NATIONAL QUALITY FORUM

Measure Submission and Evaluation Worksheet 5.0

This form contains the information submitted by measure developers/stewards, organized according to NQF's measure evaluation criteria and process. The evaluation criteria, evaluation guidance documents, and a blank online submission form are available on the submitting standards web page.

NQF #: 0321   **NQF Project:** Renal Endorsement Maintenance 2011
(for Endorsement Maintenance Review) **Original Endorsement Date:** Nov 15, 2007   **Most Recent Endorsement Date:** Nov 15, 2007

BRIEF MEASURE INFORMATION
De.1 Measure Title: Peritoneal Dialysis Adequacy: Solute
Co.1.1 Measure Steward: American Medical Association - Physician Consortium for Performance Improvement
De.2 Brief Description of Measure: Percentage of patients aged 18 years and older with a diagnosis of ESRD receiving peritoneal dialysis who have a total Kt/V > or = 1.7 per week measured once every 4 months
2a1.1 Numerator Statement: Patients who have a total Kt/V > or = 1.7 per week measured once every 4 months Definition: Total Kt/V includes residual kidney function and equals peritoneal dialysate Kt/V plus renal Kt/V
2a1.4 Denominator Statement: All patients aged 18 years and older with a diagnosis of ESRD receiving peritoneal dialysis
2a1.8 Denominator Exclusions: None
1.1 Measure Type: Outcome **2a1. 25-26 Data Source:** Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry, Paper Records **2a1.33 Level of Analysis:** Clinician : Group/Practice, Clinician : Individual, Clinician : Team **1.2-1.4 Is this measure paired with another measure?** No **De.3 If included in a composite, please identify the composite measure** (*title and NQF number if endorsed*): This measure is not a composite or paired measure.

STAFF NOTES (*issues or questions regarding any criteria*)
Comments on Conditions for Consideration:
Is the measure untested?   Yes ☐   No ☐   If untested, explain how it meets criteria for consideration for time-limited endorsement:
1a. Specific national health goal/priority identified by DHHS or NPP addressed by the measure (*check De.5*): 5. Similar/related endorsed or submitted measures (*check 5.1*): Other Criteria:
Staff Reviewer Name(s):

1. IMPACT, OPPORTUNITY, EVIDENCE - IMPORTANCE TO MEASURE AND REPORT
Importance to Measure and Report is a threshold criterion that must be met in order to recommend a measure for endorsement. All three subcriteria must be met to pass this criterion. See guidance on evidence. *Measures must be judged to be important to measure and report in order to be evaluated against the remaining criteria.*

(evaluation criteria)

1a. High Impact: H☐ M☐ L☐ I☐
(*The measure directly addresses a specific national health goal/priority identified by DHHS or NPP, or some other high impact aspect of healthcare.*)

De.4 Subject/Topic Areas (*Check all the areas that apply*):   Renal, Renal : End Stage Renal Disease (ESRD)
De.5 Cross Cutting Areas (*Check all the areas that apply*):   Safety, Safety : Complications

1a.1 Demonstrated High Impact Aspect of Healthcare: Affects large numbers, A leading cause of morbidity/mortality, Frequently performed procedure, High resource use, Patient/societal consequences of poor quality, Severity of illness

1a.2 If "Other," please describe:

1a.3 Summary of Evidence of High Impact (*Provide epidemiologic or resource use data*):
Chronic kidney disease (CKD), affects approximately 13.1% of United States adults and leads to end-stage renal disease (ESRD), cardiovascular disease (CVD), and premature death. (1)

CKD affects up to 5% of the population and 25% of those aged 70 years or older. An additional 6% of the population has signs of kidney damage, which may progress to ESRD. (2)

CKD is not recognized as a major public health concern. It is estimated that approximately 26.3 million adutls in the U.S. have non-dialysis dependent kidney disease and over 470,000 have ESRD, collectively representing over 13% of the US population. In the next 20 years, the burnden of CKD is expected to increase, with over 2 million individuals projected to be receiving renal replacement therapy (dialysis or kidney transplant) by 2030. (3)

Costs for CKD patients are now 23 percent of Medicare expenditures in the fee-for-service sector; when added to costs for ESRD patients, it appears that 31 percent of all Medicare expenditures are incurred by patients with a diagnosis of kidney disease. (4)

Using available clearance data obtained from the Australian and New Zealand Dialysis and Transplant Association (ANZDATA) Registry, Rumpsfeld and colleagues show that, after adjustment for various baseline demographic and clinical characteristics, patients with a baseline pKt/V <1.45 have an 87% increased risk of death compared with the reference group of patients having a baseline pKt/V from 1.70 to 2.00 [adjusted hazard ratio (HR) 1.87, 95% confidence interval (CI) 1.24-2.84;p=0.003].(5)

1a.4 Citations for Evidence of High Impact cited in 1a.3: 1. Snyder JJ, Collins AJ. Association of Preventive Health Care with Atherosclerotic Heart Disease and Mortality in CKD. J Am Soc Nephrol. 2009 July; 20(7): 1614–1622.

2. Alves TP, Lewis J. Racial differences in chronic kidney disease (CKD) and end-stage renal disease (ESRD) in the United States: a social and economic dilemma. Clinical Nephrology. 2010;74(1):S72-S77.

3. Choi AI, Rodriguez RA, Bacchetti P, Bertenthal D, et al. White/Black Racial Differences in Risk of End-Stage Renal Disease and Death. Am J Med. 2009 July;122(7):672-678.

4. 1. US Renal Data System, USRDS 2010 Annual Data Report: Atlas of Chronic Kidney Disease and End-Stage Renal Disease in the United States, National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, MD, 2010.

5. Vonesh E. Commentaries: On Small Solute Clearance And Patient Outcomes: Evidential Practice or Observational Trepidation?. Peritoneal Dialysis International. 2009 November;29:623-629.

1b. Opportunity for Improvement: H☐ M☐ L☐ I☐
(*There is a demonstrated performance gap - variability or overall less than optimal performance*)

1b.1 Briefly explain the benefits (improvements in quality) envisioned by use of this measure:
Adequate dialysis dose is strongly associated with better outcomes, including decreased mortality, fewer hospitalizations, fewer days in the hospital, and decreased hospital costs.(1)

Plantinga LC, Fink NE, Jaar BG, et al. Attainment of clinical performance targets and improvement in clinical outcomes and resource use in hemodialysis care: a prospective cohort study. BMC Health Serv Res. 2007 Jan 9;7:5. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1783649/pdf/1472-6963-7-5.pdf. Accessed April 27, 2011.

1b.2 Summary of Data Demonstrating Performance Gap *(Variation or overall less than optimal performance across providers)*: [*For Maintenance – Descriptive statistics for performance results for this measure - distribution of scores for measured entities by quartile/decile, mean, median, SD, min, max, etc.*]
The percentage of patients receiving adequate peritoneal dialysis increased from 55% in 1998 to 72% in 2008. The adequacy of dialysis was not assessed for 16% of peritoneal dialysis patients.

CMS Physician Quality Reporting Initiative:

This measure was used in the CMS Physician Quality Reporting Initiative, in the claims option (2008, 2009, 2010) and Registry option (2009, 2010).* There is a gap in care as shown by this 2008 data; 76.58% of patients reported on did not receive the optimal care.

10th percentile: 0.00%

25th percentile: 0.00%

50th percentile: 12.92%

75th percentile: 36.18%

90th percentile: 60.71%

The inter-quartile range (IQR) provides a measure of the dispersion of performance. The IQR is 36.18%, and indicates that 50% of physicians have performance on this measure ranging from 0.00% and 36.18%. A quarter of reporting physicians have performance on this measure which is greater than 36.18%, while a quarter have performance on this measure at 0.00%.

[1] Data found in the Confidential CMS PQRI 2008 Performance Information by Measure (PQRI Measure #82). Jan-Sept TAP file.

1b.3 Citations for Data on Performance Gap: [*For Maintenance – Description of the data or sample for measure results reported in 1b.2 including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included*]
2008 Annual Report, End Stage Renal Disease Clinical Performance Measures Project. Department of Health and Human Services, Centers for Medicare & Medicaid Services, Office of Clinical Standards & Quality, Baltimore, Maryland, December 2008.

1b.4 Summary of Data on Disparities by Population Group: [*For Maintenance –Descriptive statistics for performance results for this measure by population group*]
Studies have shown that African Americans are as much as 56%less likely to receive peritoneal dialysis than hemodialysis. This finding is true even when differences in age, education, social support, wealth, functional status, and clinical factors between African Americans and whites are taken into account. Evidence from patients with other diseases suggests that some physicians tend to perceive minorities and members of low and middle socioeconomic groups more negatively than their majority or upper socioeconomic class counterparts
on a number of dimensions that one might deem important for peritoneal dialysis, including patient intelligence, beliefs about patients' likelihood of risky behavior, and adherence to medical advice.

Racial differences in the quality of dialysis care have been observed. In 1994, data from the core indicator project conducted by the Center of [Medicare] and Medicaid Services (CMS) showed that 60% of African Americans

on dialysis received an "inadequate" dose of dialysis (as defined by process, not outcome measures). Although evidence suggests that this percentage has decreased over time, in 1997 African Americans still had a 20% chance of receiving inadequate dialysis.

1b.5 Citations for Data on Disparities Cited in 1b.4: [*For Maintenance*** *– Description of the data or sample for measure results reported in 1b.4 including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included*]**
Powe NR. To have and have not: Health and health care disparities in
chronic kidney disease. Johns Hopkins University School of Medicine, Baltimore, Maryland, USA, Kidney International, Vol. 64 (2003), pp. 763–772

1c. Evidence (*Measure focus is a health outcome OR meets the criteria for quantity, quality, consistency of the body of evidence.*)
Is the measure focus a health outcome? Yes☐ No☐   **If not a health outcome**, rate the **body** of evidence.

