NATIONAL QUALITY FORUM
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Memo

June 29-30, 2021

To: Consensus Standards Approval Committee (CSAC)

From: Renal Project Team

Re: Renal Fall 2020 Measures

CSAC Action Required

The CSAC will review recommendations from the Renal project at its June 29-30, 2021 meeting and vote on whether to uphold the recommendations from the Committee.

This memo includes a summary of the project, measure recommendations and responses to the public and member comments and the results from the NQF (National Quality Forum) member expression of support. The following documents accompany this memo:

1. **Renal Draft Report**. The draft report has been updated to reflect the changes made following the Standing Committee's discussion of public and member comments. The complete draft report and supplemental materials are available on the project webpage.
2. **Comment Table**. Staff has identified themes within the comments received. This table lists six comments received during the post-meeting comment period and the NQF/Standing Committee responses.

Background

Kidney disease has long been a leading cause of morbidity and mortality in the U.S. More than 37 million adults—representing 15 percent of the adult population—have CKD.10 Untreated, CKD (chronic kidney disease) can progress to ESRD (End Stage Renal Disease) and a host of other health complications such as cardiovascular disease, hyperlipidemia, anemia, and metabolic bone disease. There are over 700,000 people in the U.S. diagnosed with ESRD.11 Due to high U.S. prevalence and associated mortality, morbidity, high healthcare utilization and cost of care associated with ESRD, the implementation of quality measures for patients with renal disease is national priority.12

Medicare coverage is extended to all individuals, regardless of their age, if their kidneys are no longer functioning, if they need regular dialysis, or if they have had a kidney transplant.13 The U.S. continues to spend significant resources on care and treatment of CKD and ESRD. Net costs associated with CKD continue to rise. According to the most recent United States Renal Data System Annual Data Report from 2019, the total Medicare spend associated with CKD and ESRD in 2017 exceeded $120 billion. ESRD patient spend alone totaled $36 billion, accounting for 7.2 percent of the overall Medicare-paid fee-for-service claims, a proportion that has remained consistent for over a decade.14

During the fall 2020 measure evaluation cycle, the Standing Committee evaluated one newly submitted measure and one measure undergoing maintenance review against NQF's standard evaluation criteria. The Standing Committee recommended one measure for endorsement and did not recommend other measure. The Standing Committee recommended the following measure:

NQF #2701 Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour) (Kidney Care Quality Alliance (KCQA))

The Standing Committee did not recommend the following measure:

NQF #3567 Hemodialysis Vascular Access: Practitioner Level Long-Term Catheter Rate (University of Michigan Kidney Epidemiology and Cost Center (UMKECC)/Centers for Medicare & Medicaid (CMS (Centers for Medicare & Medicaid Services)))

Draft Report

The Renal draft report presents the results of the evaluation of two measures considered under the Consensus Development Process (CDP). One measure was recommended for endorsement, and one was not recommended.

The measures were evaluated against the 2019 version of the measure evaluation criteria.

Measures	Maintenance	New	Total
Measures under consideration	1	1	2
Measures recommended for endorsement	1	0	1
Measures not recommended for endorsement	0	1	1
Reasons for not recommending	Importance – 0 Scientific Acceptability – 0 Use – 0 Overall Suitability – 0 Competing Measure – 0	Importance – 1 Scientific Acceptability – 0 Use – 0 Overall Suitability – 0 Competing Measure – 0	*

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CSAC Action Required

Pursuant to the CDP, the CSAC is asked to consider endorsement of one candidate consensus measure.

Measures Recommended for Endorsement

- **NQF #2701** Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour) (KCQA)

Overall Suitability for Endorsement: Yes-18; No-1

Measures Not Recommended for Endorsement

(See Appendix B for the Committee's votes and rationale)

- **NQF #3567** Hemodialysis Vascular Access: Practitioner Level Long-Term Catheter Rate (UMKECC/CMS)

Comments and Their Disposition

NQF received six comments from four organizations (including three member organizations) and

individuals pertaining to the draft report and to the measures under consideration.

A table of comments submitted during the comment period, with the responses to each comment and the actions taken by the Standing Committee and measure developers, is posted to the Renal project webpage.

Comment Themes and Committee Responses

Comments about specific measure specifications and rationale were forwarded to the developers, who were invited to respond.

The Standing Committee reviewed all the submitted comments (general and measure specific) and developer responses. The Standing Committee members focused their discussion on measures or topic areas with the most significant and recurring issues.

Measure-Specific Comments

NQF #3567 Hemodialysis Vascular Access: Practitioner Level Long-Term Catheter Rate (UMKECC/CMS)

We appreciate the thoughtful review that was recently completed by the Renal Standing Committee for quality measure #3567 Hemodialysis Vascular Access: Practitioner Level Long-term Catheter Rate. This measure did not pass the Performance Gap requirement and the Standing Committee expressed that "the median performance of 8.3 percent is likely close to the appropriate level of catheter use in clinical practice, and there is little opportunity for improvement." However, 25% of providers have catheter rates above 13%, indicating that there is in fact substantial opportunity for improvement among a sizable number of providers. Our understanding is that the performance gap represents the magnitude of variation in provider performance, and not whether the mean level of performance is clinically appropriate. In addition, the width of the actual performance gap between high and low performing providers is larger in measure #3567 than the performance gap for the recently NQF endorsed facility level metric #2978: Hemodialysis Vascular Access: Long-term Catheter Rate. Given this discrepancy, it is not clear why the provider level metric failed after demonstrating a larger performance gap than the currently endorsed facility level metric. While we are not requesting reconsideration of this measure, we did want to draw attention to the discrepancy in the application of the performance gap criteria in hopes of improving the consistency of committee review.

Committee Response

The Standing Committee discussed the concerns raised in the comment submitted by the developer. The Standing Committee noted that due to the differences in high versus low performance between the practitioner-level measure, NQF #3567, reviewed in the Fall 2020 cycle and the facility-level measure, NQF #2978, reviewed in Spring 2020 cycle, it would be inappropriate to assess and compare performance between the two measures. NQF #3567 relies on older CROWNWeb data from 2016, while NQF #2978, utilized 2018 data as evidence for performance gap. The Standing Committee noted that comparing the differences in high and low performance between NQF #3567 and NQF #2978 is inadequate due to utilization of performance data from different years. The Standing Committee again emphasized that the median performance of 8.3 percent is likely close to the appropriate level of catheter use in clinical practice, and there is little opportunity for improvement. The Standing Committee discussed both issues extensively during the Fall 2020 measure evaluation meeting in February. Additionally, there was a lack of clarity around disparities data as the text descriptions in the measure submission form differed from the data presented in the tables. Given these concerns, the Standing Committee did not pass the measure on performance gap. The Standing Committee, therefore, did not revote on this criterion or change their initial endorsement recommendation.

Developer Response

The developer did not provide any additional comments.

Member Expression of Support

Throughout the 16-week continuous public commenting period, NQF members had the opportunity to express their support ('support' or 'do not support') for each measure submitted for endorsement consideration to inform the Committee's recommendations. Two NQF members provided their expression of support. Appendix C details the expression of support.

Appendix A: CSAC Checklist

The table below lists the key considerations to inform the CSAC's review of the measures submitted for endorsement consideration.

Key Consideration	Yes/No	Notes
Were there any process concerns raised during the CDP project? If so, briefly explain.	No	*
Did the Standing Committee receive requests for reconsideration? If so, briefly explain.	No	*
Did the Standing Committee overturn any of the Scientific Methods Panel's ratings of Scientific Acceptability? If so, state the measure and why the measure was overturned.	No	*
If a recommended measure is a related and/or competing measure, was a rationale provided for the Standing Committee's recommendation? If not, briefly explain.	N/A	*
Were any measurement gap areas addressed? If so, identify the areas.	No	*
Are there additional concerns that require CSAC discussion? If so, briefly explain.	No	*

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Appendix B: Measures Not Recommended for Endorsement

The table below lists the Committee's vote and rationale for measures not recommended for endorsement.

Legend: H = High; M = Moderate; L = Low; I = Insufficient

Measure	Voting Results	Standing Committee Rationale
NQF #3567: Hemodialysis Vascular Access: Practitioner Level Long-Term Catheter Rate	**Evidence** H-0; M-12; L-5; I-1 **Gap** H-0; M-7; L-10; I-2 **Reliability** Vote Not Taken **Validity** Vote Not Taken **Feasibility** Vote Not Taken **Usability and Use** *Use* Vote Not Taken *Usability* Vote Not Taken	Concerns were raised regarding utilization of older CROWNWeb data from 2016 was used for the gap analysis. The gap was larger for younger patients. Concerns were raised regarding the median performance of 8.3 percent, which was likely close to the appropriate level of catheter use in clinical practice, and hence, the Committee noted that there was little opportunity for improvement.

Appendix C: NQF Member Expression of Support Results

Two NQF members provided their expression of support. NQF members provided their expression of support for two measures under consideration. Results for each measure are provided below.

NQF #2701: Avoidance of Utilization of High Ultrafiltration Rate (>13 ml/kg/hour) (KCQA)

Member Council	Support	Do Not Support	Total
QMRI	**1**	**0**	**1**

NQF #3567: Hemodialysis Vascular Access—Practitioner-Level Long-Term Catheter Rate (UMKECC/CMS)

Member Council	Support	Do Not Support	Total
Health Professional	0	1	1
QMRI	0	1	1

Appendix D: Details of Measure Evaluation

Rating Scale: H=High; **M**=Moderate; **L**=Low; **I**=Insufficient; **NA**=Not Applicable

Note: Vote totals may differ between measure criteria and between measures as Standing Committee members often must join calls late or leave calls early. NQF ensures that quorum is maintained for all live voting. All voting outcomes are calculated using the number of Standing Committee members present for that vote as the denominator.

Quorum (17 out of 25 Standing Committee members) was met and maintained for the entirety of both measure evaluation meetings on February 8, 2021 and February 11, 2021.

Measures Recommended

2701 Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)

Submission

Description: Percentage of adult in-center hemodialysis patients in the facility whose average ultrafiltration rate (UFR) is >=13 ml/kg/hour AND who receive an average of <240 minutes per treatment during the calculation period.

Numerator Statement: Number of patients* from the denominator whose average UFR is >=13 mg/kg/hr (NOT just >13) hour AND who receive an average of <240 minutes per treatment during the calculation period.**

*To address the fact that patients may contribute varying amounts of time to the annual denominator population, results will be reported using a "patient-month" construction.

** The calculation period is defined as the same week that the monthly Kt/V is drawn.

Denominator Statement: Number of adult in-center hemodialysis patients in an outpatient dialysis facility undergoing chronic maintenance hemodialysis during the calculation period.

Exclusions: The following patients are excluded from the denominator population:

1. Patients <18 years of age (implicit in denominator definition).
2. Home dialysis patients (implicit in denominator definition).
3. Patients in a facility <30 days.
4. Patients with >4 hemodialysis treatments during the calculation period.
5. Patients with <7 hemodialysis treatments in the facility during the reporting month.
6. Patients without a completed CMS Medical Evidence Form (Form CMS-2728) in the reporting month.
7. Kidney transplant recipients with a functioning graft.
8. Facilities treating <=25 adult in-center hemodialysis patients during the reporting month.

Adjustment/Stratification: No risk adjustment or risk stratification

Level of Analysis: Facility

Setting of Care: Post-Acute Care

Type of Measure: Process

Data Source: Electronic Health Records

Measure Steward: Kidney Care Quality Alliance (KCQA)

STANDING COMMITTEE MEETING February 8, 2021

1. **Importance to Measure and Report: The measure meets the Importance criteria.**

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **Total Votes-18; H-1; M-14; L-2; I-1**; 1b. Performance Gap: **Total Votes-20; H-2; M-16; L-0; I-2**

Rationale:

- The Standing Committee noted that this measure is a maintenance measure, previously endorsed in 2015.

- The developer provided updated evidence for this measure, citing updated KDOQI Hemodialysis Guideline recommendations and updated UK Renal Association Clinical Practice Guideline on Hemodialysis recommendations.
- The developer also provided summaries of additional studies that assess the impact of negative outcomes from high UFR.
- The Committee reviewed the evidence provided by the developer, noting that the specific requirements of the measure were not addressed directly by the some of the guidelines. The cutoffs for the measure were noted to have been selected on a pragmatic basis, which the Committee found appropriate.
- The Committee noted that the developer provided some evidence of disparities from the literature but not from direct testing.
- The Committee noted that the documentation of the measure suggested that, while the data isn't perfect, there remains significant performance variation between dialysis facilities.
- Performance gap analysis obtained during measure testing was presented as follows:
    - Mean Score = 11.66% (lower = better performance); 95% CI = 11.46-11.87%; Standard Deviation = 6.92
    - Minimum Score = 0%; Maximum Score = 50%
    - Median = 10.88%; Mode = 8.00%; Interquartile Range = 8.14

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria.

(2a. Reliability precise specifications, testing; 2b. Validity testing, threats to validity

2a. Reliability: **Total Votes-20; H-1**; **M-19**; **L-0**; **I-0**; 2b. Validity: **Total Votes-20; H-0**; **M-19**; **L-1**; **I-0**

Rationale:

- Reliability testing was conducted at a total of 4,252 dialysis facilities from three dialysis providers.
- An intra-class correlation coefficient (ICC) was calculated to estimate the ratio of the between- to the within-facility variance, standardized for both the level of variation and the numbers of observations examined.
    - Dialysis Provider A ICC – 0.60
    - Dialysis Provider B ICC – 0.65
    - Dialysis Provider C ICC – 0.70
- Measure developer tested score level validity using convergent validity, a common approach to score level testing.
    - Standardized Hospitalization Ratio (SHR) for Admissions measure, NQF #1463)
    - Standardized Mortality Ratio* (SMR) measure, NQF #0369)
    - Results were statistically significant and directionally appropriate with low positive values (0.03-0.17)
- The Standing Committee noted that the reliability of the measure was moderate based on the intraclass correlation coefficients from the developer's analysis.
- The Standing Committee noted that the tests provided by the developer for the validity of the measure were appropriately conducted and the results were directionally expected.

3. Feasibility: Total Votes-19; H-11; M-7; L-1; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

Rationale:

The measure was noted by the Committee to draw on readily available data sources and was passed on feasibility with little discussion.

4. Use and Usability

4a. Use; 4a1. Accountability and transparency; 4a2. Feedback on the measure by those being measured and others; 4b. Usability; 4b1. Improvement; 4b2. The benefits to patients outweigh evidence of unintended negative consequences to patients)

4a. Use: **Total Votes-19; Pass-16; No Pass-3;** *4b. Usability:* ***Total Votes-19;*** **H-0; M-15; L-3; I-1**

Rationale:

The measure was noted to have just been incorporated into the ESRD QIP (Quality Improvement Program). The Committee expressed concerns related to the measure's implementation, as the ultrahigh filtration rate is reporting-only for ESRD QIP. The Committee noted that reporting-only is still an acceptable accountability application according to NQF criteria. The Committee noted that the QIP reporting measure includes the patient's dry weight and delivered dialysis time, and therefore the elements are available to see which affects the UFR.

5. **Related and Competing Measures**

This measure is related to the following measures:

- NQF #0249 Delivered Dose of Hemodialysis Above Minimum
- NQF #0256 Minimizing Use of Catheters as Chronic Dialysis Access
- NQF #0257 Maximizing Placement of Arterial Venous Fistula (AVF)
- NQF #0258 Consumer Assessment of Healthcare Providers and Systems (CAHPS) In-Center Hemodialysis Survey (ICH CAHPS)
- NQF #1460 Bloodstream Infection in Hemodialysis Outpatients
- NQF #2977 Hemodialysis Vascular Access: Standardized Fistula Rate
- NQF #2978 Hemodialysis Vascular Access: Long-Term Catheter Rate

The developer stated that the measure specifications are harmonized to the extent possible.

The Standing Committee discussed related and competing measures during the post-comment web meeting on May 26, 2021,

6. **Standing Committee Recommendation for Endorsement**: **Total Votes-19; Y-18**; **N-1**
7. **Public and Member Comment**

The commenter noted that fluid management is a critical area to address through performance measurement and supports the Standing Committee's recommendation for continued endorsement of this measure.

8. **Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X**
9. **Appeals**

Measures Not Recommended

3567 Hemodialysis Vascular Access: Practitioner Level Long-Term Catheter Rate

Submission

Description: Percentage of adult hemodialysis patient-months using a catheter continuously for three months or longer for vascular access attributable to an individual practitioner or group practice.

Numerator Statement: The numerator is the number of adult patient-months in the denominator who were on maintenance hemodialysis using a catheter continuously for three months or longer as of the last hemodialysis session of the reporting month.

Denominator Statement: All patients at least 18 years old as of the first day of the reporting month who are determined to be maintenance hemodialysis patients (in-center and home HD) for the complete reporting month under the care of the same practitioner or group partner.

When used for public reporting, the measure calculation will be restricted to facilities with at least 11 patients in the reporting month. This restriction is required to ensure patients cannot be identified due to small cell size.

Exclusions: The following are excluded from the denominator population:

- Pediatric patients (<18 years old)
- Patients on Peritoneal Dialysis for any portion of the reporting month
- Patient-months where there are more than one MCP (Monthly Capitated Payment) provider listed for the month.

