEASURES: The ABIM Diabetes Practice Improvement Module was used to collect data on ten clinical and two patient experience measures. A panel of eight internists/subspecialists representing essential perspectives of clinical practice applied an adaptation of the Angoff method to judge how physicians who provide minimally-acceptable care would perform on individual measures to establish performance thresholds. Panelists then rated each measure's relative importance and the Dunn-Rankin method was applied to establish scoring weights for the composite measure. Physician characteristics were used to support the standard-setting outcome.

KEY RESULTS: Physicians abstracted 20,131 patient charts and 18,974 patient surveys were completed. The panel established reasonable performance thresholds and importance weights, yielding a standard of 48.51 (out of 100 possible points) on the composite measure with high classification accuracy (0.98). The 38 (4%) outlier physicians who did not meet the standard had lower ratings of overall clinical competence and professional behavior/attitude from former residency program directors (p = 0.01 and p = 0.006, respectively), lower Internal Medicine

certification and maintenance of certification examination scores ($p = 0.005$ and $p < 0.001$, respectively), and primarily worked as solo practitioners ($p = 0.02$).

CONCLUSIONS: The standard-setting method yielded a credible, defensible performance standard for diabetes care based on informed judgment that resulted in a reasonable, reproducible outcome. Our method represents one approach to identifying outlier physicians for intervention to protect patients.

Hofer TP, Hayward RA, Greenfield S, Wagner EH, Kaplan SH, Manning WG. **The unreliability of individual physician report cards for assessing the costs and quality of care of a chronic disease.** *JAMA. 1999 Jun 9;281(22):2098-105.*

Abstract:
CONTEXT: Physician profiling is widely used by many health care systems, but little is known about the reliability of commonly used profiling systems.

OBJECTIVES: To determine the reliability of a set of physician performance measures for diabetes care, one of the most common conditions in medical practice, and to examine whether physicians could substantially improve their profiles by preferential patient selection.

DESIGN AND SETTING: Cohort study performed from 1990 to 1993 at 3 geographically and organizationally diverse sites, including a large staff-model health maintenance organization, an urban university teaching clinic, and a group of private-practice physicians in an urban area.

PARTICIPANTS: A total of 3642 patients with type 2 diabetes cared for by 232 different physicians.

MAIN OUTCOME MEASURES: Physician profiles for their patients' hospitalization and clinic visit rates, total laboratory resource utilization rate and level of glycemic control by average hemoglobin A1c level with and without detailed case-mix adjustment.

RESULTS: For profiles based on hospitalization rates, visit rates, laboratory utilization rates, and glycemic control, 4% or less of the overall variance was attributable to differences in physician practice and the reliability of the median physician's case-mix-adjusted profile was never better than 0.40. At this low level of physician effect, a physician would need to have more than 100 patients with diabetes in a panel for profiles to have a reliability of 0.80 or better (while more than 90% of all primary care physicians at the health maintenance organization had fewer than 60 patients with diabetes). For profiles of glycemic control, high outlier physicians could dramatically improve their physician profile simply by pruning from their panel the 1 to 3 patients with the highest hemoglobin A1c levels during the prior year. This advantage from gaming could not be prevented by even detailed case-mix adjustment.

CONCLUSIONS: Physician report cards for diabetes, one of the highest-prevalence conditions in medical practice, were unable to detect reliably true practice differences within the 3 sites studied. Use of individual physician profiles may foster an environment in which physicians can most easily avoid being penalized by avoiding or deselecting patients with high prior cost, poor adherence, or response to treatments.

Holmboe ES, Weng W, Arnold GK, Kaplan SH, Normand SL, Greenfield S, Hood S, Lipner RS. **The comprehensive care project: measuring physician performance in ambulatory practice.** *Health Serv Res. 2010 Dec;45(6 Pt 2):1912-33.*

Abstract:
OBJECTIVE: To investigate the feasibility, reliability, and validity of comprehensively assessing physician-level performance in ambulatory practice.

DATA SOURCES/STUDY SETTING: Ambulatory-based general internists in 13 states participated in the assessment.

STUDY DESIGN: We assessed physician-level performance, adjusted for patient factors, on 46 individual measures, an overall composite measure, and composite measures for chronic, acute, and preventive care. Between- versus within-physician variation was quantified by intraclass correlation coefficients (ICC). External validity was assessed by correlating performance on a certification exam.

DATA COLLECTION/EXTRACTION METHODS: Medical records for 236 physicians were audited for seven chronic and four acute care conditions, and six age- and gender-appropriate preventive services.

PRINCIPAL FINDINGS: Performance on the individual and composite measures varied substantially within (range 5-86 percent compliance on 46 measures) and between physicians (ICC range 0.12-0.88). Reliabilities for the composite measures were robust: 0.88 for chronic care and 0.87 for preventive services. Higher certification exam scores were associated with better performance on the overall ($r = 0.19$; $p<.01$), chronic care ($r = 0.14$, $p = .04$), and preventive services composites ($r = 0.17$, $p = .01$).

CONCLUSIONS: Our results suggest that reliable and valid comprehensive assessment of the quality of chronic and preventive care can be achieved by creating composite measures and by sampling feasible numbers of patients for each condition.

Hyder JA, Roy N, Wakeam E, Hernandez R, Kim SP, Bader AM, Cima RR, Nguyen LL. **Performance measurement in surgery through the National Quality Forum.** *J Am Coll Surg. 2014 Nov;219(5):1037-46.*

Abstract:
BACKGROUND: Performance measurement has become central to surgical practice. We systematically reviewed all endorsed performance measures from the National Quality Forum, the national clearing house for performance measures in health care, to identify measures relevant to surgical practice and describe measure stewardship, measure types, and identify gaps in measurement.

STUDY DESIGN: Performance measures current to June 2014 were categorized by denominator statement as either assessing surgical practice in specific or as part of a mixed medical and surgical population. Measures were further classified by surgical specialty, Donabedian measure type, patients, disease and events targeted, reporting eligibility, and measure stewards.

RESULTS: Of 637 measures, 123 measures assessed surgical performance in specific and 123 assessed surgical performance in aggregate. Physician societies (51 of 123, 41.5%) were more

common than government agencies (32 of 123, 26.0%) among measure stewards for surgical measures, in particular, the Society for Thoracic Surgery (n¬†= 32). Outcomes measures rather than process measures were common among surgical measures (62 of 123, 50.4%) compared with aggregate medical/surgical measures (46 of 123, 37.4%). Among outcomes measures, death alone was the most commonly specified outcome (24 of 62, 38.7%). Only 1 surgical measure addressed patient-centered care and only 1 measure addressed hospital readmission. We found 7 current surgical measures eligible for value-based purchasing.

CONCLUSIONS: Surgical society stewards and outcomes measure types, particularly for cardiac surgery, were well represented in the National Quality Forum. Measures addressing patient-centered outcomes and the value of surgical decision-making were not well represented and may be suitable targets for measure innovation.

Kahi CJ, Ballard D, Shah AS, Mears R, Johnson CS. **Impact of a quarterly report card on colonoscopy quality measures.** *Gastrointest Endosc. 2013 Jun;77(6):925-31.*

Abstract:

BACKGROUND: Colonoscopy quality is operator-dependent. Studies assessing the effect of interventions to decrease variation in colonoscopy quality have shown inconsistent results. Since 2009, endoscopists at our university-affiliated, Veterans Affairs medical center have received a quarterly report card summarizing individual colonoscopy quality indicators as part of an ongoing quality assurance program.

OBJECTIVE: To determine the effect of the quality report card intervention on colonoscopy performance.

DESIGN: Retrospective study.

SETTING: Tertiary-care, academic, university-affiliated, Veterans Affairs medical center in Indianapolis, Indiana.

PATIENTS: Data from 6 endoscopists practicing at the Roudebush Veterans Affairs Medical Center were included. Patients were average-risk, aged 50 years or older, undergoing their first screening colonoscopy.

INTERVENTION: Quarterly report card. The study time frame was July 1, 2008 to December 31, 2008 (before-intervention) and April 1, 2009 to March 31, 2011 (intervention).

MAIN OUTCOME MEASUREMENTS: The primary outcomes were cecal intubation and adenoma detection rates (ADR), adjusted for physician, patient age, and sex. Multivariable logistic regression was performed to determine factors associated with adenoma detection.

RESULTS: A total of 928 patients (male 93%, white 78%) were included (before-intervention 336; intervention 592). There were no significant differences in patient age, sex, smoking status, body mass index, bowel preparation quality, colonoscope model, and proportion of colonoscopies performed with a trainee between the before-intervention and intervention phases. In the intervention phase, the adjusted adenoma detection and cecal intubation rates were significantly higher: 53.9% (95% confidence interval [CI], 49.7%-58.1%) vs 44.7% (95% CI, 39.1%-50.4%); P = .013 and 98.1% (95% CI, 96.7%-99.0%) vs 95.6% (95% CI, 92.5%-97.5%); P = .027, respectively. A higher ADR trend in the intervention phase was found for 5 of the 6

physicians. The increment in ADR was due mostly to increased detection of proximal adenomas. There were no significant changes in serrated polyp detection, advanced neoplasm detection, number of adenomas detected per colonoscopy, and mean size of adenomas after implementation of the intervention. The report card intervention remained significantly associated with higher ADRs after adjustment for patient age, sex, and physician (odds ratio 1.45; 95% CI, 1.08-1.94).

LIMITATIONS: Single center, small number of endoscopists.

CONCLUSION: A quarterly report card was associated with improved colonoscopy quality indicators. This intervention is practical to generate and implement and may serve as a model for quality improvement programs in different patient and physician groups.

Krumholz HM, Keenan PS, Brush JE Jr, Bufalino VJ, Chernew ME, Epstein AJ, Heidenreich PA, Ho V, Masoudi FA, Matchar DB, Normand SL, Rumsfeld JS, Schuur JD, Smith SC Jr, Spertus JA, Walsh MN; **American Heart Association Interdisciplinary Council on Quality of Care and Outcomes Research; American College of Cardiology Foundation. Standards for measures used for public reporting of efficiency in health care: a scientific statement from the American Heart Association Interdisciplinary Council on Quality of Care and Outcomes research and the American College of Cardiology Foundation.** *J Am Coll Cardiol. 2008 Oct 28;52(18):1518-26.*

Abstract: The assessment of medical practice is evolving rapidly in the United States. An initial focus on structure and process performance measures assessing the quality of medical care is now being supplemented with efficiency measures to quantify the value of healthcare delivery. This statement, building on prior work that articulated standards for publicly reported outcomes measures, identifies preferred attributes for measures used to assess efficiency in the allocation of healthcare resources. The attributes identified in this document combined with the previously published standards are intended to serve as criteria for assessing the suitability of efficiency measures for public reporting. This statement identifies the following attributes to be considered for publicly reported efficiency measures: integration of the quality and cost; valid cost measurement and analysis; minimal incentive to provide poor quality care; and proper attribution of the measure. The attributes described in this statement are relevant to a wide range of efforts to profile the efficiency of various healthcare providers, including hospitals, healthcare systems, managed-care organizations, physicians, group practices, and others that deliver coordinated care.