Quantity: H☐ M☐ L☐ I ☐   Quality: H☐ M☐ L☐ I ☐   Consistency: H☐ M☐ L☐ I ☐

Quantity	Quality	Consistency	Does the measure pass subcriterion1c?
M-H	M-H	M-H	Yes☐
L	M-H	M	Yes☐ IF additional research unlikely to change conclusion that benefits to patients outweigh harms: otherwise **No**☐
M-H	L	M-H	Yes☐ IF potential benefits to patients clearly outweigh potential harms: otherwise **No**☐
L-M-H	L-M-H	L	No ☐

Health outcome – rationale supports relationship to at least one healthcare structure, process, intervention, or service	**Does the measure pass subcriterion1c?** **Yes**☐ IF rationale supports relationship

1c.1 Structure-Process-Outcome Relationship *(Briefly state the measure focus, e.g., health outcome, intermediate clinical outcome, process, structure; then identify the appropriate links, e.g., structure-process-health outcome; process- health outcome; intermediate clinical outcome-health outcome)*:
This measure captures the number of calendar months during which patients have a total Kt/V > or = 1.7 per week measured once every 4 months. This is a measurement of the adequacy of peritoneal dialysis, an intermediate clinical outcome. Adequate dialysis dose is linked to improved health outcomes such as attaining highest quality and quantity of life after onset of illness, decreasing morbidity and mortality, and increasing treatment effectiveness.

1c.2-3 Type of Evidence *(Check all that apply)*:
Clinical Practice Guideline

1c.4 Directness of Evidence to the Specified Measure *(State the central topic, population, and outcomes addressed in the body of evidence and identify any differences from the measure focus and measure target population)*:
The guideline recommendations focus on the same patient population as the measure, patients with and without residual kidney function, receiving peritoneal dialysis. The guideline states that for patients with residual kidney function, the minimal "delivered" dose of total small-solute clearance should be a total (peritoneal and kidney) Kt/Vurea of at least 1.7 per week. The guideline also states that for patients without RKF,, the minimal "delivered" dose of total small-solute clearance should be a peritoneal Kt/Vurea of at least 1.7 per week measured within the first month after starting dialysis therapy and at least once every 4 months thereafter. For feasibility purposes, the initial measurement within the first month after starting dialysis has been removed from the measure. The frequency of the measurements, however, is consistent with the guideline. Therefore, the measure is written to identify patients who have a Kt/v > or = 1.7 per week measured at least once every 4 months, consistent with the guideline recommendations, excluding the initial measurement.

1c.5 Quantity of Studies in the Body of Evidence *(Total number of studies, not articles)*: A total of 2,307 citations were screened and 7 were added by the [NKF] Work Group members. There were 293 articles (263 studies in adults and 30 in children) that were potentially relevant. These articles were retrieved for full review. Of these, 101 adult articles were accepted for full data extraction by the [NKF] Work Group members. Nine articles in children were formally data extracted by a pediatric nephrologist on the Work Group. Articles in adults were randomly assigned to individual Work Group members for data extraction. Of these, 27 studies

answered questions pertinent to topics chosen for systematic listing in Summary Tables.

National Kidney Foundation. KDOQI Clinical Practice Guidelines and Clinical Practice Recommendations for 2006 Updates: Hemodialysis Adequacy, Peritoneal Dialysis Adequacy and Vascular Access. Am J Kidney Dis 48:S1-S322, 2006 (suppl 1).

1c.6 Quality of Body of Evidence (*Summarize the certainty or confidence in the estimates of benefits and harms to patients across studies in the body of evidence resulting from study factors. Please address: a) study design/flaws; b) directness/indirectness of the evidence to this measure (e.g., interventions, comparisons, outcomes assessed, population included in the evidence); and c) imprecision/wide confidence intervals due to few patients or events*): Previous studies suggested that improved survival on PD therapy was associated with higher total small-molecule clearances. Extrapolations from the Canada-United States (CANUSA) Study led to the prior guidelines of a total weekly Kt/Vurea of 2.0 and creatinine clearance (CCr) of 60 L/wk/1.73 m2 for CAPD patients. Higher targets were chosen for continuous cycling PD (CCPD) and patients on APD with no daytime dwell (dry day), and, in the absence of data, based on theoretical considerations. Reanalysis of the CANUSA Study showed that RKF, rather than peritoneal clearance, was associated with improved survival. Greater urine volume was a significant and important predictor of better survival, as well. Results of this reanalysis subsequently were supported by the Adequacy of PD in Mexico (ADEMEX) Study randomized trial of CAPD patients comparing 2 levels of PD prescription. The 2 groups of patients had identical survival, indicating no benefit on survival for greater small-molecule peritoneal clearance and confirming the benefit of RKF on survival. Further support was supplied by another randomized trial of CAPD patients from Hong Kong39 comparing 3 levels of total Kt/Vurea in patients with small degrees of RKF, with the lowest group randomized to a total Kt/Vurea of 1.5 to 1.7, with no difference in survival.

There are only 2 randomized trials of dialysis dose in PD patients. The study designs were different in that the ADEMEX Study targeted a higher level of peritoneal clearance (not quite achieved), whereas the Hong Kong trial targeted 3 levels of total Kt/Vurea, combining kidney and peritoneal clearance to achieve this and adjusting the PD prescription to stay within the indicated goal. Each study had a homogeneous ethnic population (Mexican and Chinese, respectively). Therefore, the ability to apply these results to different ethnic groups and more culturally heterogeneous populations is limited and is the reason that the evidence is listed as moderate, rather than strong. Of particular concern is the variability in adherence to home prescription in other cultures in which adherence was shown to be problematic in some patients.

National Kidney Foundation. KDOQI Clinical Practice Guidelines and Clinical Practice Recommendations for 2006 Updates: Hemodialysis Adequacy, Peritoneal Dialysis Adequacy and Vascular Access. Am J Kidney Dis 48:S1-S322, 2006 (suppl 1).

1c.7 Consistency of Results across Studies *(Summarize the consistency of the magnitude and direction of the effect):* Results of the ADEMEX Study are consistent with a subsequent randomized trial in Hong Kong comparing total Kt/Vurea values of 1.5 to 1.7, 1.7 to 2.0, and greater than 2.0 in CAPD patients. There were no differences in patient survival in the 3 groups. All patients at the start of the study had residual kidney Kt/Vurea of 1.0 or less, ensuring minimal RKF. Baseline residual GFRs (rGFRs) were 2.38, 2.48, and 2.64 mL/min/1.73 m2, respectively (representing kidney Kt/Vurea s of 0.44, 0.46, and 0.49 in the 3 groups, respectively; not a significant difference). Average BMI was 22 kg/m2, somewhat smaller than that of patients in the ADEMEX Study. The usual prescription was three 2-L exchanges per day, as opposed to four 2-L exchanges in the control arm of the ADEMEX Study. During the course of the 2-year study, PD prescription was adjusted up or down as RKF changed to stay within the randomized total Kt/Vurea category. By the end of the study, residual kidney Kt/Vurea was at or less than 0.1 in all 3 categories. Dialysis adequacy was assessed every 6 months. Results of these 2 important studies highlight the need to look at factors other than small-molecule clearance to improve survival in PD patients because peritoneal small-molecule clearance was not a predictor of survival, hospitalization, or nutritional state.

Observational studies support the findings of these 2 randomized trials, indicating that RKF (in those with RKF), rather than level of peritoneal small-molecule clearance, predicts survival, as well as QOL. In a large group of US PD patients (1,603 patients), age and serum albumin level were predictors of death, as was RKF; however, peritoneal clearance was not. Another study of 763 patients found that neither peritoneal Kt/Vurea nor peritoneal CCr was predictive of 1-year mortality. This population consisted of 53% CAPD and 34% CCPD patients; the rest were on both modalities during the 6-month study period or information was missing. In a longitudinal study of 412 adult PD patients (mean age, 52 years; 66.3% men, 15.3% with diabetic nephropathy), survival was predicted by GFR (RR, 0.88; 95% confidence interval [CI], 0.79 to 0.99; P = 0.039) and not peritoneal CCr. Comorbidity, albumin level at baseline, and age also were predictive of survival. Transport status was not a predictor of survival in this cohort. Kidney rGFR also was associated with multiple measures of better QOL, in contrast to peritoneal clearance, which was not associated with

any component of QOL. In yet another study, transport status was not associated with survival, but survivors had significantly more residual function than those who did not survive (4.5 versus 2.8 mL/min/1.73 m2). Low initial RKF was associated with greater C-reactive protein (CRP) levels, indicating a relationship between inflammation and loss of RKF.

National Kidney Foundation. KDOQI Clinical Practice Guidelines and Clinical Practice Recommendations for 2006 Updates: Hemodialysis Adequacy, Peritoneal Dialysis Adequacy and Vascular Access. Am J Kidney Dis 48:S1-S322, 2006 (suppl 1).

1c.8 Net Benefit *(Provide estimates of effect for benefit/outcome; identify harms addressed and estimates of effect; and net benefit - benefit over harms)*:
To summarize, since the last guidelines were published, 2 randomized trials examining different levels of small-molecule clearance have been done in CAPD patients, showing no benefit of the higher small-molecule clearances on patient survival, nutritional status, hospitalization, or QOL. Emerging data suggest that the focus to improve survival in PD patients should be on preserving [Residual Kidney Function] RKF, controlling volume overload (and thus blood pressure), treating metabolic acidosis, and perhaps use of protein supplements. Therefore, the minimal target is changed to a minimum Kt/Vurea of 1.7 per week, but careful attention must be paid to adherence to the prescription. The [NKF] Work Group wishes to emphasize that this minimal target should not be interpreted as an average value for a program, but that each patient should have a total Kt/Vurea at 1.7 or higher.

National Kidney Foundation. KDOQI Clinical Practice Guidelines and Clinical Practice Recommendations for 2006 Updates: Hemodialysis Adequacy, Peritoneal Dialysis Adequacy and Vascular Access. Am J Kidney Dis 48:S1-S322, 2006 (suppl 1).

1c.9 Grading of Strength/Quality of the Body of Evidence. Has the body of evidence been graded? Yes

1c.10 If body of evidence graded, identify the entity that graded the evidence including balance of representation and any disclosures regarding bias: NKF PERITONEAL DIALYSIS ADEQUACY 2006 WORK GROUP MEMBERSHIP

Joanne Bargman, MD, FRCPC, received her MD cum laude at the University of Toronto in 1978. After medical residency in Toronto, she was chosen as an exchange resident in Melbourne, Australia, where she completed her postgraduate year 3. She undertook nephrology training at Stanford University and, as a fellow of the Medical Research Council of Canada, spent almost 3 years in physiology research examining mechanisms of urinary concentration. She assumed a staff nephrologist position at the Toronto Western Hospital in 1985 and worked in the PD unit with Dimitrios Oreopoulos. She has published more than 120 articles and delivered more than 200 lectures internationally on subjects ranging from PD to glomerulonephritis and systemic lupus erythematosus. She is Director of the PD Program and also Co-Director of the Renal-Rheumatology Lupus Clinic at the University Health Network in Toronto. Dr Bargman is a council member of the International Society of Nephrology and the International Society of PD. She is the recipient of major teaching awards at the undergraduate and postgraduate levels at the University of Toronto. Dr Bargman has received research funds, grants, or contracts from Amgen, Baxter Healthcare, Fresenius Medical Care, and Gambro Healthcare.