In addition, patients with a catheter that have limited life expectancy, as defined by the following criteria, are excluded:

- Patients under hospice care in the current reporting month

- Patients with metastatic cancer in the past 12 months
- Patients with end stage liver disease in the past 12 months
- Patients with coma or anoxic brain injury in the past 12 months

This measure does not exclude patients who have exhausted their vascular access options. A 2015 Technical Expert Panel (TEP) had robust discussion about trying to add this to a facility-level catheter measure but was unable to reach consensus about how best to incorporate such an exclusion criteria.

Adjustment/Stratification: No risk adjustment or risk stratification

Level of Analysis: Clinician : Group/Practice, Clinician : Individual

Setting of Care: Other

Type of Measure: Outcome: Intermediate Clinical Outcome

Data Source: Claims, Registry Data

Measure Steward: Centers for Medicare & Medicaid Services

STANDING COMMITTEE MEETING February 11, 2021

1. **Importance to Measure and Report: The measure does not meet the Importance criteria.**

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **Total Votes-18; H-0; M-12; L-5; I-1**; 1b. Performance Gap: **Total Votes-19; H-0; M-7; L-10; I-2**

Rationale:

- The Committee noted that the developer provided a logic model demonstrating that long-term catheter use is associated with the highest mortality risk while AVF use has the lowest mortality risk.
- Arteriovenous grafts have been found to have a risk of death that is higher than AVF but lower than catheters.
- The developer provided evidence to support this measure based on the 2006 National Kidney Foundations (NKF) Kidney Disease Outcomes Quality Initiative (KDOQI) Clinical Practice Guidelines and Clinical Practice Recommendations: Hemodialysis Adequacy, Peritoneal Dialysis Adequacy and Vascular Access.
    - The guidelines provided the order of preference for placement of fistulae in patients with kidney failure who choose hemodialysis as their initial mode of kidney replacement therapy (KRT).
    - The NKF recently made substantial revisions to these guidelines that were released on 3/12/20.
- Developer conducted a literature review to supplement the KDOQI guidelines (literature reviewed through 2017) by using the following search in PubMed: "Arteriovenous fistula OR venous catheter AND dialysis AND published January 1, 2017-2020 (present).
- The Committee reviewed the evidence provided, noting that they are based on KDOKI 2016 and 2020 guidelines, and that the mortality evidence was not as strong, but there remains persistent evidence for increased bloodstream infections with catheter use, which is a highly undesirable outcome.
- The developer provided analysis of CROWNWeb data from January 2016-December 2016, which indicated the physician-level mean percentage of patient-months with a long-term catheter was 9.7% (SD=9.0%).
- Distribution: Min=0%, 1st quartile=4.5%, median=8.3%, 3rd quartile=12.7%, Max=100%.
- The Committee was concerned that older CROWNWeb data from 2016 was used for the analysis.
- The Committee further noted that the gap was larger for younger patients, appropriately, given that many younger patients may be waiting for a transplant.
- The Committee also added that there is no risk adjustment for things like vintage, to which the developer emphasized that the measure is harmonized with the facility measure.
- The Committee expressed that the median performance of 8.3% is likely close to the appropriate level of catheter use in clinical practice.
- The Committee did not pass the measure on performance gap, a must-pass criterion.

2. **Scientific Acceptability of Measure Properties**

(2a. Reliability precise specifications, testing; 2b. Validity testing, threats to validity
2a. Reliability: **Vote Not Taken**; 2b. Validity: **Vote Not Taken**

3. **Feasibility: Vote Not Taken**

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

4. **Use and Usability**

4a. Use; 4a1. Accountability and transparency; 4a2. Feedback on the measure by those being measured and others; 4b. Usability; 4b1. Improvement; 4b2. The benefits to patients outweigh evidence of unintended negative consequences to patients)

4a. Use: **Vote Not Taken;** *4b. Usability:* **Vote Not Taken**

5. **Related and Competing Measures**

These were not discussed as the measure was not recommended for endorsement.

6. **Standing Committee Recommendation for Endorsement**: **Vote Not Taken**
7. **Public and Member Comment**

Four comments were submitted for this measure. Three comments supported the Standing Committee's decision to not recommend this measure for endorsement. In these three comments, the commenters questioned the measure's ability to distinguish whether the care received is based on patient preferences or if treatment decisions are based on clinical appropriateness. They raised concerns about the opportunity for improvement in the performance gap, discussing what defines an acceptable standard. Commenters mentioned unintended consequences of dialysis units preferentially accepting only patients with established AV access, suggested the expansion of denominator exclusions and stated that the measure does not account for patients for whom a catheter is the only or most appropriate choice. One comment did not support the Standing Committee's recommendation to not endorse this measure. The commenter noted the discrepancy in applying the performance gap criteria during the review of NQF #3567 (reviewed in Fall 2020 cycle) versus measure #2978 (reviewed in Spring 2020 cycle).

8. **Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X**
9. **Appeals**

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Renal Fall 2020 Review Cycle

CSAC Review

June 29-30, 2021

Funded by the Centers for Medicare & Medicaid Services under contract HHSM-500-2017-00060I Task Order HHSM-500-T0001

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Standing Committee Recommendations

- 2 measures reviewed for fall 2020
  - 1 measure reviewed by the Scientific Methods Panel
    - » NQF #3567 Hemodialysis Vascular Access: Practitioner Level Long-term Catheter Rate *(SMP passed the measure on the Scientific Acceptability)*
- 1 measure recommended for endorsement
  - **NQF #2701** Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour) – (Kidney Care Quality Alliance (KCQA)) (maintenance)
- 1 measures not recommended for endorsement
  - **NQF #3567** Hemodialysis Vascular Access: Practitioner Level Long-term Catheter Rate – (University of Michigan Kidney Epidemiology and Cost Center (UMKECC)) (new)

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Overarching Issues

- Pragmatic Evidence Considerations
  - The Standing Committee noted that there are instances when evidence-based guidelines for practice suggest a range of appropriate approaches dependent on patient variables. It suggested that the most flexible approach should serve as the basis for measurement because establishing a more inclusive baseline for quality of care does not prohibit providers from taking more conservative approaches. It does, however, establish a minimum standard and encourage providers to ensure that more patients fall within that standard. This was discussed both in the context of ultrafiltration rates as well as the selection of the appropriate route for vascular access.

Public and Member Comment and Member Expressions of Support

- Six comments were received
  - 2 comments were supportive of the measures under review (one each for NQF #2701 and NQF #3567)
  - 3 comments were not supportive of one of the two measures under review, NQF #3567
  - 1 general comment stated that the commenters appreciated the opportunity to comment on the measures under endorsement consideration and commend NQF for undertaking this important work
- 2 NQF members expressed support/non-support (total 3 expressions of support/non-support)
  - 1 NQF member expressed support for NQF #2701
  - 2 NQF members expressed non-support for NQF #3567

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Questions?

- NQF Project team:
  - Shalema Brooks, Director
  - Janaki Panchal, Manager
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  - Sean Sullivan, Administrative Assistant

- Project webpage: http://www.qualityforum.org/Renal.aspx

- Project email address: renal@qualityforum.org

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Renal, Fall 2020 Cycle: CDP Report

DRAFT REPORT FOR CSAC REVIEW
JUNE 29, 2021

This report is funded by the Centers for Medicare & Medicaid Services under contract HHSM-500-2017-00060I Task Order HHSM-500-T0001.

http://www.qualityforum.org

Contents

Executive Summary

Chronic kidney disease (CKD) is a serious medical condition affecting nearly 15 percent of the U.S. adult population. CKD is a result of damage to the kidney leading to impaired ability to appropriately filter toxins in the bloodstream.[1] Because of this, excess fluid and waste from blood remain in the body and may cause other health problems, such as heart disease, stroke, anemia, increased susceptibility to infection, fluid and electrolyte imbalances, and depression.[2] CKD most typically occurs as a corollary to underlying diseases and conditions that impair kidney function, such as diabetes mellitus, heart disease and high blood pressure.[3] The National Quality Forum (NQF) Renal Standing Committee oversees NQF's portfolio of endorsed measures associated with CKD. During the fall 2020 measure evaluation cycle, the Standing Committee reviewed measures from two clinical topic areas: ultrafiltration rates in hemodialysis and appropriate hemodialysis vascular access.

The most serious form of CKD occurs when the kidneys cease to function on a permanent basis, a condition known as end stage renal disease (ESRD).[4] To sustain life, patients with ESRD require either a kidney transplant or hemodialysis (HD), a regular procedure where waste, salts, and fluids are mechanically removed.[5] Patients with CKD initiating dialysis are especially vulnerable to both concomitant physical disease and have increased risk for mental health conditions such as anxiety and depression.[6] Dialysis is a complicated and relatively burdensome procedure with substantial variation in the quality of care provided.[7] Appropriate vascular access points, filtration rates, monitoring and adjustment, among other factors, play a critical role in the quality of dialysis care that patients receive.[8] Poor dialysis care can result in undesirable consequences for patients such as anemia and blood transfusions, hospital admission, and mortality.[9]

Quality measurement plays a critical role in facilitating improvement in the quality of care received by CKD patients, especially those on HD. NQF-endorsed kidney care measures are used in several quality and performance improvement programs administered by the Centers for Medicare & Medicaid Services (CMS), such as Dialysis Facility Compare and the ESRD Quality Incentive Program (ESRD QIP).

During the fall 2020 measure evaluation cycle, the Standing Committee evaluated one newly submitted measure and one measure undergoing maintenance review against NQF's standard evaluation criteria. The Standing Committee recommended one measure for endorsement and did not recommend one measure.

The recommended measure is the following:

> **NQF #2701** Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour) (Kidney Care Quality Alliance (KCQA))

The Standing Committee did not recommend the following measure:

> **NQF #3567** Hemodialysis Vascular Access: Practitioner Level Long-Term Catheter Rate (University of Michigan Kidney Epidemiology and Cost Center (UMKECC)/Centers for Medicare & Medicaid Services (CMS))

Brief summaries of the fall 2020 measures are included in the body of the report; detailed summaries of the Standing Committee's discussion and ratings of the criteria for each measure are in Appendix A.

Introduction

Kidney disease has long been a leading cause of morbidity and mortality in the U.S. More than 37 million adults—representing 15 percent of the adult population—have CKD.[10] Untreated, CKD can progress to ESRD and a host of other health complications such as cardiovascular disease, hyperlipidemia, anemia and metabolic bone disease. There are over 700,000 people in the U.S. diagnosed with ESRD.[11] Due to high U.S. prevalence and associated mortality, morbidity, high healthcare utilization and cost of care associated with ESRD, the implementation of quality measures for patients with renal disease is national priority.[12]

Medicare coverage is extended to all individuals, regardless of their age, if their kidneys are no longer functioning, if they need regular dialysis, or if they have had a kidney transplant.[13] The U.S. continues to spend significant resources on care and treatment of CKD and ESRD. Net costs associated with CKD continue to rise. According to the most recent United States Renal Data System Annual Data Report from 2019, the total Medicare spend associated with CKD and ESRD in 2017 exceeded $120 billion. ESRD patient spend alone totaled $36 billion, accounting for 7.2 percent of the overall Medicare-paid fee-for-service claims, a proportion that has remained consistent for over a decade.[14]

During this measure review cycle, the Renal Standing Committee reviewed measures under two dialysis topic areas associated with vascular access and dialysis ultrafiltration rates.

Hemodialysis Vascular Access

There are preferred processes of care associated with vascular access for patients with CKD that use hemodialysis. The prevalent expert opinion is that arteriovenous fistulas (AVF) are preferred over grafts and catheters, with catheters being the least desirable option due to increased patient susceptibility to infection.[15] Nonetheless, considering vascular access with a patient-centered approach that considers patient circumstances and conditions—such as those with overall poorer prognoses and limited life expectancy—is a key issue in the provision of high quality hemodialysis care.[16]

Dialysis Ultrafiltration Rates

The removal of fluid from the blood is an important part of dialysis known as ultrafiltration. Ultrafiltration rates are determined by the amount of fluid that must be removed from the patient during the length of a given dialysis session.[17] Removing fluids quickly through a high ultrafiltration rate during shorter dialysis sessions places undue strain on the cardiovascular system.[18] Observational studies have demonstrated an association between high ultrafiltration rates and patient mortality and morbidity.[19]

NQF Portfolio of Performance Measures for Renal Conditions

The Renal Standing Committee (Appendix C) oversees NQF's portfolio of Renal measures (Appendix B). This portfolio contains 21 measures: five process measures, 13 intermediate outcome measures, and three outcome measures (see table below)

Table 1. NQF Renal Portfolio of Measures

Measures	Process	Outcome/Resource Use	Composite
Hemodialysis	1	2	0
Hemodialysis – Pediatric	0	1	0
Hemodialysis Vascular Access	0	4	0
Dialysis Monitoring	1	1	0
Dialysis Monitoring - Pediatric	2	1	0
Peritoneal Dialysis	0	4	0
Patient Safety	0	0	3
Treatment Initiation	1	0	0
Total	5	13	3

Additional measures have been assigned to other portfolios. These include measures related to admissions, readmissions and emergency department utilization (All-Cause Admissions and Readmissions), various diabetes assessment and screening measures (Primary Care & Chronic Illness), eye care measures (Primary Care & Chronic Illness), angiotensin-converting enzyme inhibitors/angiotensin receptor blockers (ACEI/ARB) medication measures (Cardiovascular and Primary Care & Chronic Illness), complications and outcomes measures (Cardiovascular, Patient Experience & Function, and Surgery), and cost and resource use measures (Cost and Efficiency).

Renal Measure Evaluation

On February 8, 2021, and February 11, 2021, the Renal Standing Committee evaluated one new measure and one measure undergoing maintenance review against NQF's standard measure evaluation criteria.

Table 2. Renal Measure Evaluation Summary

Measures	Maintenance	New	Total
Measures under consideration	1	1	2
Measures recommended for endorsement	1	0	1
Measures not recommended for endorsement	0	1	1

Measures	Maintenance	New	Total
Reasons for not recommending	Importance – 0 Scientific Acceptability – 0 Use – 0 Overall Suitability – 0 Competing Measure – 0	Importance – 1 Scientific Acceptability – 0 Use – 0 Overall Suitability – 0 Competing Measure – 0	

Comments Received Prior to Standing Committee Evaluation

NQF solicits comments on endorsed measures on an ongoing basis through the Quality Positioning System (QPS). In addition, NQF accepts comments for a continuous 16-week period during each evaluation cycle via an online tool located on the project webpage. For this evaluation cycle, the commenting period opened on December 15, 2020, and closed on January 15, 2021. As of January 15, three comments from one commenter were submitted and shared with the Standing Committee prior to the measure evaluation meeting(s) (Appendix F).

Comments Received After Standing Committee Evaluation

The continuous 16-week public commenting period with NQF member support closed on April 23, 2021. Following the Standing Committee's evaluation of the measures under review, NQF received six comments from four organizations (including three member organizations) and individuals pertaining to the draft report and to the measures under review. All comments for each measure under review have been summarized in Appendix A.

Overarching Issues

During the Standing Committee's discussion of the measures, an overarching issue emerged and was factored into the Standing Committee's ratings and recommendations for multiple measures and is not repeated in detail with each individual measure.

Pragmatic Evidence Considerations

The Standing Committee discussed how some aspects of appropriate measure specification are dictated by pragmatic elements of evidence-based medicine. While guidelines may have strict components to them that dictate one course of action for the majority of patients, there may be a subpopulation that does not benefit or may incur risks associated with stricter approaches to care delivery. The Standing Committee noted that there are instances when evidence-based guidelines for practice suggest a range of appropriate approaches dependent on patient variables. It suggested that the most flexible approach should serve as the basis for measurement because establishing a more inclusive baseline for quality of care does not prohibit providers from taking more conservative approaches. It does, however, establish a minimum standard and encourage providers to ensure that more patients fall within that standard. This was discussed both in the context of ultrafiltration rates as well as the selection of the appropriate route for vascular access.

Summary of Measure Evaluation

The following brief summaries of the measure evaluation highlight the major issues that the Standing Committee considered. Details of the Standing Committee's discussion and ratings of the criteria for each measure are included in Appendix A.

Sub-Topic Area

2701 Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour) (KCQA): Recommended

Description: Percentage of adult in-center hemodialysis patients in the facility whose average ultrafiltration rate (UFR) is >=13 ml/kg/hour AND who receive an average of <240 minutes per treatment during the calculation period. **Measure Type**: Process; **Level of Analysis**: Facility; **Setting of Care**: Post-Acute Care; **Data Source**: Electronic Health Records

The Standing Committee recommended the measure for continued endorsement.

Prior to the meeting, there was a single comment received from Kidney Care Partners noting the importance of this measurement area. During the review of the evidence submitted by the developer, the Standing Committee noted that the specifications of the measure were not addressed directly by recommendations within the guidelines provided. In particular, the cutoffs for the measure were noted to have been selected on a pragmatic basis with the guidelines in consideration. This was deemed an appropriate approach by members of the Standing Committee. In the discussion on performance gap, the Standing Committee noted that the documentation of the measure suggested that while the data is not perfect, there remains significant performance variation between dialysis facilities. The Standing Committee acknowledged that the developer provided evidence of a gap as well as some evidence of disparities from the literature, but not from direct testing.