Ofri, Danielle. **Quality measures and the individual physician.** *New England Journal of Medicine 363, no. 7 (2010): 606-607.*

Abstract: The quarterly report card sits on my desk. Only 33% of my patients with diabetes have glycated hemoglobin levels that are at goal. Only 44% have cholesterol levels at goal. A measly 26% have blood pressure at goal. All my grades are well below my institution's targets.

It's hard not to feel like a failure when the numbers are so abysmal. We've been getting these reports for more than 2 years now, and my numbers never budge. It's wholly dispiriting.

When I voice concern about the reports, I'm told that these are simply data, not criticisms, and that any feedback of data to doctors is helpful. On the face of it, this seems logical. How can additional information be anything but helpful?

Parkerton PH, Smith DG, Belin TR, Feldbau GA. **Physician performance assessment: nonequivalence of primary care measures.** *Med Care. 2003 Sep;41(9):1034-47.*

Abstract:
BACKGROUND: Assessment of the performance of primary care physicians requires multiple, reliable measures. This article explores the appropriateness of selected Health Plan Employer Data and Information Set (HEDIS) measures, developed to assess health plans, to assess individual physician performance.

OBJECTIVES: To determine the consistency and reliability of 4 measures of primary care physician performance measures: cancer screening, diabetic management, patient satisfaction, and ambulatory costs.

METHODS: The study population consisted of all 194 family practitioners and general internists providing ambulatory services in 1998 to a defined patient panel of 320,000 adult health maintenance organization members. Administrative data on physician practice and performance were assessed with multiple regression and analysis of variance.

RESULTS: Each performance measure was significantly related to 1 or 2 of the other measures: high cancer screening rates with good diabetic management and high patient satisfaction, good diabetic management with high cancer screening rates, high patient satisfaction with high cancer screening rates and high ambulatory costs, or high ambulatory costs with higher patient satisfaction. Although 76% of the physicians ranked in the highest third for at least 1 measure, 81% of these high performers ranked in the lower third for at least 1 other measure. Three percent of physicians ranked exclusively in the top or bottom third on all measures.

CONCLUSIONS: Care should be taken in assessing physicians based on narrow performance measures. Assessments of individual physicians with current performance measures might identify areas in which improvement is needed and to provide feedback to improve performance quality and efficiency. However, assumptions should not be made from one measure of performance to another.

Patel KK, Vakharia N, Pile J, Howell EH, Rothberg MB. **Preventable Admissions on a General Medicine Service: Prevalence, Causes and Comparison with AHRQ Prevention Quality Indicators-A Cross-Sectional Analysis.** *J Gen Intern Med. 2016 Jun;31(6):597-601. doi: 10.1007/s11606-016-3615-4. Epub 2016 Feb 18.*

Abstract:
BACKGROUND: Rates of preventable admissions will soon be publicly reported and used in calculating performance-based payments. The current method of assessing preventable admissions, the Agency of Healthcare Research and Quality (AHRQ) Preventable Quality Indicators (PQI) rate, is drawn from claims data and was originally designed to assess population-level access to care.

OBJECTIVE: To identify the prevalence and causes of preventable admissions by attending physician review and to compare its performance with the PQI tool in identifying preventable admissions.

DESIGN: Cross-sectional survey.

SETTING: General medicine service at an academic medical center.

PARTICIPANTS: Consecutive inpatient admissions from December 1-15, 2013.

MAIN MEASURES: Survey of inpatient attending physicians regarding the preventability of the admissions, primary contributing factors and feasibility of prevention. For the same patients, the PQI tool was applied to determine the claims-derived preventable admission rate.

KEY RESULTS: Physicians rated all 322 admissions and classified 122 (38¬†%) as preventable, of which 31 (25¬†%) were readmissions. Readmissions were more likely to be rated preventable than other admissions (49¬†% vs. 35¬†%, p,Äâ=,Äâ0.04). Application of the AHRQ PQI methodology identified 75 (23¬†%) preventable admissions. Thirty-one admissions (10¬†%) were classified as preventable by both

methods, and the majority of admissions considered preventable by the AHRQ PQI method (44/78) were not considered preventable by physician assessment (K,Äâ=,Äâ0.04). Of the preventable admissions, physicians assigned patient factors in 54 (44¬†%), clinician factors in 36 (30¬†%) and system factors in 32 (26¬†%).

CONCLUSIONS: A large proportion of admissions to a general medicine service appeared preventable, but AHRQ's PQI tool was unable to identify these admissions. Before initiation of the PQI rate for use in pay-for-performance programs, further study is warranted.

Petersen LA, Woodard LD, Urech T, Daw C, Sookanan S. **Does pay-for-performance improve the quality of health care?** *Ann Intern Med. 2006 Aug 15;145(4):265-72.*

Abstract:
BACKGROUND: Most physicians and hospitals are paid the same regardless of the quality of the health care they provide. This produces no financial incentives and, in some cases, produces disincentives for quality. Increasing numbers of programs link payment to performance.
PURPOSE: To systematically review studies assessing the effect of explicit financial incentives for improved performance on measures of health care quality.

DATA SOURCES: PubMed search of English-language literature (1 January 1980 to 14 November 2005), and reference lists of retrieved articles.

STUDY SELECTION: Empirical studies of the relationship between explicit financial incentives designed to improve health care quality and a quantitative measure of health care quality.

DATA EXTRACTION: The authors categorized studies according to the level of the incentive (individual physician, provider group, or health care payment system) and the type of quality measure rewarded.

DATA SYNTHESIS: Thirteen of 17 studies examined process-of-care quality measures, most of which were for preventive services. Five of the 6 studies of physician-level financial incentives and 7 of the 9 studies of provider group-level financial incentives found partial or positive effects on measures of quality. One of the 2 studies of incentives at the payment-system level found a positive effect on access to care, and 1 showed evidence of a negative effect on access to care for the sickest patients. In all, 4 studies suggested unintended effects of incentives. The authors found no studies examining the optimal duration of financial incentives for quality or the persistence of their effects after termination. Only 1 study addressed cost-effectiveness.

LIMITATIONS: Few empirical studies of explicit financial incentives for quality were available for review.

CONCLUSIONS: Ongoing monitoring of incentive programs is critical to determine the effectiveness of financial incentives and their possible unintended effects on quality of care. Further research is needed to guide implementation of financial incentives and to assess their cost-effectiveness.

Urech TH, Woodard LD, Virani SS, Dudley RA, Lutschg MZ, Petersen LA. **Calculations of Financial Incentives for Providers in a Pay-for-Performance Program: Manual Review Versus Data From Structured Fields in Electronic Health Records.** *Med Care. 2015 Oct;53(10):901-7.*

Abstract:
BACKGROUND: Hospital report cards and financial incentives linked to performance require clinical data that are reliable, appropriate, timely, and cost-effective to process. Pay-for-performance plans are transitioning to automated electronic health record (EHR) data as an efficient method to generate data needed for these programs.

OBJECTIVE: To determine how well data from automated processing of structured fields in the electronic health record (AP-EHR) reflect data from manual chart review and the impact of these data on performance rewards.

RESEARCH DESIGN: Cross-sectional analysis of performance measures used in a cluster randomized trial assessing the impact of financial incentives on guideline-recommended care for hypertension.

SUBJECTS: A total of 2840 patients with hypertension assigned to participating physicians at 12 Veterans Affairs hospital-based outpatient clinics. Fifty-two physicians and 33 primary care personnel received incentive payments.

MEASURES: Overall, positive and negative agreement indices and Cohen's kappa were calculated for assessments of guideline-recommended antihypertensive medication use, blood pressure (BP) control, and appropriate response to uncontrolled BP. Pearson's correlation coefficient was used to assess how similar participants' calculated earnings were between the data sources.

RESULTS: By manual chart review data, 72.3% of patients were considered to have received guideline-recommended antihypertensive medications compared with 65.0% by AP-EHR review (Œ∫=0.51). Manual review indicated 69.5% of patients had controlled BP compared with 66.8% by AP-EHR review (Œ∫=0.87). Compared with 52.2% of patients per the manual review, 39.8% received an appropriate response by AP-EHR review (Œ∫=0.28). Participants' incentive payments calculated using the 2 methods were highly correlated (r,â•0.98). Using the AP-EHR data to calculate earnings, participants' payment changes ranged from a decrease of $91.00 (-30.3%) to an increase of $18.20 (+7.4%) for medication use (interquartile range, -14.4% to 0%) and a decrease of $100.10 (-31.4%) to an increase of $36.40 (+15.4%) for BP control or appropriate response to uncontrolled BP (interquartile range, -11.9% to -6.1%).

CONCLUSIONS: Pay-for-performance plans that use only EHR data should carefully consider the measures and the structure of the EHR before data collection and financial incentive disbursement. For this study, we feel that a 10% difference in the total amount of incentive

earnings disbursed based on AP-EHR data compared with manual review is acceptable given the time and resources required to abstract data from medical records.

Weng W, Hess BJ, Lynn LA, Lipner RS. **Assessing the Quality of Osteoporosis Care in Practice.**
J Gen Intern Med. 2015 Nov;30(11):1681-7.

Abstract:
BACKGROUND: Patients with osteoporosis can sustain fractures following falls or other minimal trauma. This risk of fracture can be reduced through appropriate diagnostic testing, pharmacologic therapy, and other readily measured standards of care.

OBJECTIVES: Our aim was to develop a credible clinical performance assessment to measure physicians' quality of osteoporosis care, and determine reasonable performance standards for both competent and excellent care. DESIGN: This was a retrospective cohort study.

PARTICIPANTS: Three hundred and eighty one general internists and subspecialists with time-limited board certification were included in the study.