Peter G. Blake, MD, FRCPC, MBBCh, is a Professor of Medicine and Chair of the Division of Nephrology at the University of Western Ontario and London Health Sciences Centre. He is a member of the Canadian Society of Nephrology Work Group on PD, was the editor of 2 major textbooks in nephrology, and is Editor-in-Chief of Peritoneal Dialysis International. His areas of interest include dialysis with particular regard to the development of PD, adequacy and nutrition in PD, trends in patient outcomes, and the economics of dialysis. Dr Blake has received lecture fees from Amgen, Baxter Healthcare, and Ortho Biotech.

John M. Burkart, MD (Co-Chair), is Professor of Medicine/Nephrology at Wake Forest Baptist Medical Center in Winston-Salem, NC. He is Corporate Medical Director of the Wake Forest University Outpatient Dialysis Centers. He attended medical school at Rush Medical College in Chicago, IL, and did his residency training and fellowship at the Bowman Gray School of Medicine of Wake Forest University. He has served on the PD Adequacy Work Group since its formation, currently as the Co-Chair. He is treasurer of the International Society for PD. He is a member of the Centers for Medicare and Medicaid Services advisory council for reimbursement based on case-mix. He has authored many chapters on PD in major nephrology text books and parts of Up to Date and is interested in all clinical aspects of PD and hemodialysis. Dr Burkart has received research funds, grants, or contracts from Baxter Healthcare, Genzyme, and Fresenius Medical Care.

Fredric O. Finkelstein, MD, is Chief of Nephrology, Hospital of St Raphael, and Clinical Professor of Medicine at Yale University, New Haven, CT. Dr Finkelstein has been involved in continuous ambulatory PD since 1979, when he started a freestanding

continuous ambulatory PD facility in New Haven, CT. He has written extensively on a variety of issues involving PD therapy. He currently is a member of the Council of the International Society of PD and is on the Editorial Board of Peritoneal Dialysis International. Dr Finkelstein has received research funds, grants, or contracts from Baxter Healthcare and Renal Research Institute.

Thomas A. Golper, MD, FACP, trained at Indiana University and the Oregon Health Sciences University and currently is Professor of Medicine (Nephrology) at Vanderbilt University Medical Center in Nashville, TN. He has held positions on the Board of Directors of the Renal Physicians Association and American Association of Kidney Patients, served as the PD Adequacy Work Group Chair for the first 2 versions of KDOQI, and remains on the Work Group and Steering Committee. He led the Network 9 Peritonitis and Catheter Survival Study and has served on the International Society of PD Ad Hoc Committee for Peritonitis for many iterations of its guidelines. His interests remain in the field of dialysis and the administrative aspects of nephrology practice. Dr Golper has received research funds, grants, or contracts from Amgen, Baxter Healthcare, Genzyme, Ortho Biotech, and Roche.

Angellina Graham, RN, graduated in 1995 with an associate degree in nursing. She is currently employed by Wake Forest Outpatient Dialysis at Piedmont Dialysis Center, serving in the role of Charge Nurse in the Hometraining Department and has also assisted with numerous clinical trials.

Beth Piraino, MD (Co-Chair), received her BS from the University of Pittsburgh. She attended medical school at the Medical College of Pennsylvania and graduated magna cum laude. She did her subsequent training in Internal Medicine and Nephrology at the University of Pittsburgh Health Center, after which she joined the faculty of the University of Pittsburgh School of Medicine, rising through the ranks over the years to her current position as tenured Professor of Medicine and Associate Dean of Admissions. Dr Piraino´s major research interest has been to improve outcomes of patients on PD therapy, in particular, by decreasing infectious complications. She has published widely in the area of PD, with numerous presentations at national and international meetings. She was Secretary for the International Society of PD from 2001 to 2006. She is Director of the PD Program at the University of Pittsburgh and Co-Medical Director of Dialysis Clinic Inc of Oakland. She received the prestigious Life Time Achievement Award at the 24th Annual Dialysis Conference in February 2004 for contributions to the care of PD patients. Dr Piraino has received research funds, grants, or contracts from Paul Teschan Fund through Dialysis Clinic Inc. and Baxter Healthcare.

Susan Stark, MS, RD, CSR, LDN, is a dietitian specialist at the University of Pittsburgh Medical Center, Presbyterian Hospital. She is a member of the American Dietetic Association.

Bradley A. Warady, MD, is Chief of Nephrology and Director of Dialysis and Transplantation at The Children´s Mercy Hospital and Professor of Pediatrics at the University of Missouri-Kansas City School of Medicine. Dr Warady´s clinical and research focus is end-stage renal disease, with particular emphasis on PD. He established the Pediatric PD Study Consortium and is a member of the Board of Directors of the North American Pediatric Renal Transplant Cooperative Study. He currently serves as Co-Principal Investigator of the International Pediatric Peritonitis Registry and the National Institutes of Health–funded Chronic Kidney Disease in Children (CKiD) study. He co-edited the books CAPD/CCPD in Children and Pediatric Dialysis and has published more than 200 articles and book chapters. He is a council member of the International Society of PD and has been a member of the KDOQI PD Adequacy, Pediatric Nutrition, and Pediatric Bone Work Groups for the National Kidney Foundation. Dr Warady also serves as an Associate Editor for Peritoneal Dialysis International and sits on the Editorial Board of Pediatric Nephrology. Dr Warady has received research funds, grants, or contracts from Amgen and Watson Pharmaceuticals.

CONSULTANTS TO THE KDOQI PEDIATRIC PERITONEAL DIALYSIS GUIDELINE AND CPRs

Steven R. Alexander, MD, FACP, is Chief of Division of Nephrology at Department of Pediatrics at Stanford University School of Medicine. Dr Alexander is the Founder and Director of the Annual Symposium on Pediatric Dialysis and he is serving on the Editorial Board for Pediatric Transplantation and International Journal of Artificial Organs. Dr Alexander has received research funds, grants, or contracts from Amgen, AstraZeneca Inc., Genentech Inc., National Institutes of Health, Southwest Pediatric Nephrology Study Group (SPNSG), and Watson Pharmaceuticals.

Michel Fischbach, MD, is Chief of the Pediatric Department at the University Hospital of Strasbourg and Professor of Pediatrics at the University Louis Pasteur of Strasbourg, France. Dr Fischbach´s clinical and research focus is end stage renal disease with a special interest in hemodialysis and peritoneal dialysis. As a member of the European Pediatric Dialysis Work Group (EPDWG), he published as a first author on the European Peritoneal Dialysis Guidelines (2002) for children. He is also the primary author in more than 100 international articles on dialysis in children and he serves as an Associate Editor for Pediatric Nephrology, Dialysis

section.

Denis F. Geary, MB, MRCP(UK), FRCP(C), is a Professor at Department of Pediatrics in University of Toronto and Chief at Division of Nephrology, The Hospital for Sick Children. He is the past-President of the Canadian Association of Pediatric Nephrologists and his current areas of interest include nocturnal hemodialysis for children, antenatally diagnosed renal disease, growth in children with renal failure, and anemia in children with chronic renal failure. Dr Geary has received research funds, grants, or contracts from Amgen and Hoffman La Roche.

Franz Schaefer, MD, is Professor of Pediatrics and Chief of the Pediatric Nephrology division at Heidelberg University Medical Center. He established the Mid European Pediatric Peritoneal Dialysis Study Group (MEPPS) and the European Study Group on Progressive Chronic Kidney Disease in Children (ESCAPE). He currently serves as Co-Principal Investigator of the International Pediatric Peritonitis Registry and he is also a member of the European Pediatric PD Working Group. He has co-edited the book "Pediatric Dialysis" and has published more than 220 articles and book chapters. In addition, he is a current council member of the European Society for Pediatric Nephrology and serves as pediatric liaison officer at the council of the International Society of Peritoneal Dialysis. Dr Schaefer also serves as an Assistant Editor for Pediatric Nephrology and sits in the Editorial Boards of Peritoneal Dialysis International, Current Pediatric Reviews and Biomed Central Nephrology. Dr Schaefer has received research funds, grants, or contracts from AstraZeneca, Baxter Healthcare, Fresenius Medical Care, IBM, Pfizer, and Roche.

Cornelis H. Schröder, MD, PhD, is Director of the Pediatric Nephrology, Dialysis, and Transplantation Department at the Wilhelmina Children´s Hospital and Professor of Pediatric Nephrology at the University of Utrecht, The Netherlands. His main research focuses are hereditary glomerular diseases and kidney replacement therapy, with particular emphasis on peritoneal dialysis. He is a member of the European Pediatric Dialysis Working Group, and has published several guidelines on behalf of this group. He is the author of more than 150 articles and book chapters in the field of pediatric nephrology.

Professor Alan R. Watson, FRCP, is Director of the Children & Young People´s Kidney Unit, Nottingham City Hospital and Professor of Paediatric Nephrology at the University of Nottingham, UK. His research interests have been in clinical nephrology including nutrition, dialysis, psychosocial aspects and ethics. He is the group coordinator of the European Dialysis Working Group, which has produced 7 published guidelines to date. Prof. Watson has published over 200 articles and book chapters and he is a Council member of the European Society for Paediatric Nephrology since 2003. He is also currently on the Editorial Boards of the British Journal of Renal Medicine and Peritoneal Dialysis International.

Evidence Review Team

National Kidney Foundation Center for Guideline Development and Implementation at Tufts-New England Medical Center, Boston, MA

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Stanley Ip, MD
Mei Chung, MPH

1c.11 System Used for Grading the Body of Evidence: Other

1c.12 If other, identify and describe the grading scale with definitions: Strong-Evidence includes results from well-designed, well-conducted study/studies in the target population that directly assess effects on health outcomes.
Moderately Strong-Evidence is sufficient to determine effects on health outcomes in the target population, but the strength of evidence is limited by the number, quality, or consistency of the individual studies; OR evidence is from a population other than the target population, but from well-designed, well-conducted studies; OR evidence is from studies with some problems in design

and/or analysis; OR evidence is from well-designed, well-conducted studies on surrogate endpoints for efficacy and/or safety in the target population.