In the discussion of scientific acceptability, the Standing Committee suggested that the reliability of the measure was moderate based on the intraclass correlation coefficients from the developer's analysis. The Standing Committee noted that the analyses provided by the developer for the validity of the measure were appropriately conducted and the results were directionally as expected. The measure was noted to draw on readily available data sources and was passed on feasibility with little discussion. In the review of use and usability, a measure based on NQF #2701 was noted to have recently been incorporated into the End-Stage Renal Disease (ESRD) Quality Improvement Program (QIP). The Standing Committee expressed concerns related to the measure's implementation, as the ultrahigh filtration rate measure is reporting-only for ESRD QIP. The Standing Committee noted that reporting-only is still an acceptable accountability application according to NQF criteria. The Standing Committee emphasized that the QIP reporting measure includes the patient's dry weight, delivered dialysis time, and therefore, the elements are available to see which affects the UFR. The Standing Committee passed the measure on both the use and usability criteria and subsequently voted to recommend the measure for continued endorsement. The Standing Committee discussed related and competing measures during the post-comment web meeting on May 26, 2021. The Standing Committee did not highlight any comments or concerns.

The Standing Committee also reviewed one comment received on this measure during the public and member commenting period. In the submitted comment, the commenter noted that fluid management is a critical area to address through performance measurement and supported the Standing Committee's recommendation for continued endorsement of this measure.

3567 Hemodialysis Vascular Access: Practitioner Level Long-Term Catheter Rate (UMKECC/CMS): Not Recommended

Description: Percentage of adult hemodialysis patient-months using a catheter continuously for three months or longer for vascular access attributable to an individual practitioner or group practice.; **Measure Type**: Outcome: Intermediate Clinical Outcome; **Level of Analysis**: Clinician : Group/Practice, Clinician : Individual; **Setting of Care**: Other; **Data Source**: Claims, Registry Data

The Standing Committee did not vote on the recommendation for endorsement because they did not pass the measure on performance gap—a must-pass criterion.

Prior to the meeting, the Standing Committee received a comment related to the measure that recognized a narrow performance gap and suggested that there is limited opportunity for improvement, as well proffering exclusion criteria for the developer and the Standing Committee to consider, such as patients on wait lists for transplant or those who have exhausted access options. Once discussion was initiated, the Standing Committee asked the developer to clarify how the measure can appropriately account for patients who have a catheter because no other access point is considered appropriate, or for patients who plan on receiving a kidney transplant and do not want permanent access. The developer noted that this discussion occurred in the consideration of the NQF-endorsed facility measure with the same focus, with the issue being that there is no data source available at this time to inform exclusions related to exhaustion of vascular access options, patient choice, and similar issues.

The Standing Committee expressed concerns that patients who do not have options other than catheters may experience stinting of care if this measure is included in an accountability program. The Standing Committee noted that the developer's specifications referenced facilities throughout. The developer responded that this was in error and that they will correct the measure specification to reflect that this is a provider level measure. The Standing Committee reviewed the evidence provided, noting that they are based on Kidney Disease Outcomes Quality Initiative (KDOQI) 2016 and 2020 guidelines. The Standing Committee emphasized that the mortality evidence was not as strong, but there remains persistent evidence for increased bloodstream infections with catheter use, which is a highly undesirable outcome. The Standing Committee questioned if the evidence provided was specific to practitioner level actions, and the developer noted that the general body of evidence focuses on patient outcomes rather than provider actions. The Standing Committee determined that the measure passes the NQF evidence criteria.

In the discussion on performance gap, the Standing Committee was concerned that older CrownWeb data from 2016 was used for the analysis. The Standing Committee further noted that the gap was larger for younger patients. Standing Committee members expressed that the gap for younger patients may be

an appropriate one given that many younger patients may be waiting for a transplant. The Standing Committee expressed that the median performance of 8.3 percent is likely close to the appropriate level of catheter use in clinical practice, and there is little opportunity for improvement. The Standing Committee did not pass the measure on performance gap, a must-pass criterion.

NQF received four comments on this measure during the public and member commenting period; three comments supported the Standing Committee's recommendation to not endorse the measure and one comment did not support the Standing Committee's recommendation. The commenters of the three supportive comments questioned the measure's ability to distinguish whether the care received is based on patient preferences or if treatment decisions are based on clinical appropriateness. They raised concerns about the opportunity for improvement in the performance gap, discussing what defines an acceptable standard. Commenters mentioned unintended consequences of dialysis units preferentially accepting only patients with established AV access, suggested the expansion of denominator exclusions and stated that the measure does not account for patients for whom a catheter is the only or most appropriate choice. The one commenter who did not support the Standing Committee's recommendation to not endorse this measure noted the discrepancy in applying the performance gap criteria during the review of NQF #3567 (reviewed in Fall 2020 cycle) versus measure #2978 (reviewed in Spring 2020 cycle).

The Standing Committee discussed the concerns raised in the comment submitted by the developer. The Standing Committee noted that due to the differences in high versus low performance between the practitioner-level measure, NQF #3567, reviewed in the Fall 2020 cycle and the facility-level measure, NQF #2978, reviewed in Spring 2020 cycle, it would be inappropriate to assess and compare performance between the two measures. NQF #3567 relies on older CrownWeb data from 2016, while NQF #2978, utilized 2018 data as evidence for performance gap. The Standing Committee noted that comparing the differences in high and low performance between NQF #3567 and NQF #2978 is inadequate due to utilization of performance data from different years. The Standing Committee again emphasized that the median performance of 8.3 percent is likely close to the appropriate level of catheter use in clinical practice, and there is little opportunity for improvement. The Standing Committee discussed both issues extensively during the Fall 2020 measure evaluation meeting in February. Additionally, there was a lack of clarity around disparities data as the text descriptions in the measure submission form differed from the data presented in the tables. Given these concerns, the Standing Committee did not pass the measure on performance gap. The Standing Committee, therefore, did not revote on this criterion or change their initial recommendation not to endorse this measure.

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Appendix A: Details of Measure Evaluation

Rating Scale: H=High; **M**=Moderate; **L**=Low; **I**=Insufficient; **NA**=Not Applicable

Note: Vote totals may differ between measure criteria and between measures as Standing Committee members often have to join calls late or leave calls early. NQF ensures that quorum is maintained for all live voting. All voting outcomes are calculated using the number of Standing Committee members present for that vote as the denominator.

Quorum (17 out of 25 Standing Committee members) was met and maintained for the entirety of both of the measure evaluation meetings on February 8, 2021 and February 11, 2021.

Measures Recommended

2701 Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)

Submission | Specifications

Description: Percentage of adult in-center hemodialysis patients in the facility whose average ultrafiltration rate (UFR) is >=13 ml/kg/hour AND who receive an average of <240 minutes per treatment during the calculation period.

Numerator Statement: Number of patients* from the denominator whose average UFR is >=13 mg/kg/hr (NOT just >13) hour AND who receive an average of <240 minutes per treatment during the calculation period.**

*To address the fact that patients may contribute varying amounts of time to the annual denominator population, results will be reported using a "patient-month" construction.

** The calculation period is defined as the same week that the monthly Kt/V is drawn.

Denominator Statement: Number of adult in-center hemodialysis patients in an outpatient dialysis facility undergoing chronic maintenance hemodialysis during the calculation period.

Exclusions: The following patients are excluded from the denominator population:

1. Patients <18 years of age (implicit in denominator definition).
2. Home dialysis patients (implicit in denominator definition).
3. Patients in a facility <30 days.
4. Patients with >4 hemodialysis treatments during the calculation period.
5. Patients with <7 hemodialysis treatments in the facility during the reporting month.
6. Patients without a completed CMS Medical Evidence Form (Form CMS-2728) in the reporting month.
7. Kidney transplant recipients with a functioning graft.
8. Facilities treating <=25 adult in-center hemodialysis patients during the reporting month.

Adjustment/Stratification: No risk adjustment or risk stratification

Level of Analysis: Facility

Setting of Care: Post-Acute Care

Type of Measure: Process

Data Source: Electronic Health Records

Measure Steward: Kidney Care Quality Alliance (KCQA)

STANDING COMMITTEE MEETING February 8, 2021

1. **Importance to Measure and Report: The measure meets the Importance criteria.**

(1a. Evidence, 1b. Performance Gap)

a. Evidence: **Total Votes-18; H-1; M-14; L-2; I-1**; 1b. Performance Gap: **Total Votes-20; H-2; M-16; L-0; I-2**

Rationale:

- The Standing Committee noted that this measure is a maintenance measure, previously endorsed in 2015.
- The developer provided updated evidence for this measure, citing updated KDOQI Hemodialysis Guideline recommendations and updated UK Renal Association Clinical Practice Guideline on Hemodialysis recommendations.
- The developer also provided summaries of additional studies that assess the impact of negative outcomes from high UFR.
- The Committee reviewed the evidence provided by the developer, noting that the specific requirements of the measure were not addressed directly by the some of the guidelines. The cutoffs for the measure were noted to have been selected on a pragmatic basis, which the Committee found appropriate.
- The Committee noted that the developer provided some evidence of disparities from the literature but not from direct testing.
- The Committee noted that the documentation of the measure suggested that, while the data isn't perfect, there remains significant performance variation between dialysis facilities.
- Performance gap analysis obtained during measure testing was presented as follows:
    - Mean Score = 11.66% (lower = better performance); 95% CI = 11.46-11.87%; Standard Deviation = 6.92
    - Minimum Score = 0%; Maximum Score = 50%
    - Median = 10.88%; Mode = 8.00%; Interquartile Range = 8.14

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria.

(2a. Reliability precise specifications, testing; 2b. Validity testing, threats to validity

2a. Reliability: **Total Votes-20; H-1**; **M-19**; **L-0**; **I-0**; 2b. Validity: **Total Votes-20; H-0**; **M-19**; **L-1**; **I-0**

Rationale:

- Reliability testing was conducted at a total of 4,252 dialysis facilities from three dialysis providers.
- An intra-class correlation coefficient (ICC) was calculated to estimate the ratio of the between- to the within-facility variance, standardized for both the level of variation and the numbers of observations examined.
    - Dialysis Provider A ICC – 0.60
    - Dialysis Provider B ICC – 0.65
    - Dialysis Provider C ICC – 0.70
- Measure developer tested score level validity using convergent validity, a common approach to score level testing.
    - Standardized Hospitalization Ratio (SHR) for Admissions measure, NQF #1463)
    - Standardized Mortality Ratio* (SMR) measure, NQF #0369)
    - Results were statistically significant and directionally appropriate with low positive values (0.03-0.17)

- The Standing Committee noted that the reliability of the measure was moderate based on the intraclass correlation coefficients from the developer's analysis.
- The Standing Committee noted that the tests provided by the developer for the validity of the measure were appropriately conducted and the results were directionally expected.

3. **Feasibility: Total Votes-19; H-11; M-7; L-1; I-0**

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

Rationale:

- The measure was noted by the Committee to draw on readily available data sources and was passed on feasibility with little discussion.

4. **Use and Usability**

4a. Use; 4a1. Accountability and transparency; 4a2. Feedback on the measure by those being measured and others; 4b. Usability; 4b1. Improvement; 4b2. The benefits to patients outweigh evidence of unintended negative consequences to patients)

4a. Use: **Total Votes-19; Pass-16; No Pass-3;** *4b. Usability:* **Total Votes-19; H-0; M-15; L-3; I-1**

Rationale:

- The measure was noted to have just been incorporated into the ESRD QIP.
- The Committee expressed concerns related to the measure's implementation, as the ultrahigh filtration rate is reporting-only for ESRD QIP. The Committee noted that reporting-only is still an acceptable accountability application according to NQF criteria.
- The Committee noted that the QIP reporting measure includes the patient's dry weight and delivered dialysis time, and therefore the elements are available to see which affects the UFR.

5. **Related and Competing Measures**

- This measure is related to the following measures:
    - NQF #0249 Delivered Dose of Hemodialysis Above Minimum
    - NQF #0256 Minimizing Use of Catheters as Chronic Dialysis Access
    - NQF #0257 Maximizing Placement of Arterial Venous Fistula (AVF)
    - NQF #0258 Consumer Assessment of Healthcare Providers and Systems (CAHPS) In-Center Hemodialysis Survey (ICH CAHPS)
    - NQF #1460 Bloodstream Infection in Hemodialysis Outpatients
    - NQF #2977 Hemodialysis Vascular Access: Standardized Fistula Rate
    - NQF #2978 Hemodialysis Vascular Access: Long-Term Catheter Rate
- The developer stated that the measure specifications are harmonized to the extent possible.
- The Standing Committee discussed related and competing measures during the post-comment web meeting on May 26, 2021, and did not raise any questions or concerns.

6. **Standing Committee Recommendation for Endorsement**: **Total Votes-19; Y-18**; **N-1**
7. **Public and Member Comment**

- The commenter noted that fluid management is a critical area to address through performance measurement and supports the Standing Committee's recommendation for continued endorsement of this measure.

8. **Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X**
9. **Appeals**

Measures Not Recommended

3567 Hemodialysis Vascular Access: Practitioner Level Long-Term Catheter Rate

Submission

Description: Percentage of adult hemodialysis patient-months using a catheter continuously for three months or longer for vascular access attributable to an individual practitioner or group practice.

Numerator Statement: The numerator is the number of adult patient-months in the denominator who were on maintenance hemodialysis using a catheter continuously for three months or longer as of the last hemodialysis session of the reporting month.

Denominator Statement: All patients at least 18 years old as of the first day of the reporting month who are determined to be maintenance hemodialysis patients (in-center and home HD) for the complete reporting month under the care of the same practitioner or group partner.

When used for public reporting, the measure calculation will be restricted to facilities with at least 11 patients in the reporting month. This restriction is required to ensure patients cannot be identified due to small cell size.

Exclusions: The following are excluded from the denominator population:

-Pediatric patients (<18 years old)

-Patients on Peritoneal Dialysis for any portion of the reporting month

-Patient-months where there are more than one MCP provider listed for the month.

In addition, patients with a catheter that have limited life expectancy, as defined by the following criteria, are excluded:

-Patients under hospice care in the current reporting month

-Patients with metastatic cancer in the past 12 months

-Patients with end stage liver disease in the past 12 months

-Patients with coma or anoxic brain injury in the past 12 months

This measure does not exclude patients who have exhausted their vascular access options. A 2015 Technical Expert Panel (TEP) had robust discussion about trying to add this to a facility-level catheter measure but was unable to reach consensus about how best to incorporate such an exclusion criteria.

Adjustment/Stratification: No risk adjustment or risk stratification

Level of Analysis: Clinician : Group/Practice, Clinician : Individual

Setting of Care: Other

Type of Measure: Outcome: Intermediate Clinical Outcome

Data Source: Claims, Registry Data

Measure Steward: Centers for Medicare & Medicaid Services

STANDING COMMITTEE MEETING February 11, 2021

1. **Importance to Measure and Report: The measure does not meet the Importance criteria.**

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **Total Votes-18; H-0; M-12; L-5; I-1**; 1b. Performance Gap: **Total Votes-19; H-0; M-7; L-10; I-2**

Rationale:

- The Committee noted that the developer provided a logic model demonstrating that long-term catheter use is associated with the highest mortality risk while AVF use has the lowest mortality risk.
- Arteriovenous grafts have been found to have a risk of death that is higher than AVF but lower than catheters.
- The developer provided evidence to support this measure based on the 2006 National Kidney Foundations (NKF) Kidney Disease Outcomes Quality Initiative (KDOQI) Clinical Practice Guidelines and Clinical Practice Recommendations: Hemodialysis Adequacy, Peritoneal Dialysis Adequacy and Vascular Access.
    - The guidelines provided the order of preference for placement of fistulae in patients with kidney failure who choose hemodialysis as their initial mode of kidney replacement therapy (KRT).
    - The NKF recently made substantial revisions to these guidelines that were released on 3/12/20.
- Developer conducted a literature review to supplement the KDOQI guidelines (literature reviewed through 2017) by using the following search in PubMed: "Arteriovenous fistula OR venous catheter AND dialysis AND published January 1, 2017-2020 (present).
- The Committee reviewed the evidence provided, noting that they are based on KDOKI 2016 and 2020 guidelines and that the mortality evidence was not as strong, but there remains persistent evidence for increased bloodstream infections with catheter use, which is a highly undesirable outcome.

- The developer provided analysis of CROWNWeb data from January 2016-December 2016, which indicated the physician-level mean percentage of patient-months with a long-term catheter was 9.7% (SD=9.0%).

- Distribution: Min=0%, 1st quartile=4.5%, median=8.3%, 3rd quartile=12.7%, Max=100%.

- The Committee was concerned that older CrownWeb data from 2016 was used for the analysis.
- The Committee further noted that the gap was larger for younger patients, perhaps appropriately, given that many younger patients may be waiting for a transplant.
- The Committee also added that there is no risk adjustment for things like vintage, to which the developer emphasized that the measure is harmonized with the facility measure.
- The Committee expressed that the median performance of 8.3% is likely close to the appropriate level of catheter use in clinical practice.
- The Committee did not pass the measure on performance gap, a must-pass criterion.

2. Scientific Acceptability of Measure Properties

(2a. Reliability precise specifications, testing; 2b. Validity testing, threats to validity

2a. Reliability: **Vote Not Taken**; 2b. Validity: **Vote Not Taken**

3. Feasibility: Vote Not Taken

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

4. Use and Usability

4a. Use; 4a1. Accountability and transparency; 4a2. Feedback on the measure by those being measured and others; 4b. Usability; 4b1. Improvement; 4b2. The benefits to patients outweigh evidence of unintended negative consequences to patients)

4a. Use: **Vote Not Taken;** *4b. Usability:* **Vote Not Taken**

5. Related and Competing Measures

- These were not discussed as the measure was not recommended for endorsement.