MAIN MEASURES: Performance rates on eight evidence-based measures were obtained from the American Board of Internal Medicine (ABIM) Osteoporosis Practice Improvement Module¬Æ (PIM), a web-based tool that uses medical chart reviews to help physicians assess and improve care. We applied a patented methodology, using an adaptation of the Angoff standard-setting method and the Dunn-Rankin method, with an expert panel skilled in osteoporosis care to form a composite and establish standards for both competent and excellent care. Physician and practice characteristics, including a practice infrastructure score based on the Physician Practice Connections Readiness Survey (PPC-RS), were used to examine the validity of the inferences made from the composite scores.

KEY RESULTS: The mean composite score was 67.54 out of 100 maximum points with a reliability of 0.92. The standard for competent care was 46.87, and for excellent care it was 83.58. Both standards had high classification accuracies (0.95). Sixteen percent of physicians performed below the competent care standard, while 22¬†% met the excellent care standard. Specialists scored higher than generalists, and better practice infrastructure was associated with higher composite scores, providing some validity evidence.

CONCLUSIONS: We developed a rigorous methodology for assessing physicians' osteoporosis care. Clinical performance feedback relative to absolute standards of care provides physicians with a meaningful approach to self-evaluation to improve patient care.

Wharam JF, Frank MB, Rosland AM, Paasche-Orlow MK, Farber NJ, Sinsky C, Rucker L, Rask KJ, Barry MJ, Figaro MK. **Pay-for-performance as a quality improvement tool: perceptions and policy recommendations of physicians and program leaders.** *Qual Manag Health Care. 2011 Jul-Sep;20(3):234-45.*

Abstract:
BACKGROUND: Although pay-for-performance (P4P) compensation is widespread, questions have arisen about its efficacy in improving health care quality and consequences for vulnerable patients.

OBJECTIVE: To assess perceptions of general internists and P4P program leaders regarding how to implement fair and effective P4P.

METHODS: Qualitative investigation using in-depth interviews with P4P program leaders and focus groups with general internists.

RESULTS: Internists emphasized a gradual and cautious approach to P4P implementation. They strongly recommended improving P4P measure validity and had detailed suggestions regarding how. Program leaders saw a need to implement perhaps imperfect programs but with continual improvement. Both groups advocated protecting vulnerable populations and made overlapping recommendations: improving measure validity; adjusting for patient characteristics; measuring improvements in quality (vs cutpoints); and providing incentives to physicians of vulnerable populations. Internists tended to favor explicit protections, while program leaders felt that P4P might inherently protect vulnerable patients by improving overall quality.

DISCUSSION: Internists favored gradual P4P implementation, while P4P leaders saw an immediate need for implementation with iterative improvement. Both groups recommended specific measures to protect vulnerable populations such as improving measure validity, assessing improvements in quality, and providing special incentives to physicians of vulnerable populations.

End Stage Renal Disease (ESRD) Quality Measure Development, Maintenance, and Support Project

ESRD Physician Level Measures Technical Expert Panel (TEP)

Pre-TEP Teleconference Call Minutes

February 15, 2018 3:00-4:30pm

TEP Members Present	UM-KECC	CMS
Jeffrey Berns	Joseph Messana	Jesse Roach
Stephanie Dixon	Jonathan Segal	Elena Balovlenkov
Bernard Jaar	Abhijit Naik	
Stephanie Jernigan	Tammie Nahra	
Beckie Michael	Kathy Sleeman	
Pius Charles Murray	Mia Wang	
Maile Robb	Jingya Gao	
Rebecca Schmidt	Jennifer Sardone	
Daniel Weiner	Casey Parrotte	
Adam Weinstein		

Introductions and Conflicts of Interest

Dr. Joseph Messana from UM-KECC will be the facilitator for this TEP, and guided the group through brief introductions. He noted that detailed introductions and full disclosure of any conflicts of interest will take place at the in-person meeting. Conflicts of interest were submitted during the TEP nomination process, but any updates to those conflicts should be stated at the in-person meeting.

Role of the TEP and TEP Chair(s)

Dr. Messana gave a brief overview of the quality measure development process. The development process has been outlined in detail in the CMS Measures Blueprint, including the rulemaking and regulatory processes involved with measure implementation. The work undertaken by this TEP falls very early in the quality measure development process, and is tied specifically to measure conceptualization and measure specification.

Dr. Messana then reviewed the role of the TEP, including reviewing evidence, recommending draft measure specifications, and reviewing and approving the TEP summary report. Dr. Messana announced that Dr. Jeffrey Berns and Dr. Daniel Weiner have agreed to co-chair the TEP. In that role, they will help direct TEP discussions and offer advice to UM-KECC regarding measure specifications.

Dr. Messana explained that the role of the TEP is advisory to the measure developer/contractor (UM-KECC) and not CMS. UM-KECC considers the input of the TEP when making recommendations to CMS, but those recommendations may not be consistent with the recommendations of the TEP (although such deviations would need to be justified by UM-KECC). UM-KECC has the responsibility to make sure that the final TEP Summary Report is as accurate as possible in documenting the opinions and recommendations that are voiced during TEP deliberations.

TEP Charter

To help frame the charge of the TEP, Dr. Messana gave a high level overview of the measure evaluation criteria established by the National Quality Forum: Evidence, Reliability and Validity, Feasibility, Usability, and Harmonization with existing measures.

This TEP has been specifically charged with:

- Review of existing NQF endorsed facility-level ESRD measures as well as physician-level measures in other care settings
- Determine rules for attributing patients to individual physicians
- Draft measures including defining denominator, numerator and potential exclusion criteria
- Determine to what extent a new measure(s) can be harmonized with existing measures

Patient Assignment to Physician Providers Process Description and Discussion

To begin this discussion, Dr. Messana noted that UM-KECC has years of experience developing quality measures at the facility level, using Medicare claims, CROWNWeb, and other data sources to define the measures.. As a first step, UM-KECC is asking the TEP to weigh in on the provider assignment algorithm presented on today's call, that could be used to develop physician level quality measures that would use Medicare claims as a data source (therefore, not require individual reporting by physicians (burden reduction). Dr. Messana noted that CROWNWeb data on providers was determined to be insufficient, therefore CROWNWeb could not be used as the source for provider assignment.

Dr. Messana described how Medicare payments are generated for providers by reviewing the Monthly Capitated Payment guidance from the Medicare Claims Processing Manual. In summary, the person who is providing the comprehensive monthly evaluation for a particular patient should be billing for that patient. If multiple physicians or non-physician practitioners are seeing a patient during a month, the billing should still go through the particular physician who provides the monthly evaluation.

- After providing that background, Dr. Messana reviewed a proposed method for physician assignment using Medicare claims data (a combination of physician/supplier claims and outpatient dialysis claims).
- Using physician supplier claims from 2016, UM-KECC determined patient-months with only one ESRD provider identified.
- In parallel, using 2016 Medicare outpatient dialysis claims, they determined the patient-months where dialysis was billed, and excluded patient-months where more than one modality type was indicated (given that most potential quality measures would be modality-sensitive).
- These two databases were then merged, and the patient-months in common were kept to create a physician-level patient-month treatment file for analysis. In this file, each patient month has 1) only one physician provider and 2) only one modality indicated

In the end, nearly 95% of the patient-months included in these two files were included in the final analysis file. This file was used to create two prototype measures that will be discussed in more detail at the in-person meeting (related to Kt/V and vascular access).

Dr. Messana made a distinction between provider assignment and attribution; in some situations where you have a more complex measure where care takes place over a longer period of time, the patient-month assignment with a provider might not provide enough justification for provider attribution for clinical care. This particular issue will likely need to be discussed at the measure level (as it may vary depending on the topic).

The TEP co-chair asked if there was any value in limiting the dataset to patients dialyzed in a single facility for a month. Dr. Messana explained that UM-KECC does have information on patients who were dialyzed in more than one facility in a month, and that is taken into consideration in the prototype measures. He noted 6-7% of patient months have the same provider, but different facility in a month. The TEP can discuss how to handle those patients in a given quality measure.

The TEP co-chair also asked if facility characteristics were available, and if home dialysis patients could be identified. Dr. Messana explained that both of those pieces of information are available, should the TEP want to explore them further. Another TEP member asked for patient-level demographics. Dr. Messana confirmed that demographics are available, such as race, age, sex, dialysis vintage and comorbidities based on Medicare claims.

One TEP member asked about data for non-Medicare patients. Dr. Messana explained that given the lack of information in CROWNWeb about providers, this particular discussion is limited to Medicare patients (since Medicare claims are used for provider assignment).

Overview of Patient Level Quality Measures in Dialysis

Dr. Messana explained that he hopes that with the building blocks for provider assignment, TEP members can start thinking about what measure topics areas may be appropriate to tackle at the physician level. The set of facility level measures reported on Dialysis Facility Compare (DFC) and for PY2021 of the ESRD Quality Incentive program (QIP), as well as the information provided in the Dialysis Facility Report could be topic areas of consideration.

The TEP co-chair noted that the deliverable for this TEP may be a little different from a typical measure development TEP; he noted that multiple provider-level measures are not likely to be rolled out in the QPP or other programs as a result of this work. The focus is on provider assignment and brainstorming new metrics or adaptations of existing metrics that are applicable to providers that are subject to the QPP. Dr. Messana noted again that two prototype measures will be presented at the in-person meeting for discussion purposes, but the TEP does not have to move forward with those concepts.

The TEP co-chair explained that provider level measures probably need to be reflective of relatively short duration outcomes, as trying to link an event that is two years in the making to a single physician is very complicated. It was also noted that this is an opportunity to focus on measures or outcomes that are important to patients. Another TEP member agreed, noting that we want to make sure that the measures proposed are meaningful to patients and not just things that are measureable.

The co-chairs asked that everyone review the list of existing measures for DFC and QIP before the in-person meeting, in order to prepare for the discussion. Dr. Messana also noted that the list of provider level metrics developed by the Renal Physicians Associations may be a good source of ideas. That list is available on the TEP shared site.

Next Steps

Dr. Messana reminded everyone that the in-person meeting is February 28th. Questions or suggestions for the in-person meeting are welcome and could be incorporated into the agenda. The co-chairs invited TEP members to reach out to them directly with feedback or questions.

Public Comments

Chris Brown, Executive Director Network 3 & 4.