Weak-Evidence is insufficient to assess the effects on net health outcomes because it is from studies with some problems in design and/or analysis on surrogate endpoints for efficacy and/or safety in the target population; OR the evidence is only for surrogate measures in a population other than the target population; OR the evidence is from studies that are poorly designed and/or analyzed.

1c.13 **Grade Assigned to the Body of Evidence:** moderately strong

1c.14 **Summary of Controversy/Contradictory Evidence:** The prescribed dose of PD, as is true of HD, is not invariably the delivered dose. Patients adjust the timing of exchanges, eliminate exchanges, and change the dextrose of the dialysis solution, resulting in variations in ultrafiltration that, in turn, affect small-molecule clearance. Patients are responsible for their dialysis delivery, yet depression is common in PD patients, which may impact on adherence.75,76 Close attention must be paid to the patient´s ability to perform (mentally and physically) his or her dialysis.

Furthermore, RKF does not remain stable. It is affected by volume status and tends to decrease over time. Therefore, if including residual kidney clearance as part of total Kt/Vurea, the measured dose of Kt/Vurea may not precisely reflect the delivered dose of Kt/Vurea, which will be less in some cases. This means that the clinician should err on the side of a higher prescribed dose when possible.

Implementation of the goal of euvolemia in PD patients involves close monitoring of urine volume, ultrafiltration, and physical examination, including blood pressure. Both home records and in-center measurements are needed. Frequent contact with the patient to supervise the use of the appropriate dialysis dextrose solution is necessary. The use of loop diuretics may be indicated to increase urine volume as appropriate (discussed later). "Negative" ultrafiltration with the long exchange should be avoided by adjusting the prescription and dialysate dextrose solution.

National Kidney Foundation. KDOQI Clinical Practice Guidelines and Clinical Practice Recommendations for 2006 Updates: Hemodialysis Adequacy, Peritoneal Dialysis Adequacy and Vascular Access. Am J Kidney Dis 48:S1-S322, 2006 (suppl 1).

1c.15 **Citations for Evidence other than Guidelines***(Guidelines addressed below)*:
N/A

1c.16 Quote verbatim, <u>the specific guideline recommendation</u> *(Including guideline # and/or page #)*:
For patients with RKF (considered to be significant when urine volume is >100 mL/d): the minimal "delivered"dose of total small-solute clearance should be a total (peritoneal and kidney) kt/vurea of at least 1.7 per week.

For patients without RKF (considered to be insignificant for urine volume =100 mL/d), the minimal "delivered" dose of total small-solute clearance should be a peritoneal Kt/Vurea of at least 1.7 per week measured within the first month after starting dialysis therapy and at least once every 4 months thereafter.

1c.17 **Clinical Practice Guideline Citation:** National Kidney Foundation. KDOQI Clinical Practice Guidelines and Clinical Practice Recommendations for 2006 Updates: Hemodialysis Adequacy, Peritoneal Dialysis Adequacy and Vascular Access. Am J Kidney Dis 48:S1-S322, 2006 (suppl 1).

1c.18 **National Guideline Clearinghouse or other URL:**
http://www.kidney.org/professionals/KDOQI/guideline_upHD_PD_VA/index.htm

1c.19 **Grading of Strength of Guideline Recommendation.** Has the recommendation been graded? Yes

1c.20 **If guideline recommendation graded, identify the entity that graded the evidence including balance of representation and any disclosures regarding bias:** See section 1c.10

1c.21 System Used for Grading the Strength of Guideline Recommendation: Other

1c.22 If other, identify and describe the grading scale with definitions: The strength of each guideline recommendation is based on the quality of the supporting evidence as well as additional considerations. Additional considerations, such as cost, feasibility, and incremental benefit were implicitly considered.

A   It is strongly recommended that clinicians routinely follow the guideline for eligible patients. There is strong evidence that the practice improves health outcomes.
B   It is recommended that clinicians routinely follow the guideline for eligible patients. There is moderately strong evidence that the practice improves health outcomes.
CPR   It is recommended that clinicians consider following the guideline for eligible patients. This recommendation is based on either weak evidence or on the opinions of the Work Group and reviewers that the practice might improve health outcomes.

Health outcomes are health-related events, conditions, or symptoms that can be perceived by individuals to have an important effect on their lives. Improving health outcomes implies that benefits outweigh any adverse effects.

1c.23 Grade Assigned to the Recommendation: B, B

1c.24 Rationale for Using this Guideline Over Others: It is the PCPI policy to use guidelines, which are evidence-based, applicable to physicians and other health-care providers, and developed by a national specialty organization or government agency. In addition, the PCPI has now expanded what is acceptable as the evidence base for measures to include documented quality improvement (QI) initiatives or implementation projects that have demonstrated improvement in quality of care.

KDOQI was founded on the principles of structured review of the literature, with data abstraction of pertinent articles. All of the KDOQI guidelines were developed in this manner. Since the first guideline was published, additional refinement and maturation of this process has occurred. This rigorous process of guideline development has been well received as both credible and transparent. National Kidney Foundation. KDOQI Guideline Processed. http://www.kidney.org/professionals/KDOQI/guidelines_process.cfm. Accessed: May 19, 2011.

Based on the NQF descriptions for rating the evidence, **what was the developer's assessment** of the quantity, quality, and consistency of the body of evidence?
1c.25 Quantity: Moderate   **1c.26** Quality: Moderate**1c.27** Consistency: High

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Was the threshold criterion, *Importance to Measure and Report*, met?
(*1a & 1b must be rated moderate or high and 1c yes*)   Yes☐ No☐
Provide rationale based on specific subcriteria:

For a new measure if the Committee votes NO, then STOP.
For a measure undergoing endorsement maintenance, if the Committee votes NO because of 1b. (no opportunity for improvement), it may be considered for continued endorsement and all criteria need to be evaluated.

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2. RELIABILITY & VALIDITY - SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES

Extent to which the measure, <u>as specified</u>, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (<u>evaluation criteria</u>)
Measure testing must demonstrate adequate reliability and validity in order to be recommended for endorsement. Testing may be conducted for data elements and/or the computed measure score. Testing information and results should be entered in the appropriate field. Supplemental materials may be referenced or attached in item 2.1. See guidance on measure testing.

S.1 Measure Web Page (*In the future, NQF will require measure stewards to provide a URL link to a web page where current detailed specifications can be obtained*). Do you have a web page where current detailed specifications for <u>this</u> measure can be obtained? Yes

S.2 If yes, provide web page URL: www.physicianconsortium.org

2a. RELIABILITY. Precise Specifications and Reliability Testing: H☐ M☐ L☐ I☐

2a1. Precise Measure Specifications. (*The measure specifications precise and unambiguous.*)

2a1.1 Numerator Statement *(Brief, narrative description of the measure focus or what is being measured about the target population, e.g., cases from the target population with the target process, condition, event, or outcome)*:
Patients who have a total Kt/V > or = 1.7 per week measured once every 4 months

Definition:
Total Kt/V includes residual kidney function and equals peritoneal dialysate Kt/V plus renal Kt/V

2a1.2 Numerator Time Window *(The time period in which the target process, condition, event, or outcome is eligible for inclusion)*:
Three times (at least 4 months apart) during the measurement period.

2a1.3 Numerator Details *(All information required to identify and calculate the cases from the target population with the target process, condition, event, or outcome such as definitions, codes with descriptors, and/or specific data collection items/responses*:
Definition:
Total Kt/V includes residual kidney function and equals peritoneal dialysate Kt/V plus renal Kt/V

See attached for EHR specifications.

For Claims/Administrative:

Report CPT Category II 3XXXF: Total Kt/V greater than or equal to 1.7 (total clearance of urea [Kt]/volume [V])

2a1.4 Denominator Statement *(Brief, narrative description of the target population being measured)*:
All patients aged 18 years and older with a diagnosis of ESRD receiving peritoneal dialysis

2a1.5 Target Population Category *(Check all the populations for which the measure is specified and tested if any)*: Adult/Elderly Care

2a1.6 Denominator Time Window *(The time period in which cases are eligible for inclusion)*:
12 consecutive months.

2a1.7 Denominator Details (*All information required to identify and calculate the target population/denominator such as definitions, codes with descriptors, and/or specific data collection items/responses)*:
See attached for EHR specifications.
For Claims/Administrative: See coding tables attached for coding (ICD-9-CM, ICD-10-CM, CPT)

2a1.8 Denominator Exclusions *(Brief narrative description of exclusions from the target population)*:
None

2a1.9 Denominator Exclusion Details *(All information required to identify and calculate exclusions from the denominator such as definitions, codes with descriptors, and/or specific data collection items/responses)*:
Not applicable

2a1.10 Stratification Details/Variables *(All information required to stratify the measure results including the stratification variables, codes with descriptors, definitions, and/or specific data collection items/responses)*:
We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.

2a1.11 Risk Adjustment Type *(Select type. Provide specifications for risk stratification in 2a1.10 and for statistical model in 2a1.13)*: Other   **2a1.12 If "Other," please describe:** No risk adjustment or risk stratification.

2a1.13 Statistical Risk Model and Variables *(Name the statistical method - e.g., logistic regression and list all the risk factor variables. Note - risk model development should be addressed in 2b4.)*:
This measure is not risk adjusted.

2a1.14-16 Detailed Risk Model Available at Web page URL (or attachment). Include coefficients, equations, codes with

descriptors, definitions, and/or specific data collection items/responses. Attach documents only if they are not available on a webpage and keep attached file to 5 MB or less. NQF strongly prefers you make documents available at a Web page URL. Please supply login/password if needed:

2a1.17-18. Type of Score: Rate/proportion

2a1.19 Interpretation of Score *(Classifies interpretation of score according to whether better quality is associated with a higher score, a lower score, a score falling within a defined interval, or a passing score)*: Better quality = Higher score

2a1.20 Calculation Algorithm/Measure Logic*(Describe the calculation of the measure score as an ordered sequence of steps including identifying the target population; exclusions; cases meeting the target process, condition, event, or outcome; aggregating data; risk adjustment; etc.)*:
Calculation algorithm is included in data dictionary/code table attachment (2a1.30).