6. Standing Committee Recommendation for Endorsement: **Vote Not Taken**

7. Public and Member Comment

- Four comments were submitted for this measure. Three comments supported the Standing Committee's decision to not recommend this measure for endorsement. In these three comments, the commenters questioned the measure's ability to distinguish whether the care received is based on patient preferences or if treatment decisions are based on clinical appropriateness. They raised concerns about the opportunity for improvement in the performance gap, discussing what defines an acceptable standard. Commenters mentioned unintended consequences of dialysis units preferentially accepting only patients with established AV access, suggested the expansion of denominator exclusions and stated that the measure does not account for patients for whom a catheter is the only or most appropriate choice.
- One comment did not support the Standing Committee's recommendation to not endorse this measure. The commenter noted the discrepancy in applying the performance gap criteria during the review of NQF #3567 (reviewed in Fall 2020 cycle) versus measure #2978 (reviewed in Spring 2020 cycle).

8. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X

9. Appeals

Appendix B: Renal Portfolio—Use in Federal Programs[a]

NQF #	Title	Federal Programs: Finalized or Implemented as of February 1, 2021
0249	Delivered Dose of Hemodialysis Above Minimum	None
0255	Measurement of Phosphorus Concentration	None
0256	Hemodialysis Vascular Access - Minimizing Use of Catheters as Chronic Dialysis Access	None
0257	Hemodialysis Vascular Access - Maximizing Placement of Arteriovenous Fistula (AVF)	None
0318	Peritoneal Dialysis Adequacy Clinical Performance Measure III - Delivered Dose of Peritoneal Dialysis Above Minimum	None
0369	Dialysis Facility Risk-Adjusted Standardized Mortality Ratio	None
1423	Minimum spKt/V for Pediatric Hemodialysis Patients	None
1424	Monthly Hemoglobin Measurement for Pediatric Patients	None
1425	Measurement of nPCR for Pediatric Hemodialysis Patients	None
1454	Proportion of Patients With Hypercalcemia	None
1460	Bloodstream Infection in Hemodialysis Outpatients	None
1662	Angiotensin Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy	None
1667	Pediatric Kidney Disease: ESRD Patients Receiving Dialysis: Hemoglobin Level < 10g/dL	None
2701	Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	End-Stage Renal Disease Quality Incentive Program (Implemented) Note that the active measure in ESRD QIP is based on NQF 2701.
2706	Pediatric Peritoneal Dialysis Adequacy: Achievement of Target Kt/V	None
2978	Hemodialysis Vascular Access: Long-Term Catheter Rate	End-Stage Renal Disease Quality Incentive Program (Implemented)

[a] Per CMS Measures Inventory Tool as of 03/02/2021

Appendix C: Renal Standing Committee and NQF Staff

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Appendix D: Measure Specifications

2701 Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)

Steward

Kidney Care Quality Alliance (KCQA)

Description

Percentage of adult in-center hemodialysis patients in the facility whose average ultrafiltration rate (UFR) is >=13 ml/kg/hour AND who receive an average of <240 minutes per treatment during the calculation period.

Type

Process

Data Source

Electronic Health Records CROWNWeb Electronic Data Interchange, available at URL: https://mycrownweb.org

Level

Facility

Setting

Post-Acute Care

Numerator Statement

Number of patients* from the denominator whose average UFR is >=13 mg/kg/hr (NOT just >13) hour AND who receive an average of <240 minutes per treatment during the calculation period.**

*To address the fact that patients may contribute varying amounts of time to the annual denominator population, results will be reported using a "patient-month" construction.

** The calculation period is defined as the same week that the monthly Kt/V is drawn.

Numerator Details

Numerator Data Elements

For all patients meeting the denominator criteria in the reporting month, collect the following data elements for all dialysis sessions (including supplemental sessions) falling within the same week that the monthly Kt/V is drawn:*

- Pre-Dialysis Weight for Session
- Post-Dialysis Weight for Session
- Time Delivered Per Session, in Minutes
- Session Date
- Sessions Per Week

* If more than one Kt/V is drawn in a given month, the last draw for the month will be used to define the data collection period (i.e., these data elements will be collected during the week that the final Kt/V value of the month is drawn).

Numerator Case Identification

For each facility, for all dialysis sessions falling within the calculation period for all patients meeting the denominator criteria:

1. Calculate the UFR (in ml/kg/hour) for each dialysis session (including supplemental sessions):

Session X UFR = ([{Session X Pre-Dialysis Weight in kg – Session X Post-Dialysis Weight in kg} x 1000 ml/kg] ÷ Session X Post-Dialysis Weight in kg) ÷ (Session X Delivered Treatment Time in minutes) x 60 minutes/hour

2. Calculate each patient's average UFR for all dialysis sessions (including supplemental sessions) during the calculation period:

Average UFR = (UFR1 + UFR2 + …. + UFRX) ÷ X Treatments

3. Calculate each patient's average treatment time over all dialysis sessions (including supplemental sessions) during the calculation period:

Average Treatment Time (in minutes) = (Time 1 + Time 2 + … + TimeX) ÷ X Treatments

4. Identify all patients with <4 dialysis sessions during the calculation period.
5. For each facility, include in the numerator all patients with:

- an average UFR during the calculation period (Step 2 value) >=13 ml/kg/hour; AND
- an average treatment time during the calculation period (Step 3 value) <240 minutes.

Denominator Statement

Number of adult in-center hemodialysis patients in an outpatient dialysis facility undergoing chronic maintenance hemodialysis during the calculation period.

Denominator Details

Identify all patients in the dialysis facility during the reporting period whose:

- Primary Type Treatment/Modality = Hemodialysis.
- Primary/Current Dialysis Setting= In-center.
- Date of Birth = >18 years prior to treatment date.

Exclusions

The following patients are excluded from the denominator population:

1. Patients <18 years of age (implicit in denominator definition).
2. Home dialysis patients (implicit in denominator definition).
3. Patients in a facility <30 days.
4. Patients with >4 hemodialysis treatments during the calculation period.
5. Patients with <7 hemodialysis treatments in the facility during the reporting month.
6. Patients without a completed CMS Medical Evidence Form (Form CMS-2728) in the reporting month.
7. Kidney transplant recipients with a functioning graft.
8. Facilities treating <=25 adult in-center hemodialysis patients during the reporting month.

Exclusion details

For all patients meeting the denominator criteria in the reporting month, identify all patients meeting any of the following exclusion criteria during the calculation period and remove from the denominator population:

1. Date of Birth = <18 years prior to treatment date (implicit in denominator definition).
2. Primary Type Treatment/Modality = Peritoneal dialysis or home hemodialysis (implicit in denominator definition).
3. Date Patient Started Chronic Dialysis at Current Facility = >30 days prior to treatment date.
4. Sessions Per Week = >4
5. Transient Status = Not transient OR patients with <7 hemodialysis treatments in the facility during the reporting month.
6. Patients without a completed CMS Medical Evidence Form (Form CMS-2728) in the reporting month.
7. Kidney transplant recipients with a functioning graft

Note: Facilities treating <=25 adult in-center hemodialysis patients during the reporting month are also excluded.

Risk Adjustment

No risk adjustment or risk stratification

Stratification

Not applicable.

Type Score

Rate/proportion better quality = lower score

Algorithm

Data are collected and scores for each facility are calculated on a monthly basis; scores are then averaged over the 12-month reporting period to obtain the facility's annual score.

Scores are calculated using the following algorithm:

1. Build the "Month 1 Raw Denominator Population."

For the Month 1 calculation period,* identify all patients in the facility during the reporting month whose:

   a. Primary Type Treatment/Modality = Hemodialysis
   b. Primary/Current Dialysis Setting = In-center
   c. Date of Birth = >18 years prior to treatment date

* The calculation period is defined as the same week that the monthly Kt/V is drawn. If more than one Kt/V is drawn in a given month, the last draw for the month will be used to define the data collection period (i.e., these data elements will be collected during the week that the final Kt/V value of the month is drawn).

2. Remove patients with exclusions to define the "Month 1 Final Denominator Population."

For all patients meeting all of the Step 1 requirements, identify all patients meeting any of the following exclusion criteria and remove from the denominator population:

   a. Date Patient Started Chronic Dialysis at Current Facility = >30 days prior to treatment date.
   b. Transient Status = Not transient OR patients with <7 hemodialysis treatments in the facility during the month.
   c. Sessions Per Week = >4.
   d. Patients without a completed CMS Medical Evidence Form (Form CMS-2728) in the reporting month.
   e. Kidney transplant recipients with a functioning graft.

3. Identify the "Month 1 Numerator Data Elements."

For all patients remaining in the denominator after Step 2, collect each of the following data elements for each dialysis session (including supplemental sessions) delivered during the Month 1 calculation period:

   a. Pre-Dialysis Weight for Session
   b. Post-Dialysis Weight for Session
   c. Session Date
   d. Time Delivered Per Session, in Minutes
   e. Sessions Per Week

4. Build the "Month 1 Numerator Population."

For each patient, for all dialysis sessions included in the final Month 1 Numerator Data Set:

   a. Calculate the UFR (in ml/kg/hour) for each dialysis session (including supplemental sessions):

Session X UFR = ([{Session X Pre-Dialysis Weight in kg – Session X Post-Dialysis Weight in kg} x 1000 ml/kg] ÷ Session X Post-Dialysis Weight in kg) ÷ (Session X Delivered Treatment Time in minutes) x 60 minutes/hour

   b. Calculate each patient's average UFR for all dialysis sessions (including supplemental sessions) during the calculation period:

Average UFR = (UFR1 + UFR2 + …. + UFRX) ÷ X Treatments

   c. Calculate each patient's average treatment time over all dialysis sessions (including supplemental sessions) during the calculation period:

Average Treatment Time (in minutes) = (Time1 + Time 2 + … + TimeX) ÷ X Treatments

   d. For each facility, include in the numerator all patients with:
      i. an average UFR during the calculation period (4.b. value) >= 13 ml/kg/hour;

AND

ii. an average treatment time during the calculation period (4.c. value) <240 minutes.

5. Calculate the facility's Month 1 performance score:

Month 1 Performance Score = Month 1 Numerator Population ÷ Month 1 Denominator Population

6. Repeat Steps 1 through 5 for each of the remaining 11 months of the reporting year.
7. Calculate the facility's annual performance score:

Facility's Average Annual Performance Score = (Facility's Month 1 Score + Month 2 Score +….. + Month 12 Score) ÷ 12 111070 | 135466 | 109921

Appendix E: Related and Competing Measures

Comparison of NQF #2701, NQF #0249, NQF #0256, NQF #0257 and NQF #0258

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	0249: Delivered Dose of Hemodialysis Above Minimum	0256: Minimizing Use of Catheters as Chronic Dialysis Access	0257: Maximizing Placement of Arterial Venous Fistula (AVF)	0258: Consumer Assessment of Healthcare Providers and Systems (CAHPS) In-Center Hemodialysis Survey (ICH CAHPS)
Steward	Kidney Care Quality Alliance (KCQA)	Centers for Medicare & Medicaid Services	Centers for Medicare & Medicaid Services	Centers for Medicare & Medicaid Services	Centers for Medicare & Medicaid Services
Description	Percentage of adult in-center hemodialysis patients in the facility whose average ultrafiltration rate (UFR) is >=13 ml/kg/hour AND who receive an average of <240 minutes per treatment during the calculation period.	Percentage of all patient months for adult patients (> = 18 years old) whose delivered dose of hemodialysis (calculated from the last measurement of the month using the UKM or Daugirdas II formula) was spKt/V >= 1.2.	Percentage of patient months on maintenance hemodialysis during the last HD treatment of month with a chronic catheter continuously for 90 days or longer prior to the last hemodialysis session.	Percentage of patient months for patients on maintenance hemodialysis during the last HD treatment of month using an autogenous AV fistula.	This is a survey-based measure and one of the family of surveys called CAHPS Surveys (Consumer Assessment of Healthcare Providers and Systems)that are focused on patient experience. The questionnaire asks End Stage Renal Disease (ESRD) patients receiving in-center hemodialysis care about the services and quality of care that they experience. Patients assess their dialysis providers, including nephrologists and medical and non-medical staff, the quality of dialysis care they receive, and information sharing about their disease. The survey is conducted twice a year, in the spring and fall with adult in-center

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	0249: Delivered Dose of Hemodialysis Above Minimum	0256: Minimizing Use of Catheters as Chronic Dialysis Access	0257: Maximizing Placement of Arterial Venous Fistula (AVF)	0258: Consumer Assessment of Healthcare Providers and Systems (CAHPS) In-Center Hemodialysis Survey (ICH CAHPS)
					hemodialysis patients. Publicly-reported measures focus on the proportion of survey respondents at each facility who choose the most favorable responses. Three multi-item measures: a. M1: Nephrologists' Communication and Caring (NCC) b. M2: Quality of Dialysis Center Care and Operations (QDCCO) c. M3: Providing Information to Patients (PIP) Three Global items: a. M4: Rating of the nephrologist b. M5: Rating of dialysis center staff c. M6: Rating of the dialysis facility The first three measures are created from six or more questions from the survey that are reported

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	0249: Delivered Dose of Hemodialysis Above Minimum	0256: Minimizing Use of Catheters as Chronic Dialysis Access	0257: Maximizing Placement of Arterial Venous Fistula (AVF)	0258: Consumer Assessment of Healthcare Providers and Systems (CAHPS) In-Center Hemodialysis Survey (ICH CAHPS)
					as one measure score. The three global items are single-item measures using a scale of 0 to 10 to report the respondent's assessment. The results are reported on Dialysis Facility Compare (DFC) on the Medicare.gov website.
Type	Process	Outcome: Intermediate Clinical Outcome	Outcome	Outcome	Outcome: PRO-PM
Data Source	Electronic Health Records CROWNWeb Electronic Data Interchange, available at URL: https://mycrownweb.org No data collection instrument provided No data dictionary	Claims, Registry Data For the analyses supporting this submission, the measure is calculated using CROWNWeb as the primary data source for the Kt/V values used to determine the numerator. If a patient's Kt/V data are missing in CROWNWeb, Kt/V values from outpatient Medicare dialysis claims are used as an additional source for obtaining that information. Please see the attached data dictionary for a list of specific data elements that are used from each data source. No data collection instrument provided Attachment 0249_Code_List.xlsx	Claims, Electronic Health Records CROWNWeb is the primary data source. However, this measure can be collected through Medicare claims data (since July 2010) and Fistula First Breakthrough Initiative data (though the definition of the measure is slightly different). The measure has been publically reported using claims data since 2013. No data collection instrument provided No data dictionary	Claims, Electronic Health Records This measure is primarily designed for collection in CROWNWeb but can also be calculated from Fistula First and Medicare claims data. The measure has been publically reported using Medicare claims data since 2013. No data collection instrument provided No data dictionary	Instrument-Based Data The survey instrument is the In-Center Hemodialysis CAHPS survey. Modes: mail only, telephone only, or mixed mode. For the mail-only mode, data is collected for a 12-week period. For ICH CAHPS Spring surveys, data collection activities will be conducted from April through mid-July. Fall surveys will be conducted from October through mid-January. A second wave mailing is sent to non-respondents four

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	0249: Delivered Dose of Hemodialysis Above Minimum	0256: Minimizing Use of Catheters as Chronic Dialysis Access	0257: Maximizing Placement of Arterial Venous Fistula (AVF)	0258: Consumer Assessment of Healthcare Providers and Systems (CAHPS) In-Center Hemodialysis Survey (ICH CAHPS)
					weeks after the first mailing. For the telephone-only mode, data collection occurs during the same 12-week period as the mail survey. Vendors may make a maximum of 10 attempts to contact a patient by telephone. For the mixed-mode survey, the data collection period is the same as the other modes. The respondent is first mailed a questionnaire. If the respondent does not reply within four weeks follow-up telephone calls are made. The vendor may make up to 10 attempts to contact the respondent by telephone. Languages of administration: English, Spanish, Chinese, Samoan, and Simplified and Traditional Chinese (only English or Spanish may be conducted by telephone mode or mixed-mode).