I want to express my support for the effort that you are going through to put this together. We have used an approach like this in the past from a Network perspective in trying to identify areas of improvement, specifically for vascular access. One of our Puerto Rico sets of facilities couldn't figure out their problem with high long-term catheter rates and when we took the data that we had in CROWNWeb and moved it to a physician level, the facilities were able to identify a physician who had very poor practice and was impacting their whole facility. Because the patients were spread out, they had not been able to pick that up in the past. They were able to focus their interventions with him and really improve his practice and the facility results overall. So, I would like to express my full support for the efforts that you are going through here.

Physician Level Measures Technical Expert Panel

February 28, 2018

Agenda

8:00– 8:30	Introductions and Conflict of Interest Disclosures; Overview of Objectives
8:30-9:30	Patient Assignment Overview
	Follow up discussion, questions, comments
9:30-10:30	Kt/V and Vascular Access Measures- Presentation and discussion
10:30 – 10:45	*BREAK*
10:45 – 12:00	Kt/V and Vascular Access Measures – continued discussion
12:00 – 1:00	*LUNCH*
1:00 – 2:00	Review of available ESRD Quality Measures
2:00 – 2:45	TEP discussion to identify potential measure development areas
2:45 -3:00	*BREAK*
3:00-3:15	Public Comment Period
3:15 – 4:00	Wrap-up: Summary of Recommendations and Discussion of Next Steps

TEP Members

Name, Credentials, and Professional Role	Organizational Affiliation, City, State	Conflict of Interest Disclosure
Jeffrey Berns, MD *Professor of Medicine and Pediatrics*	Perelman School of Medicine at the University of Pennsylvania Hospital of the University of Pennsylvania Philadelphia, PA	None
Stephanie Dixon *Dialysis Patient and Patient Advocate*	ESRD Network 2 National Coordinating Center Kidney Patient Advisory Committee Brooklyn, NY	None
Bernard Jaar, MD *Staff Nephrologist* *Assistant Professor of Medicine and Epidemiology*	Nephrology Center of Maryland Johns Hopkins Medical Institutions Baltimore, MD	None
Stephanie Jernigan, MD *Chief of Medicine* *Director of Pediatric Dialysis* *Assistant Professor of Pediatrics*	Emory University Children's Healthcare of Atlanta Atlanta, GA	None

TEP Members

Name, Credentials, and Professional Role	Organizational Affiliation, City, State	Conflict of Interest Disclosure
Beckie Michael, DO *Nephrologist* *Clinical Associate Professor of Medicine*	Marlton Nephrology and Hypertension, LLC Rowan University School of Osteopathic Medicine Marlton, NJ	DaVita Dialysis Center Medical Director Consultant and shareholder for Sanderling Renal Services
Pius Charles Murray *Dialysis Patient and Patient Advocate*	Dialysis Patient Citizens Somersworth, NH	None
Maile Robb *Dialysis Patient and Patient Advocate*	ESRD Network 15 National Coordinating Center Reno, NV	None
Rebecca Schmidt, DO *Section Chief of Nephrology* *Professor of Medicine*	West Virginia University Morgantown, WV	None

TEP Members

Name, Credentials, and Professional Role	Organizational Affiliation, City, State	Conflict of Interest Disclosure
Jose Tovar, FNP-C *Nephrology/Internal Medicine Nurse Practitioner*	Nephrology Associates Medical Group Riverside, CA	None
Daniel Weiner, MD *Nephrologist* *Associate Professor of Medicine*	Tufts Medical Center Tufts University School of Medicine Boston, MA	Receives support for his salary paid to his institution from DCI
Adam Weinstein, MD *Vice-President Medical Affairs*	DaVita Health Care Partners Stevensville, MD	None

Conflicts of Interest

- During the nomination process TEP members are asked to disclose any potential current and past activities that may cause a conflict of interest. If at any time while serving on the TEP, a member's status changes and a potential conflict of interest arises, the TEP member is required to notify the measure developer and the TEP chair.

- Potential for conflicts of interest is not solely a reason to exclude an individual from participation on a TEP, because the membership should also be balanced with applicable points of view and backgrounds. The measure developer should, however, give preference to individuals who will not be inappropriately influenced by any particular special interest

Source: A Blueprint for the **CMS Measures Management System**
Version 12.0

TEP Charter

- Review of existing NQF endorsed facility-level ESRD measures as well as physician-level measures in other care settings
- Determine rules for attributing patients to individual physicians
- Draft measures including defining denominator, numerator and potential exclusion criteria
- Determine to what extent a new measure(s) can be harmonized with existing measures

PHYSICIAN ASSIGNMENT

How does Medicare pay for dialysis?
Dialysis Facility

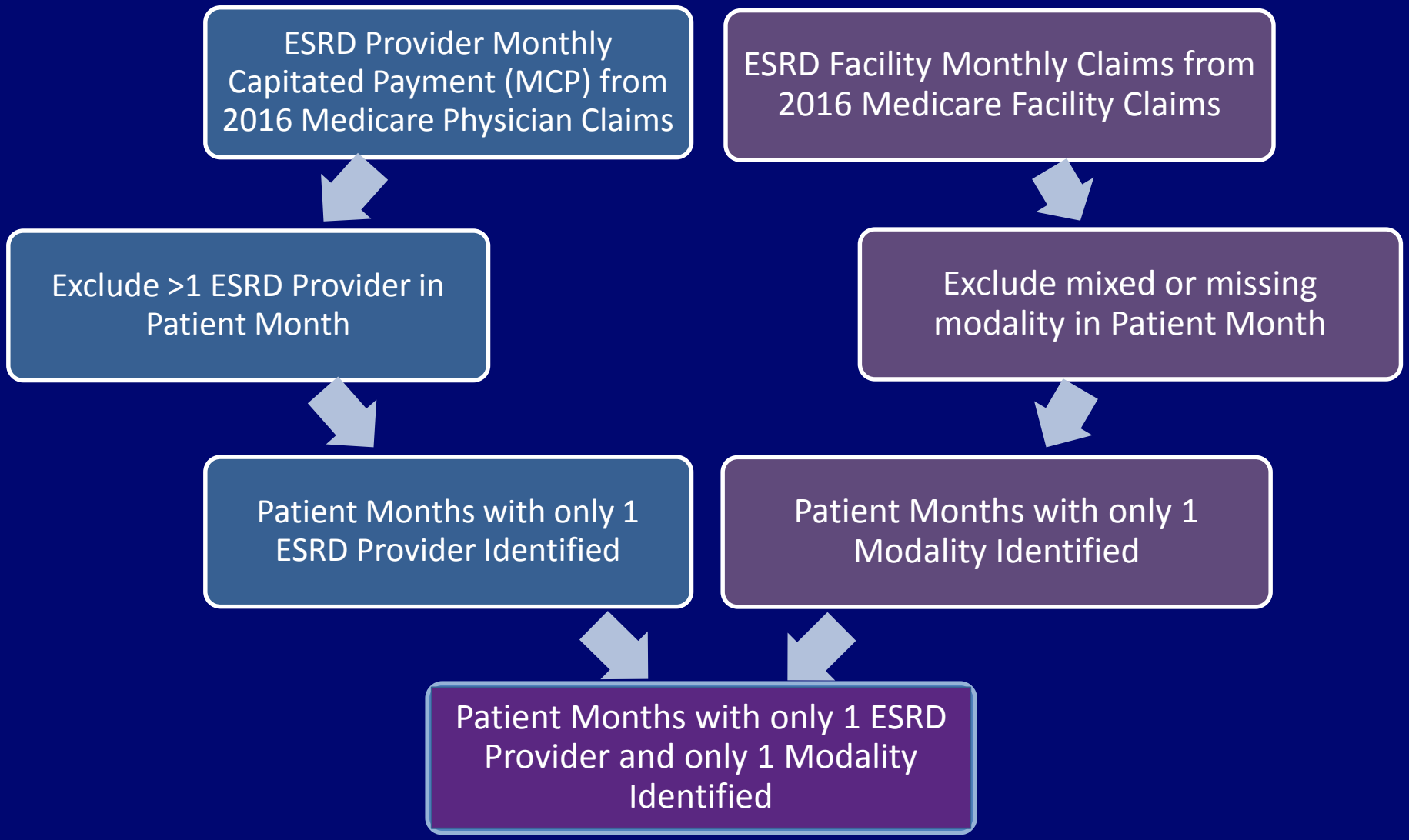
1. For each month or partial month a patient is dialyzed, the dialysis facility can submit a bill (Medicare Claim) for the dialysis services provided.
2. The Medicare payment covers most services involved in the dialysis facility's care (dialysis equipment and supplies, most medications used, nursing, tech, social worker, dietitian services, medical director role, etc.).
3. Regular nephrologist/practitioner services are NOT paid out of this pool of $$.

How does Medicare pay for dialysis?

Nephrologist or other practitioner

1. For each month or partial month a patient is dialyzed, the nephrologist/practitioner can submit a bill (Medicare Claim) for medical care of the patient (order dialysis prescription and associated medications, evaluate the patient, work with dialysis facility team to develop Care Plans, etc.).
2. This nephrologist/practitioner payment is referred to as the monthly capitated payment (or MCP).
3. Minimum requirements for submission of a "claim" were presented last week on the teleconference. Basically, the physician has to see the patient, review labs and dialysis records, and write a note describing the plan of care for dialysis-related medical issues.