2a1.21-23 Calculation Algorithm/Measure Logic Diagram URL or attachment:

2a1.24 Sampling (Survey) Methodology. If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate):
This measure does not require sampling or a survey.

2a1.25 Data Source *(Check all the sources for which the measure is specified and tested)*. If other, please describe:
 Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry, Paper Records

2a1.26 Data Source/Data Collection Instrument (*Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.*): N/A

2a1.27-29 Data Source/data Collection Instrument Reference Web Page URL or Attachment:

2a1.30-32 Data Dictionary/Code Table Web Page URL or Attachment:
Attachment
AMA-PCPI_AKID-11_PeritonealAdequacy_eSPEC.pdf

2a1.33 Level of Analysis (*Check the levels of analysis for which the measure is specified and tested)*:   Clinician : Group/Practice, Clinician : Individual, Clinician : Team

2a1.34-35 Care Setting *(Check all the settings for which the measure is specified and tested)*: Ambulatory Care : Clinician Office, Dialysis Facility, Home Health, Other:Domiciliary, Rest Home, or Custodial Care Services, Post Acute/Long Term Care Facility : Nursing Home/Skilled Nursing Facility

2a2. Reliability Testing. (*Reliability testing was conducted with appropriate method, scope, and adequate demonstration of reliability.*)

2a2.1 Data/Sample *(Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included)*:
PCPI Testing Project:

- Four nephrology practice sites representing various types, locations and sizes were identified to participate in testing the measures
o   The number of physicians per site ranged from 5-62 physicians
o   The sites were located in four different regions: Midwestern, Western, Eastern, and Southern
o   Patient visit volume ranged from 240-2,800 ESRD patients seen per month
- Sample size per physician organization ranged from 24-30 (as shown below) for a total of 169 ESRD patients on Peritoneal Dialysis (PD), or Hemodialysis (HD)
o   Site 1: 27 ESRD patients (3 PD patients, 24 HD patients)
o   Site 2 : 40 ESRD patients (10 PD patients, 30 HD patients)
o   Site 3 : 42 ESRD patients (19 PD patients, 23 HD patients)
o   Site 4 : 60 ESRD patients (30 PD patients, 30 HD patients)
- Sample selection: Data were collected from the medical records of the first up to 35 ESRD patients on each type of dialysis seen at each site after July 1, 2007.
- Data abstraction was completed for multiple patient visits per patient for a total of 62 patient visits.
- Data abstraction was performed in 2008

2a2.2 Analytic Method *(Describe method of reliability testing & rationale)*:
Data abstracted from patient records were used to calculate inter-rater reliability for the measure.
Patients were randomly selected from visits for ESRD.
Data analysis included:
- Percent agreement
- Kappa statistic with 95% confidence interval to adjust for chance agreement

2a2.3 Testing Results *(Reliability statistics, assessment of adequacy in the context of norms for the test conducted)*:
N, % Agreement, Kappa (95% Confidence Interval)
Kt/V=1.7: 39, 99.74%, 0.00* (-1.93,1.93)
Kt/V<1.7 with documented POC: 3, 100%, 1.00† (n/a)
Kt<1.7 without documented POC: 2,100%, 1.00† (n/a)

*This is an example of a limitation of the Kappa statistic. The "kappa is significantly reduced if one classification category dominates" (http://www.ajronline.org/cgi/content/full/184/5/1391).

†Kappa statistics cannot be calculated but are given a value of 1.00 because of complete agreement. Confidence intervals cannot be calculated because to do so would involve dividing by zero which cannot be done.

2b. VALIDITY. Validity, Testing, <u>including all Threats to Validity</u>:   H☐ M☐ L☐ I☐

2b1.1 Describe how the measure specifications *(measure focus, target population, and exclusions)* **are consistent with the evidence cited in support of the measure focus (***criterion 1c)* **and identify any differences from the evidence:**
The guideline recommendations focus on the same patient population as the measure, patients with and without residual kidney function, receiving peritoneal dialysis. The guideline states that for patients with residual kidney function, the minimal "delivered" dose of total small-solute clearance should be a total (peritoneal and kidney) Kt/Vurea of at least 1.7 per week. The guideline also states that for patients without RKF,, the minimal "delivered" dose of total small-solute clearance should be a peritoneal Kt/Vurea of at least 1.7 per week measured within the first month after starting dialysis therapy and at least once every 4 months thereafter. For feasibility purposes, the initial measurement within the first month after starting dialysis has been removed from the measure. The frequency of the measurements, however, is consistent with the guideline. Therefore, the measure is written to identify patients who have a Kt/v > or = 1.7 per week measured at least once every 4 months, consistent with the guideline recommendations, excluding the initial measurement.

2b2. Validity Testing. (*Validity testing was conducted with appropriate method, scope, and adequate demonstration of validity.)*

2b2.1 Data/Sample *(Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included)*:
An expert panel was used to assess face validity of the measure. This panel consisted of 21 members, with representation from the following specialties: nephrology, pediatric nephrology, endocrinology, nursing, methodology, internal medicine, preventive medicine and family medicine.

Louis H. Diamond, MBChB, FCP (SA), FACP, FHIMSS (Work Group Co-Chair) (Nephrology, Methodology) President, Quality Healthcare Consultants, Rockville, MD
Barbara Fivush, MD (Work Group Co-Chair) (Nephrology - Pediatrics) Professor of Pediatrics, Division Chief of Pediatric Nephrology, Johns Hopkins University, Baltimore, MD
Paul M. Palevsky, MD, FACP, FCCD, FASN (Work Group Co-Chair) (Nephrology - Adult) Professor of Medicine, University of Pittsburgh School of Medicine, Chief, Renal Section, VA Pittsburgh Healthcare System, Pittsburgh, PA
Eileen D. Brewer, MD (Nephrology - Pediatrics) Professor and Head, Pediatric Renal Section, Baylor College of Medicine Chief, Renal Service, Texas Children´s Hospital, Houston, TX
John W. Foreman, MD (Nephrology - Pediatrics) Department of Pediatrics, Professor of Pediatrics, Duke University, Durham, NC
Richard S. Goldman, MD (Nephrology - Adult, Methodology) Nephrology and Internal Medicine, Albuquerque, NM
Stuart L. Goldstein, MD (Nephrology - Pediatrics) Director, Center for Acute Care Nephrology, Cincinnati Children´s Hospital Medical Center; Medical Director, Pheresis Service, Professor of Pediatrics, University of Cincinnati College of Medicine, Cincinnati, OH
John Hartman, MD (Nephrology - Adult) CEO, Visonex, LLC, Treasurer, Wisconsin Medical Society, Green Bay, WI
Richard Hellman, MD, FACP, FACE (Endocrinology, Methodology) Clinical Professor of Medicine, University of Missouri-Kansas City School of Medicine, Private Practice, Diabetes & Endocrinology, North Kansas City, MO
Jean L. Holley, MD, FACP (Nephrology - Adult) Clinical Professor of Medicine, University of Illinois, Urban-Champaign and Carle Physician Group, Urbana, IL
Edward R. Jones, MD (Nephrology - Adult) Self-Employed, Delaware Valley Nephrology Associates, Philadelphia, PA
Karen M. Kolbusz, RN, BSN, MBA, (Nursing, Joint Commission Liaison) Associate Project Director, The Joint Commission, Oakbrook Terrace, IL
Craig B. Langman, MD (Nephrology - Pediatrics) The Isaac A. Abt MD Professor of Kidney Diseases and Head, Kidney Diseases, Feinberg School of Medicine, Northwestern University, and Children´s Memorial Hospital, Chicago, IL
Rajnish Mehrotra, MD (Nephrology - Adult) Professor of Medicine at David Geffen School of Medicine at UCLA and Associate Chief, Div of Nephrology and Hypertension, Harbor-UCLA Medical Center, Torrance, CA
Alvin H. Moss, MD (Nephrology - Adult) Professor of Medicine, West Virginia University, Morgantown, WV
Sharon A. Perlman, MD (Nephrology - Pediatrics) USF Pediatric Nephrology, All Children´s Hospital, St. Petersburg, FL
Paul D. Rockswold, MD, MPH (Preventive Medicine and Family Medicine) Physician Epidemiologist, Head of Health Analysis, Navy and Marine Corps Public Health Center, Suffolk, VA
Candace C. Walworth, MD (Nephrology - Adult) Nephrology and Internal Medicine, Lewiston, ME
Bradley Warady, MD (Nephrology - Pediatrics) Chief, Pediatric Nephrology, Children´s Mercy Hospitals and Clinics, Kansas City, MO
Steven J. Wassner, MD, FAAP (Nephrology - Pediatrics) Professor of Pediatrics, Vice-Chair for Education, Chief, Division of Nephrology & Hypertension, Hershey, PA
Jerry Yee, MD (Nephrology - Adult) Division Head, Nephrology and Hypertension, Henry Ford Hospital, Detroit, MI

2b2.2 Analytic Method *(Describe method of validity testing and rationale; if face validity, describe systematic assessment)*:
Face validity of the measure score as an indicator of quality was systematically assessed as follows:

After the measure was fully specified, the expert panel (workgroup membership) was asked to rate their agreement with the following statement:

Please rate your agreement with the following statement for each measure:

The scores obtained from the measure as specified will accurately differentiate quality across providers.

Scale 1-5, where 1=Strongly Disagree; 3=Neither Disagree nor Agree; 5=Strongly Agree

2b2.3 Testing Results *(Statistical results, assessment of adequacy in the context of norms for the test conducted; if face validity, describe results of systematic assessment)*:
The results of the expert panel rating of the validity statement were as follows: N = 19; Mean rating = 4.63
Frequency Distribution of Ratings
1 – 0 (Strongly Disagree)

2 - 0
3 – 0 (Moderate Agreement)
4 - 7
5 - 12 (Strongly Agree)

POTENTIAL THREATS TO VALIDITY. (*All potential threats to validity were appropriately tested with adequate results.*)

2b3. Measure Exclusions. (*Exclusions were supported by the clinical evidence in 1c or appropriately tested with results demonstrating the need to specify them.*)

2b3.1 Data/Sample for analysis of exclusions (*Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included*):
This measure has no exclusions.