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	0249: Delivered Dose of Hemodialysis Above Minimum	0256: Minimizing Use of Catheters as Chronic Dialysis Access	0257: Maximizing Placement of Arterial Venous Fistula (AVF)	0258: Consumer Assessment of Healthcare Providers and Systems (CAHPS) In-Center Hemodialysis Survey (ICH CAHPS)
					Please see https://ichcahps.org/SurveyandProtocols.aspx for the English version of the survey and translations. Available at measure-specific web page URL identified in S.1 No data dictionary
Level	Facility	Facility	Facility	Facility	Facility, Other, Population : Regional and State
Setting	Post-Acute Care	Other Dialysis Facility	Post-Acute Care	Post-Acute Care	Post-Acute Care
Numerator Statement	Number of patients* from the denominator whose average UFR is >=13 mg/kg/hr (NOT just >13) hour AND who receive an average of <240 minutes per treatment during the calculation period.** *To address the fact that patients may contribute varying amounts of time to the annual denominator population, results will be reported using a “patient-month” construction.	Number of patient months in denominator in which the delivered dose of hemodialysis (calculated from the last measurement of the month using the UKM or Daugirdas II formula) was spKt/V >= 1.2	Number of patient months in the denominator who were continuously using a chronic catheter as hemodialysis access for 90 days or longer prior to the last hemodialysis session during the month.	Number of patient months in the denominator who were using an autogenous AV fistula at the last HD treatment of month.	There are a total of six ICH CAHPS measures. Three of them are multi-item measures and three are global ratings. Each measure is composed of the responses for all individual questions included in the measure. Missing data for individual survey questions are not included in the calculations. Only data from a "completed survey" is used in the calculations. Each measure score is at the facility level and averages

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	0249: Delivered Dose of Hemodialysis Above Minimum	0256: Minimizing Use of Catheters as Chronic Dialysis Access	0257: Maximizing Placement of Arterial Venous Fistula (AVF)	0258: Consumer Assessment of Healthcare Providers and Systems (CAHPS) In-Center Hemodialysis Survey (ICH CAHPS)
	** The calculation period is defined as the same week that the monthly Kt/V is drawn.				the proportion of respondents who chose each answer option for all items in the measure. Each global rating is be scored based on the number of respondents in the distribution of top responses; e.g., the percentage of patients rating the facility a "9" or "10" on a 0 to 10 scale (with 10 being the best).
Numerator Details	Numerator Data Elements For all patients meeting the denominator criteria in the reporting month, collect the following data elements for all dialysis sessions (including supplemental sessions) falling within the same week that the monthly Kt/V is drawn:* • Pre-Dialysis Weight for Session • Post-Dialysis Weight for Session • Time Delivered Per Session, in Minutes • Session Date	Months with spKt/V >=1.2 are counted in the numerator. Eligible spKt/V values are those >=1.2 during the reporting month. The last spKt/V value reported, not including missing, expired, and not performed, is selected when multiple values are reported in the month. Missing, expired, and not performed will not be counted as achieving the minimum spKt/V threshold.	The numerator will be determined by counting the patient-months in the denominator who were on maintenance hemodialysis with a chronic catheter continuously for 90 days or longer prior to the last hemodialysis session of the month.	The numerator will be determined by counting the patient months in the denominator who were using an AV fistula as the means of access.	Multi-Item Measures Each of the multi-items measures is produced by combining responses to all of the questions included in the measure. Step 1 – Identify relevant cases: include only cases where survey status is a "completed survey" and include only cases with non-missing values on each of the individual questions. Step 2 - Calculate the proportion of cases in each of the response categories for each question.

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	0249: Delivered Dose of Hemodialysis Above Minimum	0256: Minimizing Use of Catheters as Chronic Dialysis Access	0257: Maximizing Placement of Arterial Venous Fistula (AVF)	0258: Consumer Assessment of Healthcare Providers and Systems (CAHPS) In-Center Hemodialysis Survey (ICH CAHPS)
	• Sessions Per Week * If more than one Kt/V is drawn in a given month, the last draw for the month will be used to define the data collection period (i.e., these data elements will be collected during the week that the final Kt/V value of the month is drawn). Numerator Case Identification For each facility, for all dialysis sessions falling within the calculation period for all patients meeting the denominator criteria: 1. Calculate the UFR (in ml/kg/hour) for each dialysis session (including supplemental sessions): Session X UFR = ([{Session X Pre-Dialysis Weight in kg – Session X Post-Dialysis Weight in kg} x 1000 ml/kg] ÷ Session X Post-Dialysis				Step 3 – Combine responses from each of the questions to form the measure by calculating the average proportion responding to each category across all of the questions in the measure. Measure: M1 - Nephrologists' Communication – Q3,Q4,Q5,Q6,Q7, and Q9; Measure: M2 - Quality of Dialysis Center Care and Operations: q10,Q11,Q12,Q13,Q14,Q15,Q16,Q17,Q21,Q22,Q24,Q25,Q26,Q27,Q33,Q34, and Q43 Measure: M3 - Providing Information to Patients: Q19,Q28,Q29,Q30,Q31,Q36,Q38,Q39,and Q40 The measures include a "top-box" score which reflects the average proportion of respondents who chose the most favorable option in answering questions in the measure.

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	0249: Delivered Dose of Hemodialysis Above Minimum	0256: Minimizing Use of Catheters as Chronic Dialysis Access	0257: Maximizing Placement of Arterial Venous Fistula (AVF)	0258: Consumer Assessment of Healthcare Providers and Systems (CAHPS) In-Center Hemodialysis Survey (ICH CAHPS)
	Weight in kg) ÷ (Session X Delivered Treatment Time in minutes) x 60 minutes/hour 2. Calculate each patient's average UFR for all dialysis sessions (including supplemental sessions) during the calculation period: 1. Average UFR = (UFR1 + UFR2 + …. + UFRX) ÷ X Treatments 2. Calculate each patient's average treatment time over all dialysis sessions (including supplemental sessions) during the calculation period: 3. Average Treatment Time (in minutes) = (Time1 + Time 2 + … + TimeX) ÷ X Treatments 4. Identify all patients with <4 dialysis sessions during the calculation period.				The "middle-box" score refers to the average proportion of respondents who chose mid-level responses. Items with a binary response will not have a middle box score. The "bottom-box" score refers to the average proportion of respondents who chose least favorable responses. Global Ratings: Global Item – M4 - Rating of nephrologists : Q8 Global Item – M5 - Rating of the dialysis center staff: Q32 Global Item – M6 - Rating of the dialysis facility: Q35 Step 1 – Identify relevant cases: Include only cases where survey status is a completed survey and include only cases with non-missing values on the overall rating question.

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	0249: Delivered Dose of Hemodialysis Above Minimum	0256: Minimizing Use of Catheters as Chronic Dialysis Access	0257: Maximizing Placement of Arterial Venous Fistula (AVF)	0258: Consumer Assessment of Healthcare Providers and Systems (CAHPS) In-Center Hemodialysis Survey (ICH CAHPS)
	5. For each facility, include in the numerator all patients with: • an average UFR during the calculation period (Step 2 value) >=13 ml/kg/hour; AND • an average treatment time during the calculation period (Step 3 value) <240 minutes.				Step 2 – Calculate the proportion of cases in each of three re-coded response categories that represent top-,middle-, and bottom-box scores The numerator is the number of respondents for whom the global rating (Xi) is 0-6. The denominator is the total number of respondents that responded to this question (Wi) Proportion of respondents who gave a rating of 0-6 (bottom box score): The numerator is the number of respondents for whom the global rating (Xi) is 0-6. The denominator is the total number of respondents (Wi). The proportion can be defined as follows: Let X1i = 1 when Xi is 0-6 = 0 otherwise P1 = (SumiX1i) / SumiWi

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	0249: Delivered Dose of Hemodialysis Above Minimum	0256: Minimizing Use of Catheters as Chronic Dialysis Access	0257: Maximizing Placement of Arterial Venous Fistula (AVF)	0258: Consumer Assessment of Healthcare Providers and Systems (CAHPS) In-Center Hemodialysis Survey (ICH CAHPS)
					Proportion of respondents who gave a rating of 7 or 8 (middle box score): The numerator is the number of respondents for whom the global rating (Xi) is 7 or 8. The denominator is the total number of respondents (Wi). The proportion can be defined as follows: Let X2i = 1 when Xi is 7 or 8 = 0 otherwise P2 = (SumiX2i) / SumiWi Proportion of respondents who gave a global rating of 9 or 10: The numerator is the number of respondents for whom the global rating (Xi) is 9 or 10. The denominator is the total number of respondents. The proportion can be defined as follows: Let X3i = 1 when Xi is 9 or 10 = 0 otherwise P3 = (SumiX3i) / SumiWi

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	0249: Delivered Dose of Hemodialysis Above Minimum	0256: Minimizing Use of Catheters as Chronic Dialysis Access	0257: Maximizing Placement of Arterial Venous Fistula (AVF)	0258: Consumer Assessment of Healthcare Providers and Systems (CAHPS) In-Center Hemodialysis Survey (ICH CAHPS)
					A facility's score on the global rating item is the proportion of cases in each response category. Star Ratings A linear mean is also calculated on the same question items above. Rather than recoding the item into a binary response, all levels for an item are used. The item is then transformed on a 0 to 100 scale and an average is calculated. This puts all question items, regardless of the number of responses, on the same 0 to 100 scale. A factor analysis is then conducted on each facility's linear means and assigns them to one of five groupings. The group with the lowest linear means gets 1-star. The group with the next highest linear means gets 2-stars. And the process repeats until you get to the fifth group with the highest possible linear

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	0249: Delivered Dose of Hemodialysis Above Minimum	0256: Minimizing Use of Catheters as Chronic Dialysis Access	0257: Maximizing Placement of Arterial Venous Fistula (AVF)	0258: Consumer Assessment of Healthcare Providers and Systems (CAHPS) In-Center Hemodialysis Survey (ICH CAHPS)
					means which gets 5-stars. A Star Rating is generated for each of the three global items as well as each of the three multi-item measures. Finally, an overall Star Rating is calculated which is a simple average of the six previous Star Ratings, rounded up. i.e. if a facility had 3 3-stars and 3 4-stars, the overall Star Rating would be (3+3+3+4+4+4)/6 = 3.5, which is rounded up to 4-stars.
Denominator Statement	Number of adult in-center hemodialysis patients in an outpatient dialysis facility undergoing chronic maintenance hemodialysis during the calculation period.	To be included in the denominator for a particular month, the patient must be on hemodialysis for the entire month, be >= 18 years old at the beginning of the month, must have had ESRD for greater than 90 days at the beginning of the month, must be dialyzing thrice weekly during the month, and must be assigned to that facility for the entire month.	Adult hemodialysis patients who have had ESRD for greater than 90 days as of of the first day of the reporting month.	For both CROWNWeb and Claims data, the denominator will include all hemodialysis patients who are at least 18 years old and have had ESRD for greater than 90 days as of the first day of the reporting month.	Patients receiving in-center hemodialysis at sampled facility for the past 3 months or longer are included in the sample frame. The denominator for each question is composed of the sample members that responded to the particular question. Proxy respondents are not allowed.

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	0249: Delivered Dose of Hemodialysis Above Minimum	0256: Minimizing Use of Catheters as Chronic Dialysis Access	0257: Maximizing Placement of Arterial Venous Fistula (AVF)	0258: Consumer Assessment of Healthcare Providers and Systems (CAHPS) In-Center Hemodialysis Survey (ICH CAHPS)
					Only complete surveys are used. A complete survey is defined as one where the sampled patient answered at least 50 percent of the questions that are applicable to all sample patients: Q1-Q20, Q22, Q23, Q25-Q37, Q39-Q41 (Appendix provides more details about these questions.)
Denominator Details	Identify all patients in the dialysis facility during the reporting period whose: • Primary Type Treatment/Modality = Hemodialysis. • Primary/Current Dialysis Setting = In-center. • Date of Birth = >18 years prior to treatment date.	A treatment history file is the data source for the denominator calculation used for the analyses supporting this submission. This file provides a complete history of the status, location, and dialysis treatment modality of an ESRD patient from the date of the first ESRD service until the patient dies or the data collection cutoff date is reached. For each patient, a new record is created each time he/she changes facility or treatment modality. Each record represents a time period associated with a	The patient's age will be determined by subtracting the patient's date of birth from the first day of the reporting month. Hemodialysis patients are defined as follows: "Admit Date" to the specified facility is prior or equal to the first day of the study period, AND the patient has not been discharged ("Discharge Date" is null or blank), OR "Discharge Date" from the facility is greater than or equal to the last day of the study period AND "Treatment Dialysis Broad Start Date" is prior or equal	For both CROWNWeb and Claims data, the denominator will include all hemodialysis patients who are at least 18 years old and have had ESRD for at least 90 days as of the first day of the reporting month.	See information in S.6 for details.

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		specific modality and dialysis facility. CROWNWeb is the primary basis for placing patients at dialysis facilities and dialysis claims are used as an additional source of information in certain limited situations. Information regarding first ESRD service date, death, and transplant is obtained from CROWNWeb (including the CMS Medical Evidence Form (Form CMS-2728) and the Death Notification Form (Form CMS-2746)) and Medicare claims, as well as the Organ Procurement and Transplant Network (OPTN).	to the first day of the study period, AND "Dialysis Broad Type of Treatment" = 'HD', AND "Primary Dialysis Setting" = 'Dialysis Facility/Center' or 'Home' on the last day of the study period, AND "Date Regular Chronic Dialysis Began" is prior to the first day of the study period. For both CROWNWeb and Claims data, the denominator will include all hemodialysis patients who are at least 18 years old and have had ESRD for greater than 90 days as of the first day of the reporting month.		
Exclusions	The following patients are excluded from the denominator population: 1. Patients <18 years of age (implicit in denominator definition). 2. Home dialysis patients (implicit in denominator definition).	Exclusions that are implicit in the denominator definition include 1) Peritoneal dialysis patients 2) Pediatric patients (<18 years old) 3) Patients not on thrice weekly dialysis 4) Patients who have had ESRD for <91 days, and	Exclusions that are implicit in the denominator definition include pediatric patients (<18 years old), and acute hemodialysis patients (hemodialysis patients who have had ESRD for less than 91 days). There are no additional exclusions for this measure.	Exclusions that are implicit in the denominator definition include pediatric patients (<18 years old) and acute hemodialysis patients (hemodialysis patients who have had ESRDS for less than 91 days). There are no additional exclusions for this measure.	Exclusions: a. Patients less than 18 years of age b. Patients not receiving dialysis at sampled facility for 3 months or more c. Patients who are receiving hospice care d. Any surveys completed by a

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	3. Patients in a facility <30 days. 4. Patients with >4 hemodialysis treatments during the calculation period. 5. Patients with <7 hemodialysis treatments in the facility during the reporting month. 6. Patients without a completed CMS Medical Evidence Form (Form CMS-2728) in the reporting month. 7. Kidney transplant recipients with a functioning graft. 8. 8. Facilities treating <=25 adult in-center hemodialysis patients during the reporting month.	5) Patients not assigned to the facility for the entire month. There are no additional exclusions for this measure.			proxy (mail only mode or mixed mode) e. e. Any ineligible patients due to death, institutionalization, language barrier, physically or mentally incapable.
Exclusion Details	For all patients meeting the denominator criteria in the reporting month, identify all patients meeting any of the following exclusion	N/A	See above denominator details.	N/A	All data for measure calculations is based on surveys that are completed by any of the approved modes: telephone only, mail only

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	criteria during the calculation period and remove from the denominator population: 1. Date of Birth = <18 years prior to treatment date (implicit in denominator definition). 2. Primary Type Treatment/Modality = Peritoneal dialysis or home hemodialysis (implicit in denominator definition). 3. Date Patient Started Chronic Dialysis at Current Facility = >30 days prior to treatment date. 4. Sessions Per Week = >4 5. Transient Status = Not transient OR patients with <7 hemodialysis treatments in the facility during the reporting month.				or mixed mail/telephone follow up. A survey is considered complete if at least 50 percent of the core survey questions are answered by the respondent. Missing data for individual survey questions are not included in the calculations.

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	6. Patients without a completed CMS Medical Evidence Form (Form CMS-2728) in the reporting month. 7. Kidney transplant recipients with a functioning graft Note: Facilities treating <=25 adult in-center hemodialysis patients during the reporting month are also excluded.				
Risk Adjustment	No risk adjustment or risk stratification No risk adjustment or risk stratification No risk adjustment or risk stratification	No risk adjustment or risk stratification No risk adjustment or risk stratification	No risk adjustment or risk stratification No risk adjustment or risk stratification	No risk adjustment or risk stratification No risk adjustment or risk stratification	Other The ICH CAHPS survey data is adjusted for public reporting using survey mode and 13 patient characteristics. Usually patient experience surveys are adjusted for factors not under the control of the provider that impact response tendencies. This is called patient mix or case mix adjustment. We conduct these adjustments so meaningful comparisons between ICH facilities can be made. The 2014 Mode

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					Experiment was conducted to determine the set of patient mix adjusters. A re-evaluation of patient mix was made in 2018 and it was determined to retain the original patient mix adjusters. The current patient mix adjusters are: Overall health; Overall mental health; Heart disease; Deaf or serious difficulty hearing; Blind or serious difficulty seeing; Difficulty concentrating, remembering, or making decisions; Difficulty dressing or bathing; Age; Sex; Education; Does the patient speak a language other than English at home; Did someone help the patient complete this survey; Total number of years on dialysis. The coefficients for patient mix adjustment are published on the survey website after each Dialysis Facility Compare refresh. They can be found at:

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					https://ichcahps.org/Home.aspx in the Quick Links section. Other The ICH CAHPS survey data is adjusted for public reporting using survey mode and 13 patient characteristics. Usually patient experience surveys are adjusted for factors not under the control of the provider that impact response tendencies. This is called patient mix or case mix adjustment. We conduct these adjustments so meaningful comparisons between ICH facilities can be made. The 2014 Mode Experiment was conducted to determine the set of patient mix adjusters. A re-evaluation of patient mix was made in 2018 and it was determined to retain the original patient mix adjusters. The current patient mix adjusters are: Overall health; Overall

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					mental health; Heart disease; Deaf or serious difficulty hearing; Blind or serious difficulty seeing; Difficulty concentrating, remembering, or making decisions; Difficulty dressing or bathing; Age; Sex; Education; Does the patient speak a language other than English at home; Did someone help the patient complete this survey; Total number of years on dialysis. The coefficients for patient mix adjustment are published on the survey website after each Dialysis Facility Compare refresh. They can be found at: https://ichcahps.org/Home.aspx in the Quick Links section.
Stratification	Not applicable.	N/A	N/A	N/A	Not applicable.
Type Score	Rate/proportion better quality = lower score	Rate/proportion better quality = higher score	Rate/proportion better quality = lower score	Rate/proportion better quality = higher score	Rate/proportion better quality = higher score
Algorithm	Data are collected and scores for each facility are calculated on a monthly basis; scores are	Denominator: For the reporting month, patients are included in the denominator if:	For this measure calculation, the numerator will be divided by the denominator.Calculation of	For this measure calculation, the numerator will be divided by the denominator.	1. Only surveys that meet the completeness criteria of greater