ESRD Provider and Modality

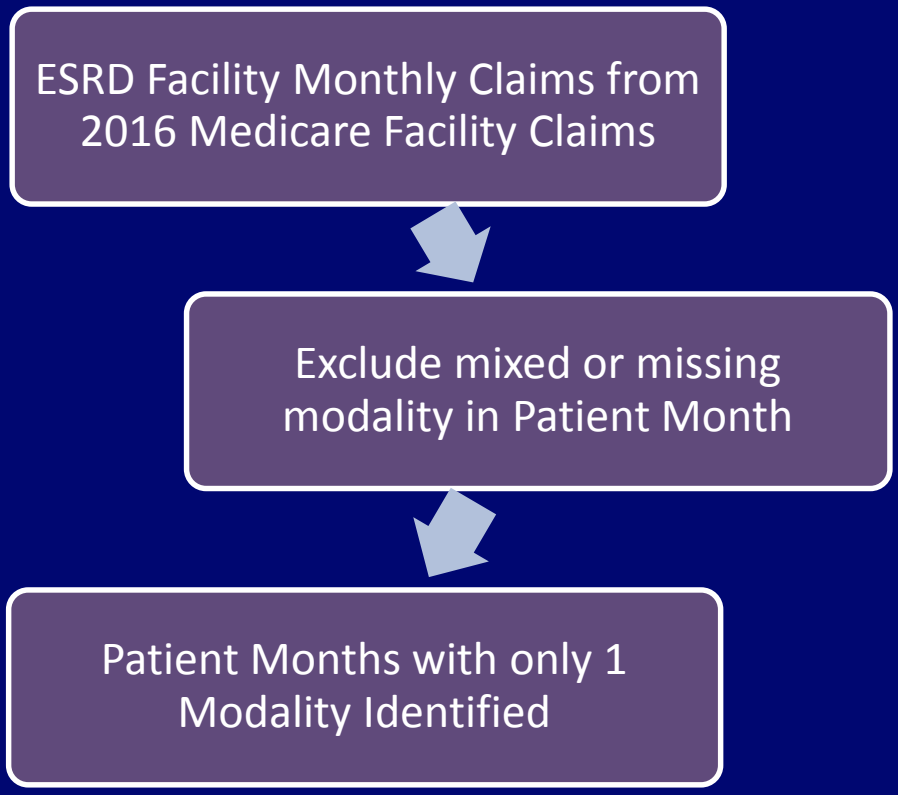


Providers of ESRD MCP Care

- Provider claims for capitated ESRD dialysis identified from the 2016 Medicare physician supplier claim file (CPT Codes available in the appendix),
- The number of ESRD providers for each patient month was counted
  - ~99% of patient months have a single provider billing for ESRD MCP care

# ESRD Providers at patient-month level	Frequency	Percent
One provider (in calendar month)	3,522,048	98.91 %
Two provider	37,728	1.06 %
Three or more providers	1,240	0.03 %
Total	3,561,016	100 %

ESRD Provider and Modality

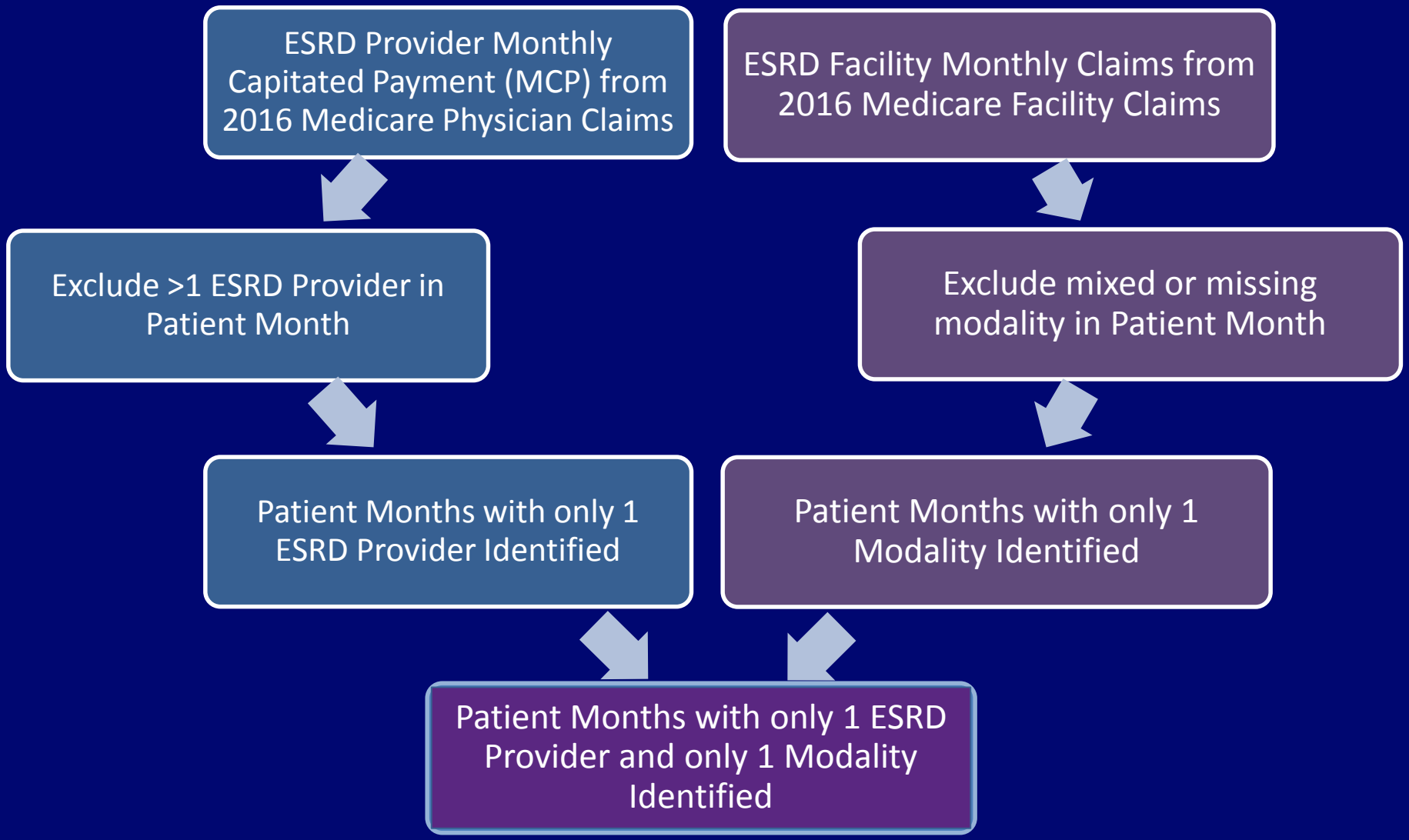


ESRD Modality Categories

- Treatment modality determined for each patient-month from 2016 Medicare outpatient dialysis facility claims
- Categorized treatment modality for each month as either
  - One modality (HD or PD)
  - Mixed modality (HD and PD occurring in the same month)
  - Missing modality

Modality category	Frequency	Percent
One modality (in calendar month)	3,699,982	99.09 %
Mixed modality	33,780	0.09 %
Missing modality	70	0.00 %
Total	3,733,832	100.00 %

ESRD Provider and Modality



Merge Physician Supplier and Facility Dialysis Claims

- Select Physician patient-month claims that have one performing provider in month
- Merge with outpatient dialysis facility patient month claims where patients were treated with only one dialysis modality in the month
- Intersection defines patient months with both a) one NPI provider and b) one modality for the patient-month

Provider claim with one provider in patient-month	OP dialysis claim with one modality in patient-month	Frequency	Percent
yes	yes	3,366,893	96 %
yes	no	155,155	4 %
Total		3,522,048	100 %

Dialysis Provider and Modality

95% of total patient months have a single dialysis provider and a single modality

# Providers at patient-month level	Frequency	Percent Total
One provider	3,522,048	98.91%
Single Modality	3,366,893	94.55 %
Multiple/Missing Modality	155,155	4.36 %
Two providers	37,728	1.06 %
Three or more providers	1,240	0.03 %
Total	3,561,016	100 %

CLINICAL OUTCOMES DATA SOURCE- CROWNWEB

CROWNWeb = Consolidated Renal Operations in a Web-enabled Network's web-based portal

- Developed to facilitate direct reporting of information by dialysis facilities to CMS via Web portal based system (facility administrative, patient administrative, patient event, patient clinical outcomes).
- Implemented in May 2012; subsequent quality improvement efforts with dialysis stakeholders focused on electronic batch submission issues and clarification of "mandatory" and "required" data fields.
- Dialysis Facility Compare (DFC) uses CROWNWeb patient-level data, supplemented by Medicare administrative data, to calculate several facility-level quality measures. Examples include:
  - Hypercalcemia (3 month rolling average), Jan 2013 DFC release
  - Dialysis adequacy (HD and PD Kt/V), Oct 2016 DFC release
  - AV fistula and catheter measures, Oct 2018 DFC release

CROWNWeb Dialysis Facility Reporting Requirements

- Medicare certified ESRD facilities are required to complete the following actions electronically using CROWNWeb (web- portal and/or batch submission)
  - Validate patient roster every 30 days
  - Admit transient patients who are treated at the facility for more than 30 days
  - Process notifications and accreditations within 30 days of receipt
  - Submit the 2728 form within 45 days of a new start or other qualifying event; submit a 2746 form within 14 days of a patient's death
  - Submit all patient events (including starts, transfers, deaths, and changes in modality)
  - Maintain facility information and facility personnel information in CROWNWeb
  - Submit Annual Facility Survey (Form 2744)
  - Submit required clinical data, including clinical labs and vascular access data