2b3.2 Analytic Method (*Describe type of analysis and rationale for examining exclusions, including exclusion related to patient preference*):
This measure has no exclusions.

2b3.3 Results (*Provide statistical results for analysis of exclusions, e.g., frequency, variability, sensitivity analyses):*
This measure has no exclusions.

2b4. Risk Adjustment Strategy. (*For outcome measures, adjustment for differences in case mix (severity) across measured entities was appropriately tested with adequate results.*)

2b4.1 Data/Sample (*Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included*):
This measure is not risk adjusted.

2b4.2 Analytic Method (*Describe methods and rationale for development and testing of risk model or risk stratification including selection of factors/variables*):
This measure is not risk adjusted.

2b4.3 Testing Results (*Statistical risk model: Provide quantitative assessment of relative contribution of model risk factors; risk model performance metrics including cross-validation discrimination and calibration statistics, calibration curve and risk decile plot, and assessment of adequacy in the context of norms for risk models. Risk stratification: Provide quantitative assessment of relationship of risk factors to the outcome and differences in outcomes among the strata*):
This measure is not risk adjusted.

2b4.4 If outcome or resource use measure is not risk adjusted, provide rationale and analyses to justify lack of adjustment: This measure focuses on an intermediate outcome. Since this measure focuses on a specific outcome, measure exceptions would be used to risk adjust. This measure has no exceptions, therefore, there is no risk adjustment.

2b5. Identification of Meaningful Differences in Performance. (*The performance measure scores were appropriately analyzed and discriminated meaningful differences in quality.*)

2b5.1 Data/Sample (*Describe the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included*):
PCPI Testing Project:
•   Four nephrology practice sites representing various types, locations and sizes were identified to participate in testing the measures
o   The number of physicians per site ranged from 5-62 physicians
o   The sites were located in four different regions: Midwestern, Western, Eastern, and Southern
o   Patient visit volume ranged from 240-2,800 ESRD patients seen per month
•   Sample size per physician organization ranged from 24-30 (as shown below) for a total of 169 ESRD patients on Peritoneal Dialysis (PD), or Hemodialysis (HD)
o   Site 1: 27 ESRD patients (3 PD patients, 24 HD patients)
o   Site 2 : 40 ESRD patients (10 PD patients, 30 HD patients)

o   Site 3 : 42 ESRD patients (19 PD patients, 23 HD patients)
o   Site 4 : 60 ESRD patients (30 PD patients, 30 HD patients)
•   Sample selection: Data were collected from the medical records of the first up to 35 ESRD patients on each type of dialysis seen at each site after July 1, 2007.
•   Data abstraction was completed for multiple patient visits per patient for a total of 62 patient visits.
•   Data abstraction was performed in 2008

        CMS Physician Quality Reporting Initiative:
For the measure, Plan of Care for Inadequate Peritoneal Dialysis, 6,312 eligible patient visits were reported in the clinical performance denominator for the 2008 program - the most recent year for which data are available. The clinical performance denominator is the total number of eligible instances reported minus the number of eligible instances excluded from the measure.

2b5.2 Analytic Method *(Describe methods and rationale to identify statistically significant and practically/meaningfully differences in performance)*:
CMS Physician Quality Reporting Initiative
The inter-quartile range (IQR) was calculated. It provides a measure of the dispersion of performance for each measure.

ESRD CPM*
A national random sample of adults aged =18 years in-center peritoneal dialysis patients who were alive on December 31, 2006, was selected (n=1,474). 1,433 patients (97.2%) were included in the sample for analysis.
•   84% of patients had at least one measured total solute clearance for urea and creatinine during the 6 month study period
•   75% CAPD patients had a mean weekly Kt/Vurea=2.0 and a mean weekly creatinine clearance >-60L/week/1.73m2 OR there was evidence the dialysis prescription was changed if the adequacy measurements were below these thresholds during the 6 month study period.
•   64% of Cycler patients had a mean weekly Kt/Vurea=2.1 and a mean weekly creatinine clearance >-63L/week/1.73m2 OR there was evidence the dialysis prescription was changed if the adequacy measurements were below these thresholds during the 6 month study period.

*The data is taken from the 2007 DHHS ESRD Clinical Performance Measures (CPM) Project.
http://www.cms.gov/CPMProject/Downloads/ESRDCPMYear2007Report.pdf

2b5.3 Results *(Provide measure performance results/scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance)*:
 PCPI Testing Project Results:
Scores on this measure: N = 62 Mean = 69%, Range (10%-75%)
Kt/V=1.7: 39/62 Mean = 63% Range (0%-95%)

CMS Physician Quality Reporting Initiative:
This measure was used in the CMS Physician Quality Reporting Initiative, in the claims option (2008, 2009, 2010) and Registry option (2009, 2010).* There is a gap in care as shown by this 2008 data; 76.58% of patients reported on did not receive the optimal care.
10th percentile: 0.00%
25th percentile: 0.00%
50th percentile: 12.92%
75th percentile: 36.18%
90th percentile: 60.71%

The inter-quartile range (IQR) provides a measure of the dispersion of performance. The IQR is 36.18%, and indicates that 50% of physicians have performance on this measure ranging from 0.00% and 36.18%. A quarter of reporting physicians have performance on this measure which is greater than 36.18%, while a quarter have performance on this measure at 0.00%.

  Data found in the Confidential CMS PQRI 2008 Performance Information by Measure (PQRI Measure #82). Jan-Sept TAP file.

2b6. Comparability of Multiple Data Sources/Methods. (*If specified for more than one data source, the various approaches*

result in comparable scores.)

2b6.1 Data/Sample *(Describe the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included)*:
PCPI Testing Project:
•   Two nephrology practice sites representing various types, locations and sizes which participated in the CMS PQRI Project in 2007 were identified to participate in testing the measures
•   Sample size across the two physician offices as 74 patient visits
•   Sample selection: Data were collected from the medical records of the first up to 35 ESRD patients on each type of dialysis seen at each site after July 1, 2007.
•   Data abstraction was performed in 2008

2b6.2 Analytic Method *(Describe methods and rationale for testing comparability of scores produced by the different data sources specified in the measure)*:
Data abstracted from patient records were used to calculate parallel-forms reliability for the measure.
Patients were randomly selected from visits for ESRD
Data analysis included:
•   Percent agreement
•   Kappa statistic to adjust for chance agreement

2b6.3 Testing Results *(Provide statistical results, e.g., correlation statistics, comparison of rankings; assessment of adequacy in the context of norms for the test conducted)*:
Plan of Care for Inadequate Peritoneal Adequacy (N, % Agreement)
74, 52.7% Agreement

2c. Disparities in Care: H☐ M☐ L☐ I ☐ NA☐ *(If applicable, the measure specifications allow identification of disparities.)*

2c.1 If measure is stratified for disparities, provide stratified results *(Scores by stratified categories/cohorts)*: We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.

2c.2 If disparities have been reported/identified (e.g., in 1b), but measure is not specified to detect disparities, please explain:
The PCPI advocates that performance measure data should, where possible, be stratified by race, ethnicity, and primary language to assess disparities and initiate subsequent quality improvement activities addressing identified disparities, consistent with recent national efforts to standardize the collection of race and ethnicity data. A 2008 NQF report endorsed 45
practices including stratification by the aforementioned variables.(1) A 2009 IOM report "recommends collection of the existing Office of Management and Budget (OMB) race and Hispanic ethnicity categories as well as more fine-grained categories of ethnicity(referred to as granular ethnicity and based on one's ancestry) and language need (a rating of spoken English language proficiency of less than very well and one's preferred language for health-related encounters)."(2)

References:
(1)National Quality Forum Issue Brief (No.10). Closing the Disparities Gap in Healthcare Quality with Performance Measurement and Public Reporting. Washington, DC: NQF, August 2008.

(2)Race, Ethnicity, and Language Data: Standardization for Health Care Quality Improvement. March 2010. AHRQ Publication No. 10-0058-EF. Agency for Healthcare Research and Quality, Rockville, MD. Available at: http://www.ahrq.gov/research/iomracereport. Accessed May 25, 2010.

2.1-2.3 Supplemental Testing Methodology Information:

Steering Committee: Overall, was the criterion, *Scientific Acceptability of Measure Properties*, met?
(*Reliability and Validity must be rated moderate or high*) Yes☐   No☐

Provide rationale based on specific subcriteria:
If the Committee votes No, STOP

3. USABILITY

Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)

C.1 **Intended Purpose/ Use** *(Check all the purposes and/or uses for which the measure is intended)*:   Professional Certification or Recognition Program, Public Reporting, Quality Improvement (Internal to the specific organization)

3.1 **Current Use** *(Check all that apply; for any that are checked, provide the specific program information in the following questions)*: Public Reporting, Professional Certification or Recognition Program, Quality Improvement (Internal to the specific organization)

3a. Usefulness for Public Reporting: H☐ M☐ L☐ I☐
(*The measure is meaningful, understandable and useful for public reporting.*)

3a.1. Use in Public Reporting - disclosure of performance results to the public at large *(If used in a public reporting program, provide name of program(s), locations, Web page URL(s)).* If not publicly reported in a national or community program, state the reason AND plans to achieve public reporting, potential reporting programs or commitments, and timeline, e.g., within 3 years of endorsement: [*For Maintenance – If not publicly reported, describe progress made toward achieving disclosure of performance results to the public at large and expected date for public reporting; provide rationale why continued endorsement should be considered.*]
This measure was used in the CMS Physician Quality Reporting Intitiative in 2008, 2009, and 2010. The results from the 2008-2010 PQRI programs can be found on the CMS website:

http://www.cms.gov/PQRS/01_Overview.asp#TopOfPage

3a.2.Provide a rationale for why the measure performance results are meaningful, understandable, and useful for public reporting. If usefulness was demonstrated (e.g., focus group, cognitive testing), describe the data, method, and results: The PCPI, RPA, and ASPN believe that the reporting of participation information is a beneficial first step on a trajectory toward the public reporting of performance results, which is appropriate since the measure has been tested and the reliability of the performance data has been validated. NQF endorsement will facilitate our ongoing progress toward this public reporting objective.

3.2 Use for other Accountability Functions (payment, certification, accreditation). If used in a public accountability program, provide name of program(s), locations, Web page URL(s): This measure may be used in a Maintenance of Certification program.