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	then averaged over the 12-month reporting period to obtain the facility's annual score. Scores are calculated using the following algorithm: 1. Build the "Month 1 Raw Denominator Population." For the Month 1 calculation period,* identify all patients in the facility during the reporting month whose: a. Primary Type Treatment/Modality = Hemodialysis b. Primary/Current Dialysis Setting = In-center c. Date of Birth = >18 years prior to treatment date * The calculation period is defined as the same week that the monthly Kt/V is drawn. If more than one Kt/V is drawn in a given month, the last draw for the month will be used to define	• Patient modality is indicated as HD during the entire month (in-center or home) • Patient is on thrice weekly dialysis during the month • Patient age as of the beginning of the reporting month is at least 18 years • Patient has had ESRD for greater than 90 days at the beginning of the month • Assigned to the facility for the entire month Numerator: For the reporting month, patients from the denominator are also included in the numerator if they have a spKt/V >=1.2. The last spKt/V value reported, not including missing, expired, and not performed, is selected when multiple values are reported in the month. Denominator: For the reporting month, patients are included in the denominator if: • Patient modality is indicated as HD during the entire month (in-center or home)	the numerator and denominator is described below. The denominator will include all patients at least 18 years old who are determined to be maintenance hemodialysis patients. The patient's age will be determined by subtracting the patient's date of birth from the first day of the reporting month. Hemodialysis patients are defined as follows: "Admit Date" to the specified facility is prior or equal to the first day of the study period, AND the patient has not been discharged ("Discharge Date" is null or blank), OR "Discharge Date" from the facility is greater than or equal to the last day of the study period AND "Treatment Dialysis Broad Start Date" is prior or equal to the first day of the study period, AND "Dialysis Broad Type of Treatment" = 'HD', AND "Primary Dialysis Setting" = 'Dialysis	Calculation of the numerator and denominator is described below. The denominator will include all patients at least 18 years old who are determined to be maintenance hemodialysis patients. The patient's age will be determined by subtracting the patient's date of birth from the first day of the reporting month. Hemodialysis patients are defined as follows: "Admit Date" to the specified facility is prior or equal to the first day of the study period, AND the patient has not been discharged ("Discharge Date" is null or blank), OR "Discharge Date" from the facility is greater than or equal to the last day of the study period AND "Treatment Dialysis Broad Start Date" is prior or equal to the first day	than or equal to 50% will be included in the calculation of measures/global ratings. 2. Each of the three multi-item measures consists of 6 or more questions that are reported as one measure score. Scores are created by first determining the proportion of answers to each response option for all questions in the measure. The final measure score averages the proportion of those responding to each answer choice in all questions. Only questions that are answered by survey respondents will be included in the calculation of measure scores. 3. Statistical adjustments are

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	the data collection period (i.e., these data elements will be collected during the week that the final Kt/V value of the month is drawn). 2. Remove patients with exclusions to define the "Month 1 Final Denominator Population." For all patients meeting all of the Step 1 requirements, identify all patients meeting any of the following exclusion criteria and remove from the denominator population: a. Date Patient Started Chronic Dialysis at Current Facility = >30 days prior to treatment date. b. Transient Status = Not transient OR patients with <7 hemodialysis treatments in the facility during the month.	• Patient is on thrice weekly dialysis during the month • Patient age as of the beginning of the reporting month is at least 18 years • Patient has had ESRD for greater than 90 days at the beginning of the month • Assigned to the facility for the entire month Numerator: For the reporting month, patients from the denominator are also included in the numerator if they have a spKt/V >=1.2. The last spKt/V value reported, not including missing, expired, and not performed, is selected when multiple values are reported in the month.	Facility/Center' or 'Home' on the last day of the study period, AND "Date Regular Chronic Dialysis Began" is prior to the first day of the study period. The numerator will be determined by counting the patient months in the denominator who were on maintenance hemodialysis with a chronic catheter continuously for 90 days or longer prior to the last hemodialysis session of the month. For CROWNWeb data, the numerator is defined as "Access_Type_id" in (19,20) while "19" means Catheter only and "20" means Port access only AND "Date Access Type for Dialysis Changed" is blank or, if populated, is more than 90 days prior to the last hemodialysis session of the month. For Claims data, we use data prior to reporting period, a 90 day lookback period (e.g. October – December 2012	of the study period, AND "Dialysis Broad Type of Treatment" = 'HD', AND "Primary Dialysis Setting" ='Dialysis Facility/Center' or 'Home' on the last day of the study period, AND "Date Regular Chronic Dialysis Began" is prior to the first day of the study period. The denominator will include all patients greater than or equal to 18 years old who are determined to be in-center hemodialysis, or home hemodialysis patients. The numerator will be determined by counting the patient months in the denominator who were on maintenance hemodialysis using an AV fistula as the means of access. In CROWNWeb, a patient is counted in the numerator if "Access_type_id" in (14,16) at the last treatment of the month	made for mode of administration, and the set of patient-mix characteristics noted in S.11a. The statistically adjusted score for the three ratings questions and a given individual survey question that is included in one of the three ICH CAHPS Survey multi-item measures is the sum of a series of products in the equation shown below. = y + a1(h1 - m1) + a2(h2 - m2) + a3(h3 - m3) + . . . + a28(h28 - m28) + a29*h29 + a30*h30 Where is the facility's adjusted score (top or bottom box) for a ratings question or the individual ICH CAHPS question included in the multi-item measure. Y is the facility's "raw score," or mean on the respective unadjusted

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	c. Sessions Per Week = >4. d. Patients without a completed CMS Medical Evidence Form (Form CMS-2728) in the reporting month. e. Kidney transplant recipients with a functioning graft. 3. Identify the "Month 1 Numerator Data Elements." For all patients remaining in the denominator after Step 2, collect each of the following data elements for each dialysis session (including supplemental sessions) delivered during the Month 1 calculation period: a. Pre-Dialysis Weight for Session b. Post-Dialysis Weight for Session c. Session Date		for January 2013 reporting period) to determine catheter history AND vascular access type should satisfy (vas_cat='Y' and art_graft=' ' and art_fistula=' ')). For this measure calculation, the numerator will be divided by the denominator.Calculation of the numerator and denominator is described below. The denominator will include all patients at least 18 years old who are determined to be maintenance hemodialysis patients. The patient's age will be determined by subtracting the patient's date of birth from the first day of the reporting month. Hemodialysis patients are defined as follows: "Admit Date" to the specified facility is prior or equal to the first day of the study period, AND the patient has not been discharged ("Discharge Date" is null or blank), OR "Discharge Date" from the	where "14" represents AV fistula only (with 2 needles) and "16" represents AV Fistula combined with a Catheter; while in Medical Claims data, a patient is included if (vas_cat=' ' and art_graft=' ' and art_fistula='Y') OR (vas_cat='Y' and art_graft=' ' and art_fistula='Y') at the last treatment of the month. For this measure calculation, the numerator will be divided by the denominator. Calculation of the numerator and denominator is described below. The denominator will include all patients at least 18 years old who are determined to be maintenance hemodialysis patients. The patient's age will be determined by subtracting the patient's	top or bottom box ICH CAHPS ratings question or question included in the multi-item measure. a1 to a28 are the national-level patient characteristic adjustments, for the global ratings questions and individual questions that comprise the multi-item measures. a29 to a30 are the national-level survey mode adjustments for the global ratings questions and the individual questions that comprise the multi-item measures. h1 to h28 are the facility's mean proportions of patients with each of the patient characteristics in the same row. h29 to h30 are the facility's proportion for a given mode. This value will always be 0 or 1 because within a given facility all surveys are

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	d. Time Delivered Per Session, in Minutes e. Sessions Per Week 4. Build the "Month 1 Numerator Population." For each patient, for all dialysis sessions included in the final Month 1 Numerator Data Set: a. Calculate the UFR (in ml/kg/hour) for each dialysis session (including supplemental sessions): Session X UFR = ([{Session X Pre-Dialysis Weight in kg – Session X Post-Dialysis Weight in kg} x 1000 ml/kg] ÷ Session X Post-Dialysis Weight in kg) ÷ (Session X Delivered Treatment Time in minutes) x 60 minutes/hour b. Calculate each patient's average UFR for all dialysis sessions (including supplemental		facility is greater than or equal to the last day of the study period AND "Treatment Dialysis Broad Start Date" is prior or equal to the first day of the study period, AND "Dialysis Broad Type of Treatment" = 'HD', AND "Primary Dialysis Setting" = 'Dialysis Facility/Center' or 'Home' on the last day of the study period, AND "Date Regular Chronic Dialysis Began" is prior to the first day of the study period. The numerator will be determined by counting the patient months in the denominator who were on maintenance hemodialysis with a chronic catheter continuously for 90 days or longer prior to the last hemodialysis session of the month. For CROWNWeb data, the numerator is defined as "Access_Type_id" in (19,20) while "19" means Catheter only and "20" means Port access only AND "Date	date of birth from the first day of the reporting month. Hemodialysis patients are defined as follows: "Admit Date" to the specified facility is prior or equal to the first day of the study period, AND the patient has not been discharged ("Discharge Date" is null or blank), OR "Discharge Date" from the facility is greater than or equal to the last day of the study period AND "Treatment Dialysis Broad Start Date" is prior or equal to the first day of the study period, AND "Dialysis Broad Type of Treatment" = 'HD', AND "Primary Dialysis Setting" = 'Dialysis Facility/Center' or 'Home' on the last day of the study period, AND "Date Regular Chronic Dialysis Began" is prior to the first day of the study period. The denominator will include all patients greater than or equal to 18 years old who are	completed by either phone, mail, or mixed mode. m1 to m28 are the national mean proportions of patients with each of the patient characteristics. 8. Only surveys that meet the completeness criteria of greater than or equal to 50% will be included in the calculation of measures/global ratings. 9. Each of the three multi-item measures consists of 6 or more questions that are reported as one measure score. Scores are created by first determining the proportion of answers to each response option for all questions in the measure. The final measure score averages the

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	sessions) during the calculation period: Average UFR = (UFR1 + UFR2 + …. + UFRX) ÷ X Treatments c. Calculate each patient's average treatment time over all dialysis sessions (including supplemental sessions) during the calculation period: Average Treatment Time (in minutes) = (Time1 + Time 2 + … + TimeX) ÷ X Treatments d. For each facility, include in the numerator all patients with: i. an average UFR during the calculation period (4.b. value) >= 13 ml/kg/hour; AND ii. an average treatment time during the calculation period (4.c. value) <240 minutes.		Access Type for Dialysis Changed" is blank or, if populated, is more than 90 days prior to the last hemodialysis session of the month. For Claims data, we use data prior to reporting period, a 90 day lookback period (e.g. October – December 2012 for January 2013 reporting period) to determine catheter history AND vascular access type should satisfy (vas_cat='Y' and art_graft=' ' and art_fistula=' ')).	determined to be in-center hemodialysis, or home hemodialysis patients. The numerator will be determined by counting the patient months in the denominator who were on maintenance hemodialysis using an AV fistula as the means of access. In CROWNWeb, a patient is counted in the numerator if "Access_type_id" in (14,16) at the last treatment of the month where "14" represents AV fistula only (with 2 needles) and "16" represents AV Fistula combined with a Catheter; while in Medical Claims data, a patient is included if (vas_cat=' ' and art_graft=' ' and art_fistula='Y') OR (vas_cat='Y' and art_graft=' ' and	proportion of those responding to each answer choice in all questions. Only questions that are answered by survey respondents will be included in the calculation of measure scores. 10. Statistical adjustments are made for mode of administration, and the set of patient-mix characteristics noted in S.11a. The statistically adjusted score for the three ratings questions and a given individual survey question that is included in one of the three ICH CAHPS Survey multi-item measures is the sum of a series of products in the equation shown below. = y + a1(h1 - m1) + a2(h2 - m2) + a3(h3 - m3)

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	5. Calculate the facility's Month 1 performance score: Month 1 Performance Score = Month 1 Numerator Population ÷ Month 1 Denominator Population 6. Repeat Steps 1 through 5 for each of the remaining 11 months of the reporting year. 7. Calculate the facility's annual performance score: Facility's Average Annual Performance Score = (Facility's Month 1 Score + Month 2 Score +….. + Month 12 Score) ÷ 12 Data are collected and scores for each facility are calculated on a monthly basis; scores are then averaged over the 12-month reporting period to obtain the facility's annual score. Scores are calculated using the following algorithm:			art_fistula='Y') at the last treatment of the month.	+ . . . + a28(h28 - m28) + a29*h29 + a30*h30 Where is the facility's adjusted score (top or bottom box) for a ratings question or the individual ICH CAHPS question included in the multi-item measure. Y is the facility's "raw score," or mean on the respective unadjusted top or bottom box ICH CAHPS ratings question or question included in the multi-item measure. a1 to a28 are the national-level patient characteristic adjustments, for the global ratings questions and individual questions that comprise the multi-item measures. a29 to a30 are the national-level survey mode adjustments for the global ratings questions and the individual questions that comprise the multi-item measures.

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	1. Build the "Month 1 Raw Denominator Population." For the Month 1 calculation period,* identify all patients in the facility during the reporting month whose: 1. Primary Type Treatment/Modality = Hemodialysis 2. Primary/Current Dialysis Setting = In-center 3. Date of Birth = >18 years prior to treatment date * The calculation period is defined as the same week that the monthly Kt/V is drawn. If more than one Kt/V is drawn in a given month, the last draw for the month will be used to define the data collection period (i.e., these data elements will be collected during the week that the final Kt/V value of the month is drawn).				h1 to h28 are the facility's mean proportions of patients with each of the patient characteristics in the same row. h29 to h30 are the facility's proportion for a given mode. This value will always be 0 or 1 because within a given facility all surveys are completed by either phone, mail, or mixed mode. m1 to m28 are the national mean proportions of patients with each of the patient characteristics.

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	2. Remove patients with exclusions to define the "Month 1 Final Denominator Population." For all patients meeting all of the Step 1 requirements, identify all patients meeting any of the following exclusion criteria and remove from the denominator population: 1. Date Patient Started Chronic Dialysis at Current Facility = >30 days prior to treatment date. 2. Transient Status = Not transient OR patients with <7 hemodialysis treatments in the facility during the month. 3. Sessions Per Week = >4. 4. Patients without a completed CMS Medical Evidence Form (Form CMS-				

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	2728) in the reporting month. 5. Kidney transplant recipients with a functioning graft. 3. Identify the "Month 1 Numerator Data Elements." For all patients remaining in the denominator after Step 2, collect each of the following data elements for each dialysis session (including supplemental sessions) delivered during the Month 1 calculation period: 1. Pre-Dialysis Weight for Session 2. Post-Dialysis Weight for Session 3. Session Date 4. Time Delivered Per Session, in Minutes 5. Sessions Per Week 4. Build the "Month 1 Numerator Population."				

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	0249: Delivered Dose of Hemodialysis Above Minimum	0256: Minimizing Use of Catheters as Chronic Dialysis Access	0257: Maximizing Placement of Arterial Venous Fistula (AVF)	0258: Consumer Assessment of Healthcare Providers and Systems (CAHPS) In-Center Hemodialysis Survey (ICH CAHPS)
	For each patient, for all dialysis sessions included in the final Month 1 Numerator Data Set: a. Calculate the UFR (in ml/kg/hour) for each dialysis session (including supplemental sessions): Session X UFR = ([{Session X Pre-Dialysis Weight in kg – Session X Post-Dialysis Weight in kg} x 1000 ml/kg] ÷ Session X Post-Dialysis Weight in kg) ÷ (Session X Delivered Treatment Time in minutes) x 60 minutes/hour b. Calculate each patient's average UFR for all dialysis sessions (including supplemental sessions) during the calculation period: Average UFR = (UFR1 + UFR2 + …. + UFRX) ÷ X Treatments c. Calculate each patient's average				

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	0249: Delivered Dose of Hemodialysis Above Minimum	0256: Minimizing Use of Catheters as Chronic Dialysis Access	0257: Maximizing Placement of Arterial Venous Fistula (AVF)	0258: Consumer Assessment of Healthcare Providers and Systems (CAHPS) In-Center Hemodialysis Survey (ICH CAHPS)
	treatment time over all dialysis sessions (including supplemental sessions) during the calculation period: Average Treatment Time (in minutes) = (Time1 + Time 2 + … + TimeX) ÷ X Treatments d. For each facility, include in the numerator all patients with: i. an average UFR during the calculation period (4.b. value) >= 13 ml/kg/hour; AND ii. an average treatment time during the calculation period (4.c. value) <240 minutes. 5. Calculate the facility's Month 1 performance score:				

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	0249: Delivered Dose of Hemodialysis Above Minimum	0256: Minimizing Use of Catheters as Chronic Dialysis Access	0257: Maximizing Placement of Arterial Venous Fistula (AVF)	0258: Consumer Assessment of Healthcare Providers and Systems (CAHPS) In-Center Hemodialysis Survey (ICH CAHPS)
	Month 1 Performance Score = Month 1 Numerator Population ÷ Month 1 Denominator Population 6. Repeat Steps 1 through 5 for each of the remaining 11 months of the reporting year. 7. Calculate the facility's annual performance score: Facility's Average Annual Performance Score = (Facility's Month 1 Score + Month 2 Score +….. + Month 12 Score) ÷ 12				
Submission items	5.1 Identified measures: 0258 : Consumer Assessment of Healthcare Providers and Systems (CAHPS) In-Center Hemodialysis Survey (ICH CAHPS) 0249 : Delivered Dose of Hemodialysis Above Minimum 0256 : Minimizing Use of Catheters as Chronic Dialysis Access	5.1 Identified measures: 0323 : Adult Kidney Disease: Hemodialysis Adequacy: Solute 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: During a previous NQF review, the hemodialysis measures (#0249, #0323) were	5.1 Identified measures: 5a.1 Are specs completely harmonized? 5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value:	5.1 Identified measures: 5a.1 Are specs completely harmonized? 5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value:	5.1 Identified measures: 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: Because there are no competing measures differences, rationale, impact of

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	0249: Delivered Dose of Hemodialysis Above Minimum	0256: Minimizing Use of Catheters as Chronic Dialysis Access	0257: Maximizing Placement of Arterial Venous Fistula (AVF)	0258: Consumer Assessment of Healthcare Providers and Systems (CAHPS) In-Center Hemodialysis Survey (ICH CAHPS)
	0257 : Maximizing Placement of Arterial Venous Fistula (AVF) 1460 : Bloodstream Infection in Hemodialysis Outpatients 2977 : Hemodialysis Vascular Access: Standardized Fistula Rate 2978 : Hemodialysis Vascular Access: Long-term Catheter Rate 5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: Not applicable; specifications of this and other NQF-endorsed facility-level performance measures applicable to adult in-center ESRD hemodialysis patients are harmonized to extent possible.	harmonized on the evidence regarding method of measuring adequacy and threshold values. One remaining difference was thought to not pose any substantial impact: the physician measure denominator is patient months rather than patients as in the facility measure. Since then we revised the numerator and denominator for 0249. Missing values are not counted in the numerator, in order to prevent gaming of the measure. 5b.1 If competing, why superior or rationale for additive value: It is anticipated that this proposed measure will allow for assessment of a larger population given the new denominator definition. Missing values are not counted in the numerator, in order to prevent gaming of the measure.			interpretability and data collection burden do not exist. 5b.1 If competing, why superior or rationale for additive value: Not applicable.