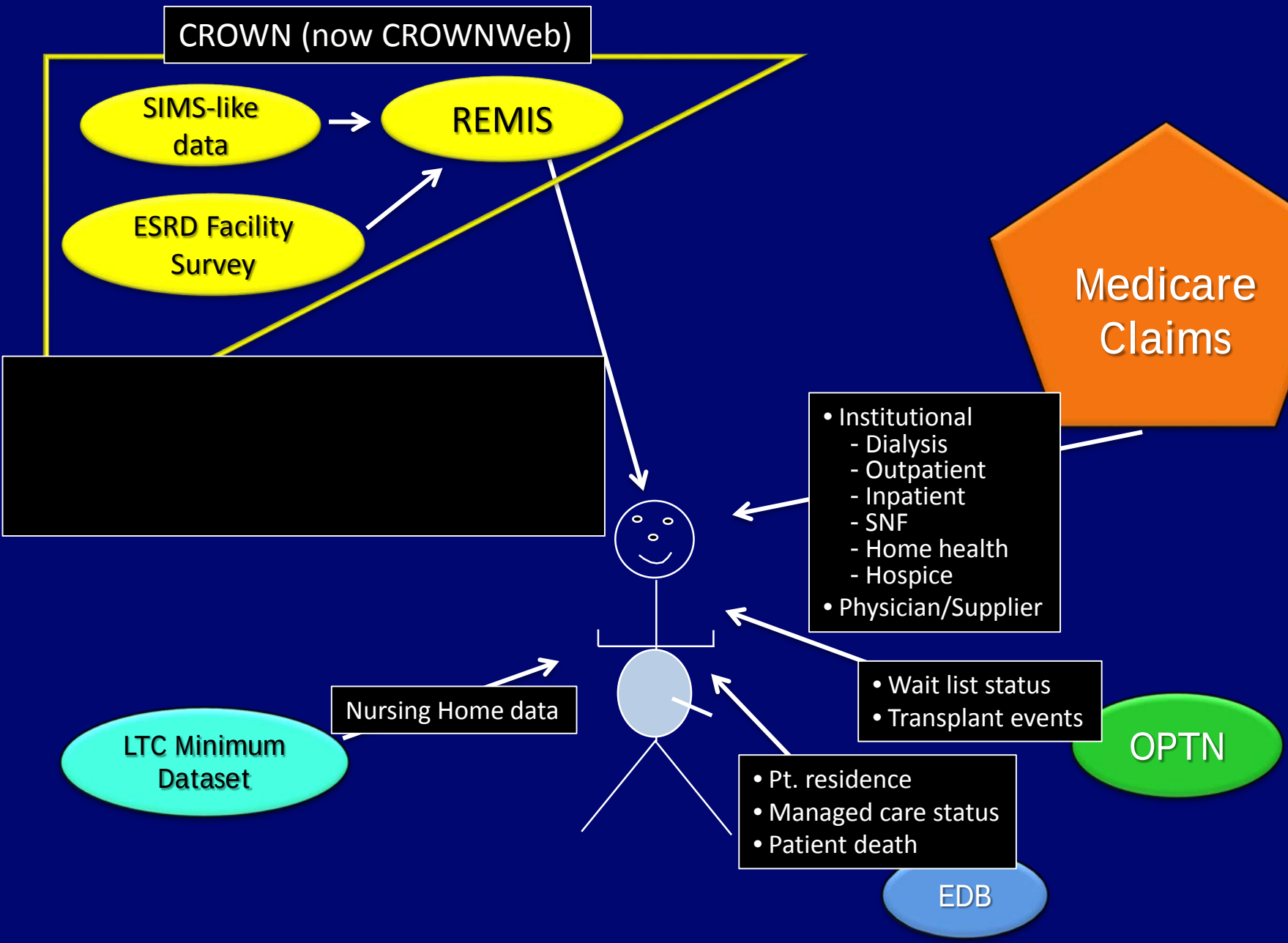
from www.esrdnetwork8.org/dialysis-transplant-providers/data-department/CROWNWeb.asp, accessed 2/20/2018

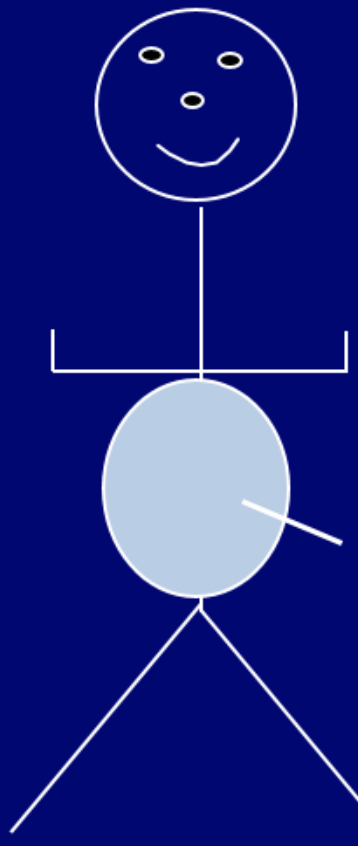
CROWNWeb Data Elements

Clinical Module / Adequacy of Dialysis	RQMT_322	Kt/V Date	Indicates the collection date of Single Pool Kt/V value.
Clinical Module / Adequacy of Dialysis	RQMT_326	V Method	Indicates the method by which V was calculated for Kt / V Peritoneal Dialysis.
Clinical Module / Adequacy of Dialysis	RQMT_339	Blank	Indicates the patient's height unit of measure.
Clinical Module / Adequacy of Dialysis	RQMT_341	Blank	Indicates the unit of measurement used for clinic weight.
Clinical Module / Adequacy of Dialysis	RQMT_746	Blank	Method used to calculate Creatinine Clearance for Peritoneal Dialysis Collection Type.
Clinical Module / Adequacy of Dialysis	RQMT_1267	Kt / V	Indicates the Kt / V urea (dialysate and urine clearance) at the time the Kt / V PD adequacy measurement was performed.
Clinical Module / Adequacy of Dialysis	RQMT_1339	Serum Creatinine (mg/dL)	Indicates the serum creatinine value (mg/dl) for this patient.
Clinical Module / Adequacy of Dialysis	RQMT_1340	Blank	Indicates the date the serum creatinine value was collected for the patient.
Clinical Module / Adequacy of Dialysis	RQMT_1464	Kt/V Method	Indicates the method used to calculate Single Pool Kt/V for Kt/V Hemodialysis.
Clinical Module / Adequacy of Dialysis	RQMT_1493	Body Surface Area (BSA) Method	Indicates the method by which Body Surface Area was calculated.
Clinical Module / Adequacy of Dialysis	RQMT_1494	RRF Assessed in Kt/V	Indicates whether the standard process of assessing Residual Renal Function was performed when calculating the Kt/V.
Clinical Module / Adequacy of Dialysis	RQMT_1495	Clinic Weight	Indicates the patient's weight at clinic visit (abdomen empty) at the time the PD adequacy measurement was performed.
Clinical Module / Adequacy of Dialysis	RQMT_1496	Kt/V Date	Indicates the date when PD adequacy measurement was performed.
Clinical Module / Adequacy of Dialysis	RQMT_1497	Creatinine Clearance	Indicates the creatinine clearance (dialysate and urine clearance) at the time the PD adequacy measurement was performed; also used to calculate the GFR.
Clinical Module / Adequacy of Dialysis	RQMT_1500	24hr Urine Volume (mL)	Indicates the 24 hr urine volume, if performed, at the time the PD adequacy measurement was performed.
Clinical Module / Adequacy of Dialysis	RQMT_1514	Kt/V	Indicates the Single Pool Kt/V value for Hemodialysis.
Clinical Module / Adequacy of Dialysis	RQMT_1515	Blood Urea Nitrogen (BUN) Pre-Dialysis (mg/dL)	Indicates the pre-dialysis Blood Urea Nitrogen (BUN) value.
Clinical Module / Adequacy of Dialysis	RQMT_1516	Normalized Protein Catabolic (nPCR) Rate	Indicates patient's Normalized Protein Catabolic Rate
Clinical Module / Adequacy of Dialysis	RQMT_1517	Blank	Indicates patient's Normalized Protein Catabolic Rate Collection Date
Clinical Module / Adequacy of Dialysis	RQMT_1531	Blood Urea Nitrogen (BUN) Pre-Dialysis (mg/dL)	Indicates the pre-dialysis Blood Urea Nitrogen (BUN) value.
Clinical Module / Adequacy of Dialysis	RQMT_1532	Pre-Dialysis Weight	Indicates pre-dialysis weight when pre-dialysis BUN was drawn.
Clinical Module / Adequacy of Dialysis	RQMT_1533	Blank	Indicates the pre-dialysis weight unit of measure.
Clinical Module / Adequacy of Dialysis	RQMT_1534	Post-Dialysis Weight	Indicates post-dialysis weight when post-dialysis BUN was drawn.
Clinical Module / Adequacy of Dialysis	RQMT_1535	Blank	Indicates the post-dialysis weight unit of measure.
Clinical Module / Adequacy of Dialysis	RQMT_1536	Delivered Minutes of BUN Hemodialysis Session	Indicates the actual delivered time on hemodialysis in minutes at session when Blood Urea Nitrogen (BUN)s were drawn.
Clinical Module / Adequacy of Dialysis	RQMT_1537	Body Surface Area (BSA) Corrected	Indicates if the creatinine clearance is corrected for body surface area, using standard methods.

Clinical Module / Vascular Access	RQMT_399	Date of Reported Dialysis Session	Indicates the date of the dialysis session being referenced by the user when supplying the patient's vascular access details.
Clinical Module / Vascular Access	RQMT_401	AV Fistula Usable Date	Indicates the date AVF is usable.
Clinical Module / Vascular Access	RQMT_402	AV Fistula State	Indicates the present state, as captured in this reporting period, of the patient's AV Fistula, if present.
Clinical Module / Vascular Access	RQMT_403	AV Graft State	Indicates the present state, as captured in this reporting period, of the patient's AV Graft, if present.
Clinical Module / Vascular Access	RQMT_1138	Date Access Type Changed	Indicates the date that the Access Type for Dialysis was actually changed to this access type.
Clinical Module / Vascular Access	RQMT_1139	AV Fistula Creation Date	Indicates the date of AVF creation.
Clinical Module / Vascular Access	RQMT_1300	Current Access Type	Indicates the type of access that was used for dialysis on the dialysis session date reported.

From: mycrownweb.org/help/release-documents/kidney-data-dictionary
Accessed 2/20/2018


CROWN (now CROWNWeb)
SIMS-like data
REMIS
ESRD Facility Survey
Medicare Claims
• Institutional
- Dialysis
- Outpatient
- Inpatient
- SNF
- Home health
- Hospice
• Physician/Supplier
• Wait list status
• Transplant events
OPTN
Nursing Home data
LTC Minimum Dataset
• Pt. residence
• Managed care status
• Patient death
EDB



72 y/o
ESRD due to diabetes mellitus
ESRD date- 2/10/20013
In-center HD- 2/20013-5/20013 (facility A)
PD-6/2013 to present (facility B)
Hospitalized- 2014, 2016
Co-morbidities (from Medicare claims):

- h/o pneumonia 2014
- s/p myocardial infarction 2016
- h/o atrial fibrillation 2017