3b. Usefulness for Quality Improvement: H☐ M☐ L☐ I☐
(*The measure is meaningful, understandable and useful for quality improvement.*)

3b.1. Use in QI. If used in quality improvement program, provide name of program(s), locations, Web page URL(s):
[*For Maintenance – If not used for QI, indicate the reasons and describe progress toward using performance results for improvement*].
All PCPI measures are suitable for use in quality improvement initiatives and are made freely available on the PCPI website and through the implementation efforts of medical specialty societies and other PCPI members. The PCPI strongly encourages the use of its measures in QI initiatives and seeks to provide information on such initiatives to PCPI members.

3b.2. Provide rationale for why the measure performance results are meaningful, understandable, and useful for quality improvement. If usefulness was demonstrated *(e.g., QI initiative),* describe the data, method and results:
The PCPI, RPA and ASPN believe that the use of PCPI measures in quality improvement initiatives is a beneficial way to gather scientific data with which to improve physician performance. This is appropriate since the measure has been tested and the reliability of the performance data has been validated. NQF endorsement will facilitate our ongoing progress toward this quality improvement objective.

Overall, to what extent was the criterion, *Usability*, met? H☐ M☐ L☐ I☐

Provide rationale based on specific subcriteria:

4. FEASIBILITY

Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (**evaluation criteria**)

4a. Data Generated as a Byproduct of Care Processes: H☐ M☐ L☐ I☐

4a.1-2 How are the data elements needed to compute measure scores generated? *(Check all that apply).*
Data used in the measure are:
generated by and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition

4b. Electronic Sources: H☐ M☐ L☐ I☐

4b.1 Are the data elements needed for the measure as specified available electronically *(Elements that are needed to compute measure scores are in defined, computer-readable fields)*: ALL data elements in electronic health records (EHRs)

4b.2 If ALL data elements are not from electronic sources, specify a credible, near-term path to electronic capture, OR provide a rationale for using other than electronic sources:

4c. Susceptibility to Inaccuracies, Errors, or Unintended Consequences: H☐ M☐ L☐ I☐

4c.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measurement identified during testing and/or operational use and strategies to prevent, minimize, or detect. If audited, provide results:
We are not aware of any unintended consequences related to this measurement.

4d. Data Collection Strategy/Implementation: H☐ M☐ L☐ I☐

A.2 Please check if either of the following apply (*regarding proprietary measures*):
4d.1 Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data, missing data, timing and frequency of data collection, sampling, patient confidentiality, time and cost of data collection, other feasibility/implementation issues *(e.g., fees for use of proprietary measures)*:
This measure was found through testing to be both feasible and reliable. Data collection was performed in a reasonable timeframe. There is no fee for use of the measure.

Overall, to what extent was the criterion, *Feasibility*, met? H☐ M☐ L☐ I☐
Provide rationale based on specific subcriteria:

OVERALL SUITABILITY FOR ENDORSEMENT

Does the measure meet all the NQF criteria for endorsement? Yes☐ No☐
Rationale:

If the Committee votes No, STOP.
If the Committee votes Yes, the final recommendation is contingent on comparison to related and competing measures.

5. COMPARISON TO RELATED AND COMPETING MEASURES

If a measure meets the above criteria and there are endorsed or new related measures (either the same measure focus or the same target population) or competing measures (both the same measure focus and the same target population), the measures are compared to address harmonization and/or selection of the best measure before a final recommendation is made.

5.1 If there are related measures *(either same measure focus or target population)* **or competing measures** *(both the same measure focus and same target population)*, list the NQF # and title of all related and/or competing measures:

5a. Harmonization

5a.1 If this measure has EITHER the same measure focus OR the same target population as NQF-endorsed measure(s): Are the measure specifications completely harmonized?

5a.2 If the measure specifications are not completely harmonized, identify the differences, rationale, and impact on interpretability and data collection burden:

5b. Competing Measure(s)

5b.1 If this measure has both the same measure focus and the same target population as NQF-endorsed measure(s): Describe why this measure is superior to competing measures *(e.g., a more valid or efficient way to measure quality);* OR provide a rationale for the additive value of endorsing an additional measure. *(Provide analyses when possible)*:

CONTACT INFORMATION

Co.1 Measure Steward (Intellectual Property Owner): American Medical Association - Physician Consortium for Performance Improvement, 515 N State St, Chicago, Illinois, 60654

Co.2 Point of Contact: Mark S., Antman, DDS, MBA, Director, Measure Development Operations Performance Improvement, mark.antman@ama-assn.org, 312-464-5056-

Co.3 Measure Developer if different from Measure Steward: American Medical Association - Physician Consortium for Performance Improvement, 515 N State St, Chicago, Illinois, 60654

Co.4 Point of Contact: Katherine, Ast, MSW, LCSW, katherine.ast@ama-assn.org, 312-464-4920-

Co.5 Submitter: Diedra, Joseph, MPH, diedra.joseph@ama-assn.org, 312-464-4904-, American Medical Association - Physician Consortium for Performance Improvement

Co.6 Additional organizations that sponsored/participated in measure development:
Renal Physicians Association, American Society of Pediatric Nephrology

Co.7 Public Contact: Mark, Antman, DDS, MBA, mark.antman@ama-assn.org, 312-464-5056-, American Medical Association - Physician Consortium for Performance Improvement

ADDITIONAL INFORMATION

Workgroup/Expert Panel involved in measure development
Ad.1 Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.
Louis H. Diamond, MBChB, FCP (SA), FACP, FHIMSS (Work Group Co-Chair) (Nephrology, Methodology) President, Quality Healthcare Consultants, Rockville, MD
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Ad.2 If adapted, provide title of original measure, NQF # if endorsed, and measure steward. Briefly describe the reasons for adapting the original measure and any work with the original measure steward: NQF# 0321, Peritoneal Dialysis Adequacy/Plan of Care
Steward: American Medical Association - Physician Consortium for Performance Improvement

The measure has been revised to focus on an intermediate outcome

Measure Developer/Steward Updates and Ongoing Maintenance
Ad.3 Year the measure was first released: 2007
Ad.4 Month and Year of most recent revision: 06, 2011
Ad.5 What is your frequency for review/update of this measure? Every 3 years or as new evidence becomes available that materially affects the measures.
Ad.6 When is the next scheduled review/update for this measure?

Ad.7 Copyright statement: Physician Performance Measures (Measures) and related data specifications have been developed by the American Medical Association (AMA) convened Physician Consortium for Performance Improvement® (PCPI™).

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Ad.8 Disclaimers:

Ad.9 Additional Information/Comments: The next scheduled review/update for this measure will be in 2014.

Date of Submission (*MM/DD/YY*): 10/05/2011

PCPI eSpecification

Clinical Topic	Adult Kidney Disease
Measure Title	**Peritoneal Dialysis Adequacy: Solute**
Measure #	**AKID-11**
Measure Description	Percentage of patients aged 18 years and older with a diagnosis of ESRD receiving peritoneal dialysis who have a total Kt/V ≥ 1.7 per week measured once every 4 months
Measurement Period	Twelve consecutive months
Initial Patient Population	Patient Age: Patient aged 18 years and older starts before the start of the measurement period Diagnosis Active: Patient has a diagnosis of ESRD before or during the measurement period Procedure Performed: Patient receiving peritoneal dialysis during the measurement period
Denominator Statement	All patients aged 18 years and older with a diagnosis of ESRD receiving peritoneal dialysis
Numerator Statement	Patients who have a total Kt/V ≥ 1.7 per week measured once every 4 months
Denominator Exceptions	Documentation of medical reason(s) for patient not having a Kt/V ≥ 1.7 per week (eg, patient has residual kidney function, other medical reasons)

Adult Kidney Disease
DRAFT Data Elements for PCPI eSpecification

Measure #11 : Peritoneal Dialysis Adequacy: Solute

QDM* Standard Category	QDM* Data Type	Standard Terminology	Constraints	Value Set Name	Value of Data Element	Data Source	Comments/Rationale
Measure Timing	N/A	N/A	TBD by measure implementer	Measurement Start Date			
Measure Timing	N/A	N/A	TBD by measure implementer	Measurement End Date			
Individual Characteristic	Patient Characteristic	TBD	during measurement period	Gender		• Electronic Administrative Claims • Electronic Health Record (EHR)	This data element is collected for the purpose of stratifying results in an effort to highlight disparities.
Individual Characteristic	Patient Characteristic	TBD	during measurement period	Race		• Electronic Health Record (EHR)	This data element is collected for the purpose of stratifying results in an effort to highlight disparities.
Individual Characteristic	Patient Characteristic	TBD	during measurement period	Ethnicity		• Electronic Health Record (EHR)	This data element is collected for the purpose of stratifying results in an effort to highlight disparities.
Individual Characteristic	Patient Characteristic	TBD	during measurement period	Primary Language		• Electronic Health Record (EHR)	This data element is collected for the purpose of stratifying results in an effort to highlight disparities.
Individual Characteristic	Patient Characteristic	LN	starts before the start of measurement period	Date of Birth		• Electronic Administrative Claims • Electronic Health Record (EHR)	
Individual Characteristic	Patient Characteristic	Calculated	starts before the start of measurement period	Age	≥ 18	• Electronic Administrative Claims • Electronic Health Record (EHR)	Measurement start date minus Date of Birth must be greater than or equal to 18 years.
Condition / Diagnosis / Problem	Diagnosis, Active	I9, I10, SNM	starts before or during measurement period	End Stage Renal Disease (ESRD)		• Electronic Administrative Claims • Electronic Health Record (EHR)	
Procedure	Procedure, Performed	CPT, SNM	starts before or during measurement period	Peritoneal Dialysis		• Electronic Administrative Claims • Electronic Health Record (EHR)	
Encounter	Encounter, Performed	I9, I10	starts before or during measurement period	Peritoneal Dialysis - Encounter		• Electronic Administrative Claims • Electronic Health Record (EHR)	
Laboratory Test	Laboratory Test, Performed	CPT II, SNM	occurs three times during measurement period, each occurrence 4 months apart	Total Kt/V per Week		• Electronic Administrative Claims • Electronic Health Record (EHR)	Requires at least one measurement during the 4 month window. If more than one measurement present, use 'most recent' (last) measurement.
Laboratory Test	Laboratory Test, Resut	CPT II, SNM	occurs three times during measurement period, each occurrence 4 months apart	Total Kt/V per Week	≥ 1.7	• Electronic Administrative Claims • Electronic Health Record (EHR)	Requires at least one measurement during the 4 month window. If more than one measurement present, use 'most recent' (last) measurement.
Negation Rationale	Laboratory Test, Not Done	SNM	during measurement period	Medical Reason(s)		• Electronic Health Record (EHR)	
Condition / Diagnosis / Problem	Diagnosis, Active	SNM	during measurement period	Residual Kidney Function		• Electronic Administrative Claims • Electronic Health Record (EHR)	

*The Quality Data Model (QDM), Version 2.1, was developed by National Quality Forum (NQF).