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	0249: Delivered Dose of Hemodialysis Above Minimum	0256: Minimizing Use of Catheters as Chronic Dialysis Access	0257: Maximizing Placement of Arterial Venous Fistula (AVF)	0258: Consumer Assessment of Healthcare Providers and Systems (CAHPS) In-Center Hemodialysis Survey (ICH CAHPS)
	5b.1 If competing, why superior or rationale for additive value: Not applicable; no competing NQF-endorsed measures.				

Comparison of NQF #2701, NQF #1460, NQF #2977 and NQF #2978

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	1460: Bloodstream Infection in Hemodialysis Outpatients	2978: Hemodialysis Vascular Access: Long-term Catheter Rate
Steward	Kidney Care Quality Alliance (KCQA)	Centers for Disease Control and Prevention	Centers for Medicare & Medicaid Services
Description	Percentage of adult in-center hemodialysis patients in the facility whose average ultrafiltration rate (UFR) is >=13 ml/kg/hour AND who receive an average of <240 minutes per treatment during the calculation period.	The Standardized Infection Ratio (SIR) of Bloodstream Infections (BSI) will be calculated among patients receiving hemodialysis at outpatient hemodialysis facilities.	Percentage of adult hemodialysis patient-months using a catheter continuously for three months or longer for vascular access.
Type	Process	Outcome	Outcome: Intermediate Clinical Outcome
Data Source	Electronic Health Records CROWNWeb Electronic Data Interchange, available at URL: https://mycrownweb.org No data collection instrument provided No data dictionary	Electronic Health Data, Electronic Health Records, Other, Paper Medical Records 57.503 Denominators for Outpatient Dialysis form 57.502 Dialysis Event URL No data dictionary	Claims, Registry Data Data are derived from an extensive national ESRD patient database, which is primarily based on CROWNWeb facility-reported clinical and administrative data (including CMS-2728 Medical Evidence Form, CMS-2746 Death Notification Form, and CMS-2744 Annual Facility Survey Form and patient tracking data), the Renal Management Information System (REMIS), the Medicare Enrollment Database (EDB), and Medicare claims data. In addition the database includes transplant data from the Scientific Registry of Transplant Recipients (SRTR), and

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	1460: Bloodstream Infection in Hemodialysis Outpatients	2978: Hemodialysis Vascular Access: Long-term Catheter Rate
			data from the Nursing Home Minimum Dataset, the Quality Improvement Evaluation System (QIES) Business Intelligence Center (QBIC) (which includes Provider and Survey and Certification data from Automated Survey Processing Environment (ASPEN)), and the Dialysis Facility Compare (DFC). The database is comprehensive for Medicare patients not enrolled in Medicare Advantage. Medicare Advantage patients are included in all sources but their Medicare payment records are limited to inpatient claims. Non-Medicare patients are included in all sources except for the Medicare payment records. Tracking by dialysis provider and treatment modality is available for all patients including those with only partial or no Medicare coverage. CROWNWeb is the data source for establishing the vascular access type used to determine the numerator. No data collection instrument provided Attachment 2978_Data_Dictionary_Code_Table.xlsx
Level	Facility	Facility, Other, Population: Regional and State	Facility
Setting	Post-Acute Care	Post-Acute Care	Other Dialysis Facility
Numerator Statement	Number of patients* from the denominator whose average UFR is >=13 mg/kg/hr (NOT just >13) hour AND who receive an average of <240 minutes per treatment during the calculation period.** *To address the fact that patients may contribute varying amounts of time to the annual denominator population, results will be reported using a "patient-month" construction. ** The calculation period is defined as the same week that the monthly Kt/V is drawn.	The number of new positive blood culture events based on blood cultures drawn as an outpatient or within 1 calendar day after a hospital admission. A positive blood culture is considered a new event and counted only if it occurred 21 days or more after a previous positive blood culture in the same patient.	The numerator is the number of adult patient-months in the denominator who were on maintenance hemodialysis using a catheter continuously for three months or longer as of the last hemodialysis session of the reporting month.
Numerator Details	Numerator Data Elements	Information required: Number of positive blood culture events and event date	The number of patient-months with a long-term catheter in use. Long-term catheter use is defined as

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	1460: Bloodstream Infection in Hemodialysis Outpatients	2978: Hemodialysis Vascular Access: Long-term Catheter Rate
	For all patients meeting the denominator criteria in the reporting month, collect the following data elements for all dialysis sessions (including supplemental sessions) falling within the same week that the monthly Kt/V is drawn:* • Pre-Dialysis Weight for Session • Post-Dialysis Weight for Session • Time Delivered Per Session, in Minutes • Session Date • Sessions Per Week * If more than one Kt/V is drawn in a given month, the last draw for the month will be used to define the data collection period (i.e., these data elements will be collected during the week that the final Kt/V value of the month is drawn). Numerator Case Identification For each facility, for all dialysis sessions falling within the calculation period for all patients meeting the denominator criteria: 1. Calculate the UFR (in ml/kg/hour) for each dialysis session (including supplemental sessions): Session X UFR = ([{Session X Pre-Dialysis Weight in kg – Session X Post-Dialysis Weight in kg} x 1000 ml/kg] ÷ Session X Post-Dialysis Weight in kg) ÷ (Session X Delivered Treatment Time in minutes) x 60 minutes/hour 2. Calculate each patient's average UFR for all dialysis sessions (including supplemental sessions) during the calculation period:	Definition: : A positive blood culture is a blood culture that results in growth of 1 or more organisms. A new positive blood culture (not less than 21 days after a previous positive blood culture in the same patient) in a hemodialysis patient identified from blood cultures taken as an outpatient or within 1 calendar day after a hospital admission. Data specifications: Events are counted if the following field: "patient with a positive blood culture" (on Form 57.502 under Event Details) is checked as being present. Additional data collection items/responses: Vascular access types are defined as follows-- Nontunneled central line: a central venous catheter that travels directly from the skin entry site to a vein and terminates close to the heart or one of the great vessels, typically intended for short term use Tunneled central line: a central venous catheter that travels a distance under the skin from the point of insertion before terminating at or close to the heart or one of the great vessels Graft: a surgically created connection between an artery and a vein using implanted material (typically synthetic) to provide vascular access for hemodialysis Fistula: a surgically created direct connection between an artery and a vein to provide vascular access for hemodialysis Other vascular access device: includes hybrid access devices (e.g., HeRO vascular access device), ports, and any other central vascular access devices that do not meet the above definitions	using a catheter, at the same facility, for at least three consecutive complete months as of the last day of the reporting month. Vascular access type for the measure is obtained from CROWNWeb only (representative of all ESRD dialysis patients). For a given month, if any of the following CROWNWeb "Access Type IDs" (16,18,19,20,21,"·") has been recorded, a catheter is considered in use. If a catheter has been observed for three consecutive months (i.e., in the reporting month and the immediate two preceding months) at the same facility, the reporting month is counted in the numerator. Access Type ID "16" represents AV Fistula combined with a Catheter, "18" represents AV Graft combined with a Catheter, "19" represents Catheter only, "20" represents Port access only, "21" represents other/unknown, and "·" represents missing. If a patient changes dialysis facilities, the counting of the three consecutive complete months restarts at the new facility. We count patients with missing vascular access type in both the denominator and the numerator. Therefore missing vascular access type is counted as a catheter.

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	1460: Bloodstream Infection in Hemodialysis Outpatients	2978: Hemodialysis Vascular Access: Long-term Catheter Rate
	Average UFR = (UFR1 + UFR2 + …. + UFRX) ÷ X Treatments 3. Calculate each patient's average treatment time over all dialysis sessions (including supplemental sessions) during the calculation period: Average Treatment Time (in minutes) = (Time1 + Time 2 + … + TimeX) ÷ X Treatments 4. Identify all patients with <4 dialysis sessions during the calculation period. 5. For each facility, include in the numerator all patients with: • an average UFR during the calculation period (Step 2 value) >=13 ml/kg/hour; AND • • an average treatment time during the calculation period (Step 3 value) <240 minutes.		
Denominator Statement	Number of adult in-center hemodialysis patients in an outpatient dialysis facility undergoing chronic maintenance hemodialysis during the calculation period.	Number of maintenance hemodialysis patients treated in the outpatient hemodialysis center on the first 2 working days of the month.	All patients at least 18 years old as of the first day of the reporting month who are determined to be maintenance hemodialysis patients (in-center and home HD) for the complete reporting month at the same facility. When used for public reporting, the measure calculation will be restricted to facilities with at least 11 patients in the reporting month. This restriction is required to ensure patients cannot be identified due to small cell size.
Denominator Details	Identify all patients in the dialysis facility during the reporting period whose: • Primary Type Treatment/Modality = Hemodialysis. • Primary/Current Dialysis Setting = In-center.	Target population is all maintenance hemodialysis patients treated on the first 2 working days of a particular month in an outpatient hemodialysis center. Data specification: The numeric value entered into the field labeled "Total patients" (on Form 57.503) is used as the denominator.	For each patient, we identify the dialysis provider at each month using a combination of Medicare-paid dialysis claims, the Medical Evidence Form (Form CMS-2728), and data from CROWNWeb. These sources are used to identify patients that are receiving in-center or home hemodialysis for the entire reporting month. Patients are required to have been treated by the same

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	1460: Bloodstream Infection in Hemodialysis Outpatients	2978: Hemodialysis Vascular Access: Long-term Catheter Rate
	• Date of Birth = >18 years prior to treatment date.		facility for the complete month in order to be assigned to that facility for the reporting month. To be included in the denominator for a particular reporting month, the patient must be receiving home or in-center hemodialysis for the complete reporting month at the facility, and be at least 18 years old as of the first day of the month. The monthly patient count at a facility includes all eligible prevalent and incident patients. The number of patient-months over a time period is the sum of patients reported for the months covered by the time period. An individual patient may contribute up to 12 patient-months per year.
Exclusions	The following patients are excluded from the denominator population: 9. Patients <18 years of age (implicit in denominator definition). 10. Home dialysis patients (implicit in denominator definition). 11. Patients in a facility <30 days. 12. Patients with >4 hemodialysis treatments during the calculation period. 13. Patients with <7 hemodialysis treatments in the facility during the reporting month. 14. Patients without a completed CMS Medical Evidence Form (Form CMS-2728) in the reporting month. 15. Kidney transplant recipients with a functioning graft. 16. 8. Facilities treating <=25 adult in-center hemodialysis patients during the reporting month.	Patients receiving inpatient hemodialysis and home hemodialysis are excluded	Exclusions that are implicit in the denominator definition include: • Pediatric patients (<18 years old) • Patients on Peritoneal Dialysis • Patient-months on in-center or home hemodialysis for less than a complete reporting month at the same facility In addition, the following exclusions are applied to the denominator: Patients with a catheter that have limited life expectancy: • Patients under hospice care in the current reporting month • Patients with metastatic cancer in the past 12 months • Patients with end stage liver disease in the past 12 months • Patients with coma or anoxic brain injury in the past 12 months

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	1460: Bloodstream Infection in Hemodialysis Outpatients	2978: Hemodialysis Vascular Access: Long-term Catheter Rate
Exclusion Details	For all patients meeting the denominator criteria in the reporting month, identify all patients meeting any of the following exclusion criteria during the calculation period and remove from the denominator population: 2. Date of Birth = <18 years prior to treatment date (implicit in denominator definition). 3. Primary Type Treatment/Modality = Peritoneal dialysis or home hemodialysis (implicit in denominator definition). 4. Date Patient Started Chronic Dialysis at Current Facility = >30 days prior to treatment date. 5. Sessions Per Week = >4 6. Transient Status = Not transient OR patients with <7 hemodialysis treatments in the facility during the reporting month. 7. Patients without a completed CMS Medical Evidence Form (Form CMS-2728) in the reporting month. 8. Kidney transplant recipients with a functioning graft Note: Facilities treating <=25 adult in-center hemodialysis patients during the reporting month are also excluded.	The inpatient hemodialysis exclusion is only relevant for facilities that provide both outpatient (maintenance) and inpatient (acute or maintenance) hemodialysis. Patients who receive inpatient hemodialysis in the same facility are excluded. The home dialysis exclusion applies to all patients who are on home dialysis, including but not limited to home dialysis patients who are monitored by a dialysis facility.	Determination of peritoneal dialysis treatment modality is derived from a combination of Medicare-paid dialysis claims, the Medical Evidence Form (Form CMS-2728), and data from CROWNWeb. These sources also determine patient assignment to the facility. Patients not treated by the facility for the entire month are excluded for that reporting month. The patient's age is determined by subtracting the patient's date of birth from the first day of the reporting month. Patients that are < 18 years old as of the first day of the reporting month are excluded. For the exclusion of catheter patients with limited life expectancy, catheter use in the reporting month is defined as the CROWNWeb "Access Type ID" having any of the following values: (16,18,19,20,21,"·"), where Access_Type_ID "16" represents AV Fistula combined with a Catheter, "18" represents AV Graft combined with a Catheter, "19" represents Catheter only, "20" represents Port access only, "21" represents other/unknown, and "·" represents missing. Hospice status is determined from a separate CMS file that contains final action claims submitted by Hospice providers. Once a beneficiary elects Hospice, all Hospice related claims will be found in this file, regardless if the beneficiary is in Medicare fee-for-service or in a Medicare managed care plan. Patients are identified as receiving hospice care if they have any final action claims submitted to Medicare by hospice providers in the current month. If the patient did not have Hospice claims in the preceding 12 months of Hospice claims data, we assume this patient was not receiving hospice care in that reporting month. Diagnoses of metastatic cancer, end stage liver disease, or coma in the past 12 months were determined from

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	1460: Bloodstream Infection in Hemodialysis Outpatients	2978: Hemodialysis Vascular Access: Long-term Catheter Rate
			Medicare claim types. Medicare claims include inpatient hospitalizations, outpatient claims (including dialysis claims), and physician supplier claims. Claims from providers, such as laboratories, that report diagnosis codes when testing for the presence of a condition are excluded. A detailed list of ICD-10 diagnostic codes used to identify these comorbidities is included in the attached data dictionary code table (excel file). If the patient had missing comorbidity values in the preceding 12 months of Medicare claims, we assume this patient did not have the comorbidity in that reporting month.
Risk Adjustment	No risk adjustment or risk stratification No risk adjustment or risk stratification No risk adjustment or risk stratification	Statistical risk model Statistical risk model	No risk adjustment or risk stratification No risk adjustment or risk stratification
Stratification	Not applicable.	Both the numerator and denominator are stratified by patient vascular access type, where permanent central lines are defined as tunneled central lines (or tunneled central venous catheters) and temporary central lines are defined as nontunneled central lines (or nontunneled central venous catheters). Details of stratified measures: 8. BSI rate in CVC (central venous catheter) patients = the numerator and denominator below times 100 a. NUMERATOR. Events are included in the numerator if the "patient with positive blood culture" field on Form 57.502 is checked AND any of the following fields on Form 57.502 under 'Vascular accesses' are checked as being present: "Permanent central line", "Temporary central line". b. DENOMINATOR. The denominator equals the sum of the numeric values entered for the	N/A