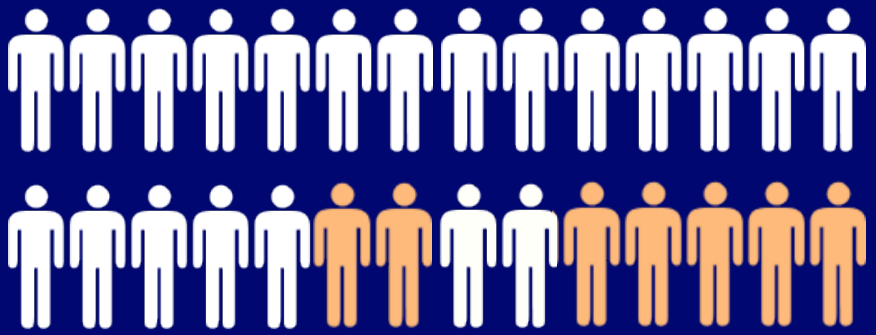
MCP provider for each outpatient month

Patient Attribution

DIALYSIS FACILITY ATTRIBUTION

AVF = 75%

DIALYSIS PATIENTS



Patient Attribution

Dialysis facility attribution

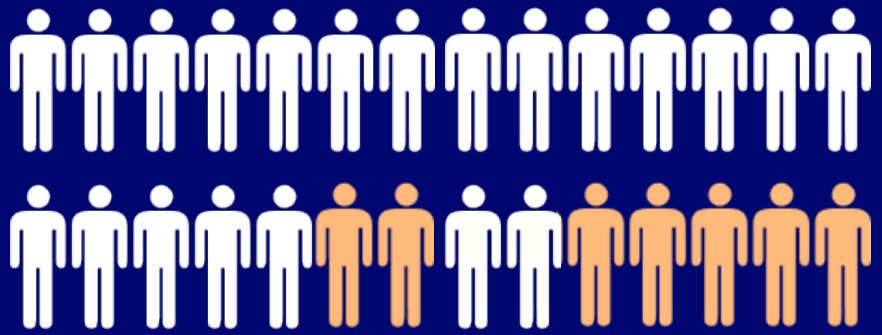
AVF = 75%

Individual Physician attribution

AVF = 86%

AVF = 64%

Dialysis Patients



PROTOTYPE MEASURES: Kt/V & VASCULAR ACCESS

Data Elements Used for Kt/V and Tunneled Catheter Prototype Measures

- The last vascular access type listed in CROWNWeb during the month was used to determine whether a catheter was in use. A catheter was considered in use if the CROWNWeb "Access Type IDs" of 16,18,19,20 and 21 had been recorded for a given month, where "16" represents AV Fistula combined with a Catheter, "18" represents AV Graft combined with a Catheter, "19" represents Catheter only, "20" represents Port access only, "21" represents other/unknown. If there was no CROWNWeb vascular access type entry for a given month, we counted the vascular access type for that month as a catheter.

- The last Kt/V collected (from any facility) during the reporting month for the patient was selected. If Kt/V was missing or out of range (Kt/V > 5.0) in CROWNWeb, then the Kt/V reported on the last eligible Medicare claim for the patient during the reporting month was used, when available.

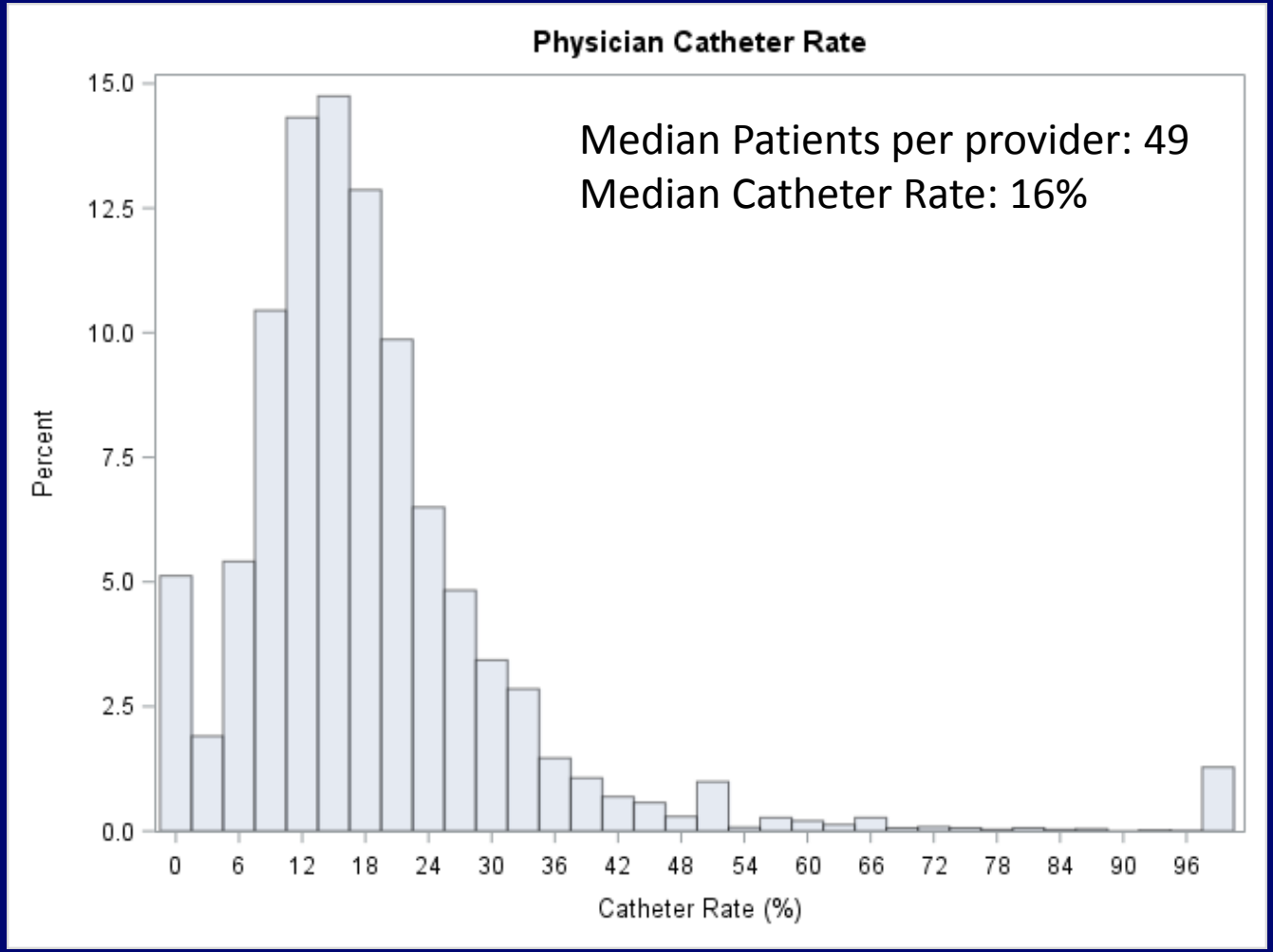
Prototype Measure: Catheter

- Measure Description: % of total HD patient-months assigned to a provider in which a tunneled catheter was used for vascular access.
- Numerator: number of HD patient months in which a tunneled catheter was reported as the last vascular access used
- Denominator: number of patient months for which the provider was the sole recipient of Medicare Capitated Payment (MCP), AND there was only one dialysis modality provided, AND there was evidence for a paid dialysis facility claim in the month.

Prototype Measure: Catheter

- Exclusion Criteria:
  - PD patient months
  - Pediatric patients
  - Limited life expectancy (hospice, cancer, end stage liver disease)
- For patient months with > 1 active vascular access in CROWNWeb we use the most recent vascular access