PCPI eSpecification

Measure Logic for Adult Kidney Disease : Peritoneal Dialysis Adequacy: Solute
Measure Description: Percentage of patients aged 18 years and older with a diagnosis of ESRD receiving peritoneal dialysis who have a total Kt/V ≥ 1.7 per week measured once every 4 months
Period: 12 Consecutive Months
PCPI Measure #: AKID-11

Identify Patients in Initial Patient Population (IPP)	Identify Patients in Denominator (D)	Identify Patients in Numerator (N)	Identify Patients who have valid Denominator Exceptions * (E)
PATIENT AGE [1] 18 and older And DIAGNOSIS Active [2] End Stage Renal Disease (ESRD) Value Set 000287 And PROCEDURE Performed [3] Peritoneal Dialysis Value Set 000311	And	ENCOUNTER [4] Peritoneal Dialysis – Encounter Value Set 000312	All Patients Identified within the Initial Patient Population	All Patients Identified within the Denominator And LABORATORY TEST Performed [5] Total Kt/V per Week Value Set 000328 And LABORATORY TEST Result [6] Total Kt/V per Week ≥ 1.7	All Patients Identified within the Denominator Not And All Patients identified within the Numerator And MEDICAL EXCEPTION Value Set 000288 000321

PARAMETER SPECIFICATIONS (Value Sets are found in the Coding Appendices):
IPP: [1] Patient Age: measurement start date minus birth date (value set 000307) ≥ 18 years starts before the start of measurement period; [2] Diagnosis, Active: starts before or during measurement period; [3] Procedure, Performed: starts before or during measurement period; [4] Encounter: starts before or during measurement period;
N: [5] Laboratory Test, Performed: occurs three times during measurement period, each occurrence 4 months apart; [6] Laboratory Test, Result: most recent (last) result ≥ 1.7;
E: All in (E) during measurement period;

*Coded examples are NOT intended to be an exhaustive list. Exceptions will vary for each patient and situation.

Basic Measure Calculation:

$$\frac{(N)}{(D) - (E)} = \%$$

The PCPI strongly recommends that exception rates also be computed and reported alongside performance rates as follows:

Exception Calculation:

$$\frac{(E)}{(D)} = \%$$

Exception Types:

E= E1 (Medical Exceptions) + E2 (Patient Exceptions) + E3 (System Exceptions)
For patients who have more than one valid exception, only one exception should be be counted when calculating the exception rate

Initial Patient Population (IPP)	Denominator (D)	Numerator (N)	Denominator Exceptions (E)
Definition: The initial patient population identifies the general group of patients that the performance measure is designed to address; usually focused on a specific clinical condition (e.g., coronary artery disease, asthma). For example, a patient aged 18 years and older with a diagnosis of CAD who has at least 2 Visits during the measurement period.	**Definition:** The denominator defines the specific group of patients for inclusion in a specific performance measure based on specific criteria (e.g., patient's age, diagnosis, prior MI). In some cases, the denominator may be I dentical to the initial patient population.	**Definition:** The numerator defines the group of patients in the denominator for whom a process or outcome of care occurs (e.g., flu vaccine received).	**Definition:** Denominator exceptions are the valid reasons why patients who are included in the denominator population did not receive a process or outcome of care (described in the numerator). Patients may have Denominator Exceptions for medical reasons (e.g., patient has an egg allergy so they did not receive flu vaccine); patient reasons (e.g., patient declined flu vaccine); or system reasons (e.g., patient did not receive flu Vaccine due to vaccine shortage). These cases are removed from the denominator population for the performance calculation, however the number of patients with valid exceptions should be calculated and reported. This group of patients constitutes the Denominator Exception reporting population – patients for whom the numerator was not achieved and a there is a valid Denominator Exception.
Find the patients who meet the Initial Patient Population criteria (IPP)	Find the patients who qualify for the denominator (D): ○ From the patients within the Patient Population criteria (IPP) select those people who meet Denominator selection criteria. (In some cases the IPP and D are identical).	Find the patients who qualify for the Numerator (N): ○ From the patients within the Denominator (D) criteria, select those people who meet Numerator selection criteria. ○ Validate that the number of patients in the numerator is less than or equal to the number of patients in the denominator	From the patients who did not meet the Numerator criteria, determine if the patient meets any criteria for the Denominator Exception (E1 + E2+E3). If they meet any criteria, they should be removed from the Denominator for performance calculation. As a point of reference, these cases are removed from the denominator population for the performance calculation, however the number of patients with valid exceptions should be calculated and reported.

Value Set ID	Clinical Topic	Topic Indicator	Measure Component	Standard Concept	Standard Category	Taxonomy	Code	Code Descriptor
000307	AKID	11	IPP	Birth Date	Individual Characteristic	LN	21112-8	Birth date: TmStp:Pt:^Patient:Qn:
000287	AKID	11	IPP	End Stage Renal Disease (ESRD)	Condition / Diagnosis / Problem	I9	585.6	End Stage Renal Disease [Chronic Kidney Disease, Stage V (requiring chronic dialysis)]
000287	AKID	11	IPP	End Stage Renal Disease (ESRD)	Condition / Diagnosis / Problem	I10	N18.6	End Stage Renal Disease (chronic kidney disease requiring chronic dialysis)
000287	AKID	11	IPP	End Stage Renal Disease (ESRD)	Condition / Diagnosis / Problem	SNM	46177005	end stage renal disease
000287	AKID	11	IPP	End Stage Renal Disease (ESRD)	Condition / Diagnosis / Problem	SNM	236435004	end stage renal failure on dialysis
000311	AKID	11	IPP	Peritoneal Dialysis	Procedure	CPT	90945	
000311	AKID	11	IPP	Peritoneal Dialysis	Procedure	CPT	90947	
000311	AKID	11	IPP	Peritoneal Dialysis	Procedure	CPT	90957	
000311	AKID	11	IPP	Peritoneal Dialysis	Procedure	CPT	90958	
000311	AKID	11	IPP	Peritoneal Dialysis	Procedure	CPT	90959	
000311	AKID	11	IPP	Peritoneal Dialysis	Procedure	CPT	90960	
000311	AKID	11	IPP	Peritoneal Dialysis	Procedure	CPT	90961	
000311	AKID	11	IPP	Peritoneal Dialysis	Procedure	CPT	90962	
000311	AKID	11	IPP	Peritoneal Dialysis	Procedure	CPT	90965	
000311	AKID	11	IPP	Peritoneal Dialysis	Procedure	CPT	90966	
000311	AKID	11	IPP	Peritoneal Dialysis	Procedure	CPT	90969	
000311	AKID	11	IPP	Peritoneal Dialysis	Procedure	CPT	90970	
000311	AKID	11	IPP	Peritoneal Dialysis	Procedure	CPT	90989	
000311	AKID	11	IPP	Peritoneal Dialysis	Procedure	SNM	71192002	peritoneal dialysis
000311	AKID	11	IPP	Peritoneal Dialysis	Procedure	SNM	428648006	automated peritoneal dialysis
000311	AKID	11	IPP	Peritoneal Dialysis	Procedure	SNM	225230008	chronic peritoneal dialysis
000311	AKID	11	IPP	Peritoneal Dialysis	Procedure	SNM	238318009	continuous ambulatory peritoneal dialysis
000311	AKID	11	IPP	Peritoneal Dialysis	Procedure	SNM	238319001	continuous cycling peritoneal dialysis
000311	AKID	11	IPP	Peritoneal Dialysis	Procedure	SNM	238321006	intermittent peritoneal dialysis
000311	AKID	11	IPP	Peritoneal Dialysis	Procedure	SNM	238323009	night-time intermittent peritoneal dialysis
000311	AKID	11	IPP	Peritoneal Dialysis	Procedure	SNM	73257006	peritoneal dialysis catheter maintenance
000311	AKID	11	IPP	Peritoneal Dialysis	Procedure	SNM	14684005	peritoneal dialysis excluding cannulation
000311	AKID	11	IPP	Peritoneal Dialysis	Procedure	SNM	676002	peritoneal dialysis including cannulation
000311	AKID	11	IPP	Peritoneal Dialysis	Procedure	SNM	225231007	stab peritoneal dialysis
000311	AKID	11	IPP	Peritoneal Dialysis	Procedure	SNM	238322004	tidal peritoneal dialysis
000312	AKID	11	IPP	Peritoneal Dialysis - Encounter	Encounter	I9	V56.2	Fitting and adjustment of peritoneal dialysis catheter
000312	AKID	11	IPP	Peritoneal Dialysis - Encounter	Encounter	I9	V56.8	Other Dialysis (Peritoneal Dialysis)
000312	AKID	11	IPP	Peritoneal Dialysis - Encounter	Encounter	I10	Z49.02	Encounter for fitting and adjustment of peritoneal dialysis catheter
000312	AKID	11	IPP	Peritoneal Dialysis - Encounter	Encounter	I10	Z49.32	Encounter for adequacy testing for peritoneal dialysis
000328	AKID	11	N	Total Kt/V	Laboratory Test	SNM	440084005	assessment of adequacy of dialysis (procedure)
000328	AKID	11	N	Total Kt/V	Laboratory Test	SNM	375196010	kt/V
000328	AKID	11	N	Total Kt/V	Laboratory Test	SNM	375202013	kt/V - iteration
000328	AKID	11	N	Total Kt/V	Laboratory Test	SNM	375203015	kt/V - log ratio
000328	AKID	11	N	Total Kt/V	Laboratory Test	SNM	10189951000046109	Total kt/V
000288	AKID	11	E	Medical Exception	Negation Rationale	SNM	501000124106	Exclusion from performance measure for medical reason (finding)
000321	AKID	11	E	Residual Kidney Function (peritoneal dialysis)	Diagnosis	SNM	10189931000046102	Residual renal function