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	1460: Bloodstream Infection in Hemodialysis Outpatients	2978: Hemodialysis Vascular Access: Long-term Catheter Rate
		following fields on Form 57.503: "Permanent central line", "Temporary central line". 9. BSI rate in AVG (arteriovenous graft) patients = the numerator and denominator below times 100 a. NUMERATOR. Events are included in the numerator if the "patient with positive blood culture" field on Form 57.502 is checked AND if the field labeled "Graft" on Form 57.502 under 'Vascular accesses' is checked as being present AND none of the following fields on the same form are checked as being present: "Permanent central line", "Temporary central line". b. DENOMINATOR. The denominator equals the numeric value entered for the field labeled, "Graft" on Form 57.503. 10. BSI rate in AVF (arteriovenous fistula) patients = the numerator and denominator below times 100 a. NUMERATOR. Events are included in the numerator if the "patient with positive blood culture" field on Form 57.502 is checked AND if the field labeled "Fistula" on Form 57.502 under 'Vascular accesses' is checked as being present AND none of the following fields on the same form are checked as being present: "Graft", "Permanent central line", "Temporary central line". b. DENOMINATOR. The denominator equals the numeric value entered for the field labeled, "Fistula" on Form 57.503. 11. BSI rate in other access type patients = the numerator and denominator below times 100	

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	1460: Bloodstream Infection in Hemodialysis Outpatients	2978: Hemodialysis Vascular Access: Long-term Catheter Rate
		a. NUMERATOR. Events are included in the numerator if the "patient with positive blood culture" field on Form 57.502 is checked AND if the field labeled "Other vascular access device" under 'Vascular accesses' is checked as being present AND none of the following fields on the same form are checked as being present: "Permanent central line", "Temporary central line". b. b. DENOMINATOR. The denominator equals the numeric value entered for the following field on Form 57.503: "Other vascular access device".	
Type Score	Rate/proportion better quality = lower score	Rate/proportion better quality = lower score	Rate/proportion better quality = lower score
Algorithm	Data are collected and scores for each facility are calculated on a monthly basis; scores are then averaged over the 12-month reporting period to obtain the facility's annual score. Scores are calculated using the following algorithm: 1. Build the "Month 1 Raw Denominator Population." For the Month 1 calculation period,* identify all patients in the facility during the reporting month whose: a. Primary Type Treatment/Modality = Hemodialysis b. Primary/Current Dialysis Setting = In-center c. Date of Birth = >18 years prior to treatment date * The calculation period is defined as the same week that the monthly Kt/V is drawn. If more than one Kt/V is drawn in a given	The Standardized Infection Ratio (SIR) is calculated as follows: 8. Identify the number of BSI in each vascular access stratum 9. Total these numbers for an observed number of BSIs 10. Obtain the predicted number of BSIs in the same strata by multiplying the observed patient-months by the corresponding BSI rates in specific strata from a standard population 11. Sum the number of predicted BSIs from all strata in the annual period 12. Divide the total number of observed BSI events (#2 above) by the predicted number of BSIs (#4 above) 13. Result = SIR The Standardized Infection Ratio (SIR) is calculated as follows: 1. Identify the number of BSI in each vascular access stratum	See calculation flowchart in Appendix. See calculation flowchart in Appendix.

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	1460: Bloodstream Infection in Hemodialysis Outpatients	2978: Hemodialysis Vascular Access: Long-term Catheter Rate
	month, the last draw for the month will be used to define the data collection period (i.e., these data elements will be collected during the week that the final Kt/V value of the month is drawn). 2. Remove patients with exclusions to define the "Month 1 Final Denominator Population." For all patients meeting all of the Step 1 requirements, identify all patients meeting any of the following exclusion criteria and remove from the denominator population: a. Date Patient Started Chronic Dialysis at Current Facility = >30 days prior to treatment date. b. Transient Status = Not transient OR patients with <7 hemodialysis treatments in the facility during the month. c. Sessions Per Week = >4. d. Patients without a completed CMS Medical Evidence Form (Form CMS-2728) in the reporting month. e. Kidney transplant recipients with a functioning graft. 3. Identify the "Month 1 Numerator Data Elements." For all patients remaining in the denominator after Step 2, collect each of the following data elements for each dialysis session (including supplemental sessions) delivered during the Month 1 calculation period: a. Pre-Dialysis Weight for Session b. Post-Dialysis Weight for Session	2. Total these numbers for an observed number of BSIs 3. Obtain the predicted number of BSIs in the same strata by multiplying the observed patient-months by the corresponding BSI rates in specific strata from a standard population 4. Sum the number of predicted BSIs from all strata in the annual period 5. Divide the total number of observed BSI events (#2 above) by the predicted number of BSIs (#4 above) 6. Result = SIR	

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	1460: Bloodstream Infection in Hemodialysis Outpatients	2978: Hemodialysis Vascular Access: Long-term Catheter Rate
	c. Session Date d. Time Delivered Per Session, in Minutes e. Sessions Per Week 4. Build the "Month 1 Numerator Population." For each patient, for all dialysis sessions included in the final Month 1 Numerator Data Set: a. Calculate the UFR (in ml/kg/hour) for each dialysis session (including supplemental sessions): Session X UFR = ([{Session X Pre-Dialysis Weight in kg – Session X Post-Dialysis Weight in kg} x 1000 ml/kg] ÷ Session X Post-Dialysis Weight in kg) ÷ (Session X Delivered Treatment Time in minutes) x 60 minutes/hour b. Calculate each patient's average UFR for all dialysis sessions (including supplemental sessions) during the calculation period: Average UFR = (UFR1 + UFR2 + …. + UFRX) ÷ X Treatments c. Calculate each patient's average treatment time over all dialysis sessions (including supplemental sessions) during the calculation period: Average Treatment Time (in minutes) = (Time1 + Time 2 + … + TimeX) ÷ X Treatments d. For each facility, include in the numerator all patients with:		

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	1460: Bloodstream Infection in Hemodialysis Outpatients	2978: Hemodialysis Vascular Access: Long-term Catheter Rate
	i. an average UFR during the calculation period (4.b. value) >= 13 ml/kg/hour; AND ii. an average treatment time during the calculation period (4.c. value) <240 minutes. 5. Calculate the facility's Month 1 performance score: Month 1 Performance Score = Month 1 Numerator Population ÷ Month 1 Denominator Population 6. Repeat Steps 1 through 5 for each of the remaining 11 months of the reporting year. 7. Calculate the facility's annual performance score: Facility's Average Annual Performance Score = (Facility's Month 1 Score + Month 2 Score +….. + Month 12 Score) ÷ 12 Data are collected and scores for each facility are calculated on a monthly basis; scores are then averaged over the 12-month reporting period to obtain the facility's annual score. Scores are calculated using the following algorithm: 1. Build the "Month 1 Raw Denominator Population." For the Month 1 calculation period,* identify all patients in the facility during the reporting month whose: a. Primary Type Treatment/Modality = Hemodialysis		

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	1460: Bloodstream Infection in Hemodialysis Outpatients	2978: Hemodialysis Vascular Access: Long-term Catheter Rate
	b. Primary/Current Dialysis Setting = In-center c. Date of Birth = >18 years prior to treatment date * The calculation period is defined as the same week that the monthly Kt/V is drawn. If more than one Kt/V is drawn in a given month, the last draw for the month will be used to define the data collection period (i.e., these data elements will be collected during the week that the final Kt/V value of the month is drawn). 2. Remove patients with exclusions to define the "Month 1 Final Denominator Population." For all patients meeting all of the Step 1 requirements, identify all patients meeting any of the following exclusion criteria and remove from the denominator population: a. Date Patient Started Chronic Dialysis at Current Facility = >30 days prior to treatment date. b. Transient Status = Not transient OR patients with <7 hemodialysis treatments in the facility during the month. c. Sessions Per Week = >4. d. Patients without a completed CMS Medical Evidence Form (Form CMS-2728) in the reporting month. e. Kidney transplant recipients with a functioning graft. 3. Identify the "Month 1 Numerator Data Elements."		

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	1460: Bloodstream Infection in Hemodialysis Outpatients	2978: Hemodialysis Vascular Access: Long-term Catheter Rate
	For all patients remaining in the denominator after Step 2, collect each of the following data elements for each dialysis session (including supplemental sessions) delivered during the Month 1 calculation period: a. Pre-Dialysis Weight for Session b. Post-Dialysis Weight for Session c. Session Date d. Time Delivered Per Session, in Minutes e. Sessions Per Week 4. Build the "Month 1 Numerator Population." For each patient, for all dialysis sessions included in the final Month 1 Numerator Data Set: a. Calculate the UFR (in ml/kg/hour) for each dialysis session (including supplemental sessions): Session X UFR = ([{Session X Pre-Dialysis Weight in kg – Session X Post-Dialysis Weight in kg} x 1000 ml/kg] ÷ Session X Post-Dialysis Weight in kg) ÷ (Session X Delivered Treatment Time in minutes) x 60 minutes/hour b. Calculate each patient's average UFR for all dialysis sessions (including supplemental sessions) during the calculation period: Average UFR = (UFR1 + UFR2 + …. + UFRX) ÷ X Treatments c. Calculate each patient's average treatment time over all dialysis sessions		

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	1460: Bloodstream Infection in Hemodialysis Outpatients	2978: Hemodialysis Vascular Access: Long-term Catheter Rate
	(including supplemental sessions) during the calculation period: Average Treatment Time (in minutes) = (Time1 + Time 2 + … + TimeX) ÷ X Treatments d. For each facility, include in the numerator all patients with: i. an average UFR during the calculation period (4.b. value) >= 13 ml/kg/hour; AND ii. an average treatment time during the calculation period (4.c. value) <240 minutes. 5. Calculate the facility's Month 1 performance score: Month 1 Performance Score = Month 1 Numerator Population ÷ Month 1 Denominator Population 6. Repeat Steps 1 through 5 for each of the remaining 11 months of the reporting year. 7. Calculate the facility's annual performance score: Facility's Average Annual Performance Score = (Facility's Month 1 Score + Month 2 Score +….. + Month 12 Score) ÷ 12		
Submission items	5.1 Identified measures: 0258 : Consumer Assessment of Healthcare Providers and Systems (CAHPS) In-Center Hemodialysis Survey (ICH CAHPS) 0249 : Delivered Dose of Hemodialysis Above Minimum	5.1 Identified measures: 5a.1 Are specs completely harmonized? 5a.2 If not completely harmonized, identify difference, rationale, impact:	5.1 Identified measures: 2594 : Optimal End Stage Renal Disease (ESRD) Starts 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: Measure 2594 is not a dialysis facility

Measures	2701: Avoidance of Utilization of High Ultrafiltration Rate (>=13 ml/kg/hour)	1460: Bloodstream Infection in Hemodialysis Outpatients	2978: Hemodialysis Vascular Access: Long-term Catheter Rate
	0256 : Minimizing Use of Catheters as Chronic Dialysis Access 0257 : Maximizing Placement of Arterial Venous Fistula (AVF) 1460 : Bloodstream Infection in Hemodialysis Outpatients 2977 : Hemodialysis Vascular Access: Standardized Fistula Rate 2978 : Hemodialysis Vascular Access: Long-term Catheter Rate 5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: Not applicable; specifications of this and other NQF-endorsed facility-level performance measures applicable to adult in-center ESRD hemodialysis patients are harmonized to extent possible. 5b.1 If competing, why superior or rationale for additive value: Not applicable; no competing NQF-endorsed measures.	5b.1 If competing, why superior or rationale for additive value:	level measure. The setting focus addresses a different provider type which falls outside the purview of measures evaluating dialysis facility performance on fistula use. This suggests a fundamental difference in the measure target populations, setting and intent that cannot be harmonized. Additionally, the measure is limited to incident patients, while the LTC measure includes both incident and prevalent patients as the measured population. 5b.1 If competing, why superior or rationale for additive value: There are no competing measures.

Appendix F: Pre-Evaluation Comments

Comments received as of January 15, 2021.

Topic	Commenter	Comment
3567: Hemodialysis Vascular Access: Practitioner Level Long-term Catheter Rate	Submitted by Kidney Care Partners	NQF 3567: Hemodialysis Vascular Access—Practitioner-Level Long-Term Catheter Rate (CMS) KCP believes vascular access may be the most important performance metric for patients making decisions about dialysis facilities and has consistently supported the facility-level Long-Term Catheter Rate (LTCR) measure, NQF 2978. Nevertheless, in reviewing the clinician-level LTCR measure we have identified a number of issues that warrant consideration and offer the following substantive and technical comments: · Meaningful Differences in Performance. An essential component of NQF's evaluation of validity is a demonstration of meaningful differences in performance, allowing end-users of public reporting or value-based purchasing programs to make informed decisions about the quality of care delivered by various providers. For the practitioner-level LTCR measure, CMS testing data indicate that approximately 90% of all clinicians and clinician groups perform "as expected." We disagree with CMS's conclusion that these data demonstrate the measure identifies practical differences in performance. A performance measure in which 90% of all measured entities are reported as performing "as expected" provides little meaningful, actionable information to patients, and we do not find the above statistics sufficiently compelling to support the measure's intended use in public reporting. · Permanent Access Maturation. KCP believes catheter reduction is paramount, but we again note arteriovenous fistulas frequently require two to three months to reach maturity. We thus believe an exclusion for patients on ESRD treatment <90 days as of the first day of the reporting month would strengthen the measure considerably. This revision would minimize the risk of penalizing providers for physiological circumstances beyond their control and would also align NQF 3567 with the numerous CMS NQF-endorsed facility-level measures containing this exclusion.

Topic	Commenter	Comment
		· Patients on Transplant Waitlists. Given the burden associated with arteriovenous fistula placement on both patients and health resources, nephrologists may determine short-term vascular access options may be more appropriate for new dialysis patients already on the transplant waitlist whose waiting time is expected to be brief, such as with a living related donor transplant. Here again, an exclusion for patients on ESRD treatment <90 days as of the first day of the reporting month would largely effectively address this issue. · Patients with Exhausted Vascular Access Options. CMS notes in its measure submission materials that a Vascular Access TEP it convened in 2015 had favored a measure exclusion for patients who have exhausted their anatomic vascular access options, verified by documentation of a second opinion from a qualified vascular access surgeon, but was unable to reach consensus on how best to incorporate it. While operationalizing this exclusion may indeed prove challenging, we agree with the TEP that the continued pursuit of permanent access in patients for whom this is no longer a viable option is a considerable risk in its absence. We urge the developer to revisit the TEP's recommendation to assess for a reliable, valid means of capturing of this important clinical data point. An alternative approach would be to establish an "expected percentage" or threshold to allow for a certain anticipated number of patients with truly exhausted access. · Profile Inter-Unit Reliability (PIUR). KCP has consistently opposed CMS's use of the PIUR for accountability metrics intended to distinguish performance between providers. CMS and UM-KECC crafted this novel metric of reliability to "assess more directly the value of performance measures in identifying facilities with extreme outcomes."[1] Per CMS: "The PIUR indicates the presence of outliers or heavier tails among the providers, which is not captured in the IUR itself. . . . [When] there are outlier providers, even measures with a low IUR can have a relatively high PIUR and can be very useful for identifying extreme providers." KCP strongly concurs, however, with NQF's Scientific Methods Panel (SMP) conclusion that the PIUR is not an appropriate reliability metric for measures in any

Topic	Commenter	Comment
		accountability program intended to distinguish performance between providers falling in the middle of the curve, along a continuum. The ability to reliably distinguish outliers is inconsistent with the purpose of such programs, and the SMP concluded the IUR is and remains the appropriate reliability statistic for this purpose. While in this instance the measure's IURs are acceptable, KCP on principle reiterates its general opposition to use of the PIUR to demonstrate reliability in accountability metrics used in programs intended to distinguish performance along a curve. · Attribution Rules Clarification. In the measure specifications CMS defines "long-term catheter use" as occurring under the care of the same practitioner or group practice for at least three consecutive months as of the last hemodialysis session of the reporting month. Measure submission materials further clarify that "counting" for the measure restarts if a patient transfers to a different practitioner/group, but this detail is not included in the formal measure specifications. KCP suggests the developer add an exclusion or revise the denominator to explicitly clarify this point. · Small Numbers Exclusion, Typographical Error. We note CMS indicates in the measure submission materials that when used for public reporting, measure calculation "will be restricted to facilities with at least 11 patients in the reporting month to ensure patients cannot be identified due to small cell size." As language elsewhere in the materials indicate the restriction applies to practitioners or practitioner groups, as is consistent with the focus of the measure, we believe the reference to facilities was a typographical error and request confirmation and correction from the developer. [1] Kalbfleisch JD, He K, Xia L, Li Y. Does the inter-unit reliability (IUR) measure reliability? Health Services and Outcomes Research Methodology. 2018;18(3):215-225. Doi: 10.1007/s10742-018-0185-4.
2701: Avoidance of Utilization of High Ultrafiltration Rate (>13 ml/kg/hour) (KCQA)	Submitted by Kidney Care Partners	KCP believes fluid management is a critical area to address through performance measurement and supports continued endorsement of this measure.

Topic	Commenter	Comment
General	Submitted by Kidney Care Partners	Kidney Care Partners (KCP) appreciates the opportunity to submit early (pre-Standing Committee meeting) comments on the measures under consideration for endorsement in the National Quality Forum's Renal Project Fall 2020 Cycle. KCP is a coalition of members of the kidney care community that includes the full spectrum of stakeholders related to dialysis care—patient advocates, healthcare professionals, dialysis providers, researchers, and manufacturers and suppliers—organized to advance policies that improve the quality of care for individuals with both chronic kidney disease and end stage renal disease. We commend NQF for undertaking this important work and offer comment on both measures under review.

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