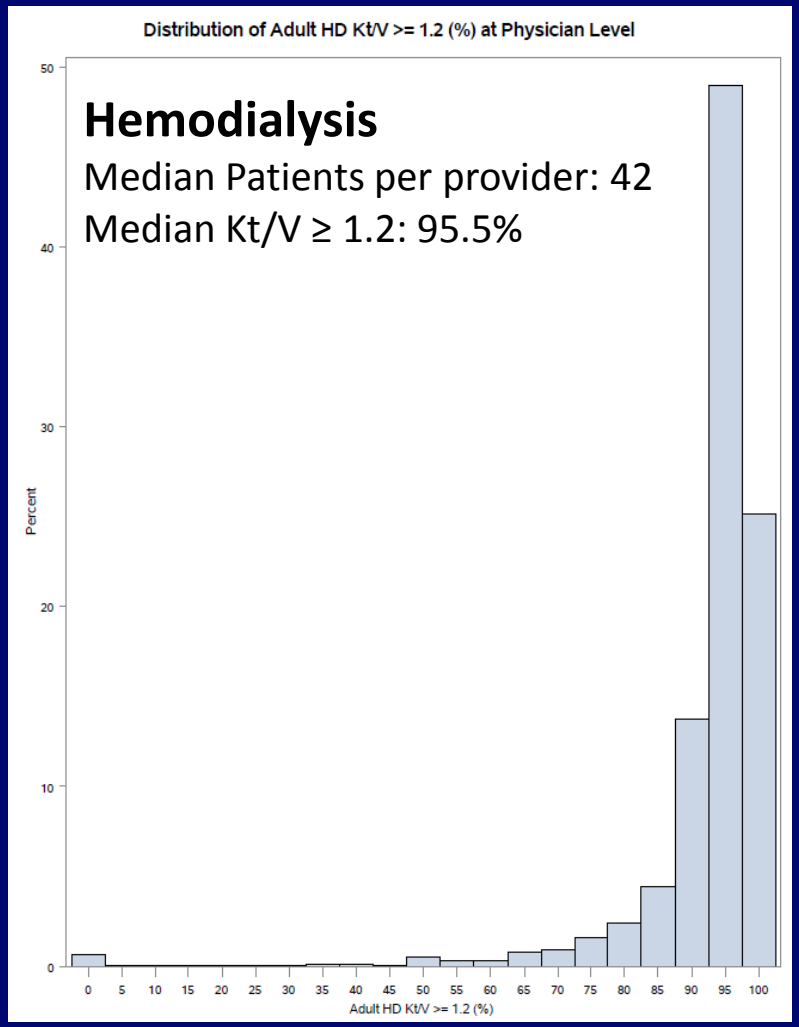
Prototype Measure: Catheter

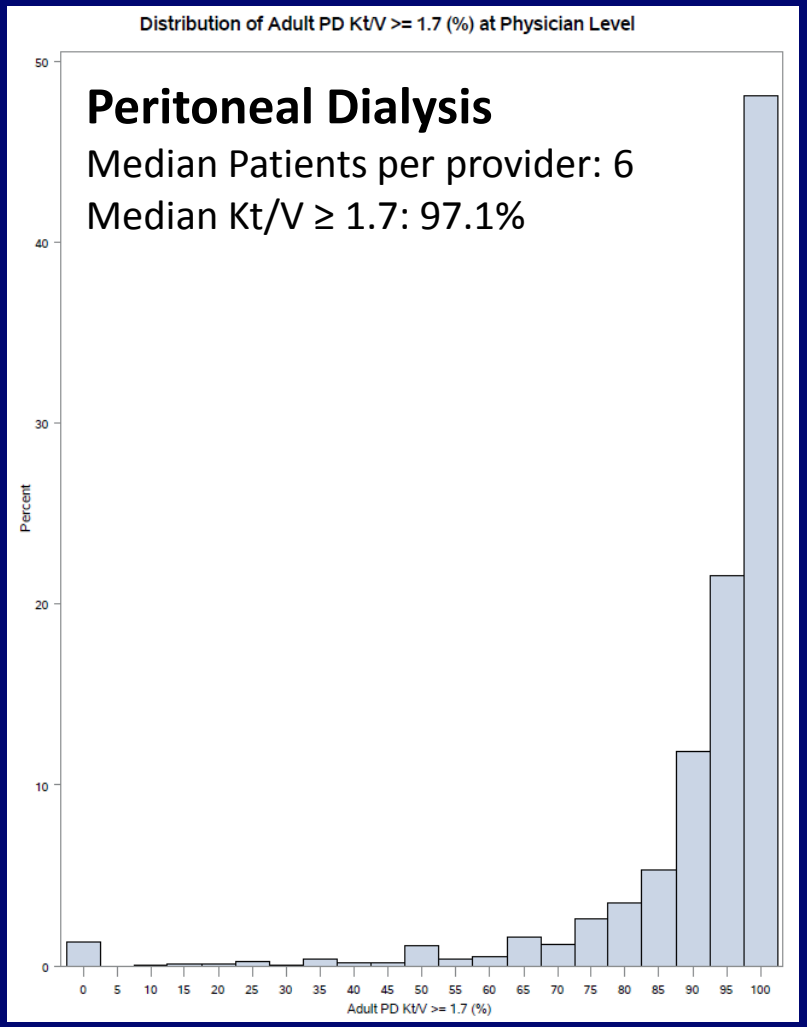


Prototype measure: Kt/V

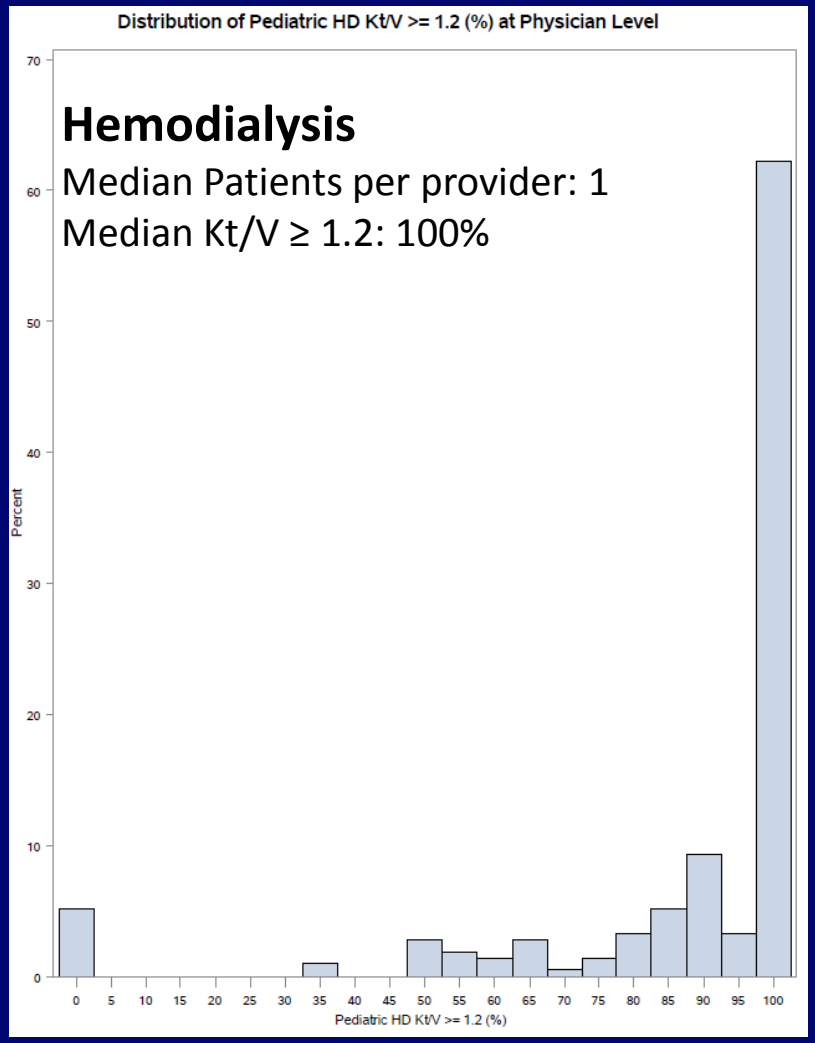
- Measure Description: Percent of total patient months assigned to a dialysis provider in which minimum Kt/V was achieved
- Numerator: number of thrice weekly HD patient months with spKt/V ≥ 1.2 in current month PLUS the number of adult PD patient months with Kt/V (dialysis + RRF) ≥ 1.7 within the last 4 months PLUS the number of pediatric PD patient months with Kt/V (dialysis + RRF) ≥ 1.8 within the last 6 months.
- Denominator: number of patient months for which the provider was the sole recipient of Medicare Capitated Payment (MCP), AND there was only one dialysis modality provided, AND there was evidence for a paid dialysis facility claim in the month.

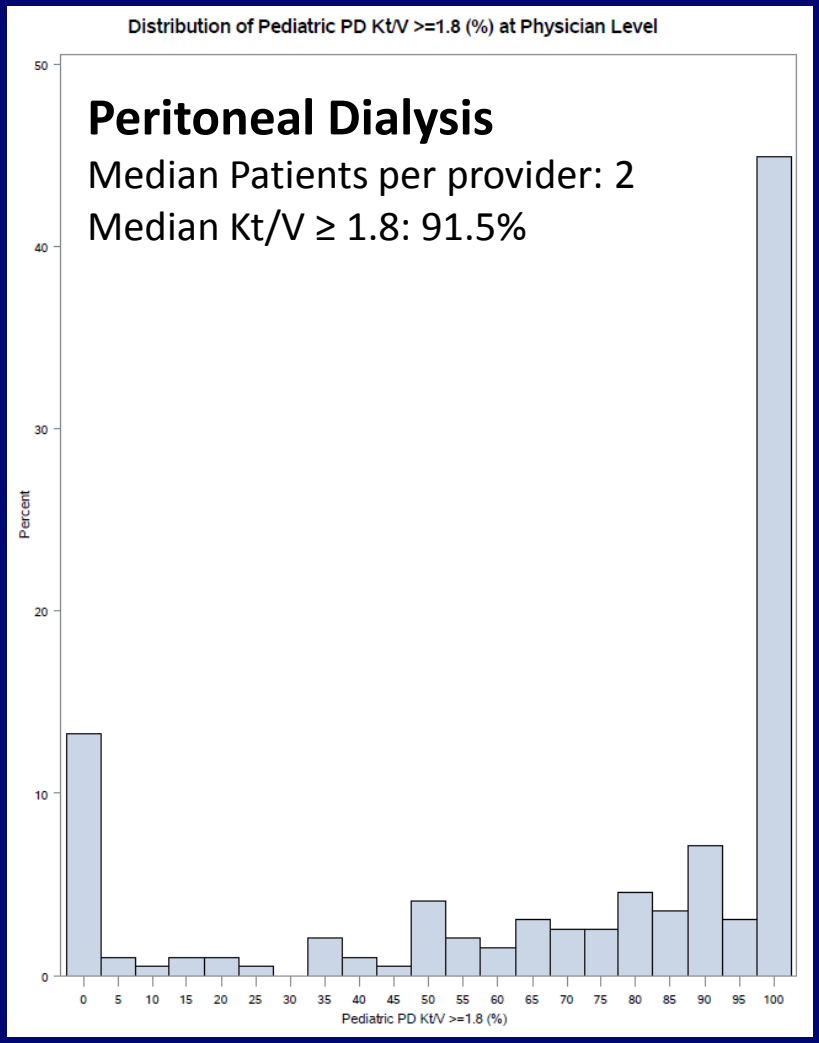
Prototype measure: Kt/V - Adult





Prototype measure: Kt/V - Pediatric





POTENTIAL MEASURE TOPIC AREAS

DFC Measures

Hemodialysis (HD) Adequacy

Minimum Delivered Hemodialysis Dose (NQF # 0249)

Minimum spKt/V for Pediatric Hemodialysis Patients (NQF# 1423)

Measurement of nPCR for Pediatric HD Patients (NQF #1425)

Peritoneal Dialysis (PD) Adequacy

Delivered Dose of Peritoneal Dialysis Above Minimum (NQF # 0318)

Pediatric Peritoneal Dialysis Adequacy: Achievement of Target Kt/V (NQF #2706)

Vascular Access

Maximizing Placement of AV Fistulae (NQF # 0257)

Minimizing Use of Catheters as Chronic Dialysis Access (NQF # 0256)

Hemodialysis Vascular Access: Standardized Fistula Rate (NQF # 2977)

Hemodialysis Vascular Access: Long-term Catheter Rate(NQF # 2978)

Mineral and Bone Disorder

Proportion of Patients with Hypercalcemia (NQF # 1454)

Mortality

Standardized Mortality Ratio (NQF # 0369)

Hospitalization

Standardized Hospitalization Ratio for Admissions (NQF # 1463)

Standardized Readmission Ratio (SRR) for dialysis facilities (NQF #2496)

Anemia Management

Standardized Transfusion Ratio

Survey of patients' experiences

ICH CAHPS

Preventing bloodstream infections

Standardized Infection Ratio (SIR)

PY2021 QIP Measures

Clinical

Clinical Care

Standardized Transfusion Ratio (STrR)

Standardized Hospitalization Ratio (SHR)

Kt/V Dialysis Adequacy – Comprehensive

Standardized Fistula Rate

Long-term Catheter Rate

Hypercalcemia

Patient and Family Engagement/Care Coordination

In-Center Hemodialysis Consumer Assessment of Healthcare Providers and Systems (ICH CAHPS) Survey

Standardized Readmission Ratio (SRR)

Safety

Infection Monitoring: National Healthcare Safety Network (NHSN) Bloodstream Infection in Hemodialysis Patients (Clinical Measure)

Reporting

Serum Phosphorus

Anemia Management

Ultrafiltration Rate

Pain Assessment and Follow-Up

Clinical Depression Screening and Follow-Up

NHSN Healthcare Personnel Influenza Vaccination

NHSN Dialysis Event Reporting Measure

PUBLIC COMMENT