Quality ID #482: Hemodialysis Vascular Access: Practitioner Level Long-term Catheter Rate – National Quality Strategy Domain: Effective Clinical Care – Meaningful Measure Area: Management of Chronic Conditions

2022 COLLECTION TYPE:
MIPS CLINICAL QUALITY MEASURES (CQMS)

MEASURE TYPE:
Intermediate outcome – High Priority

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

INSTRUCTIONS:
This measure is to be submitted a minimum of once per month for patients who used a catheter for three patient months or longer for vascular access as defined in CROWNWeb. This measure may be submitted by Merit-based Incentive Payment System (MIPS) eligible clinicians who perform the quality actions described in the measure based on the services provided and the measure-specific denominator coding.

Measure Submission Type:
Measure data may be submitted by individual MIPS eligible clinicians, groups, or third party intermediaries. The listed denominator criteria are used to identify the intended patient population. The numerator options included in this specification are used to submit the quality actions as allowed by the measure. The quality data codes listed do not need to be submitted by MIPS eligible clinicians, groups, or third party intermediaries that utilize this modality for submissions; however, these codes may be submitted for those third party intermediaries that utilize Medicare Part B claims data. For more information regarding Application Programming Interface (API), please refer to the Quality Payment Program (QPP) website.

DENOMINATOR:
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.

> ***DENOMINATOR NOTE:*** *Only clinicians who have been caring for adult hemodialysis patients for three months or longer should report this measure. Eligible patient months are attributed to one or more clinicians of a specialty that is eligible for MIPS. Only clinicians of a specialty that is eligible for MIPS or clinician groups where the triggering clinician is of a specialty that is eligible for MIPS are attributed episodes. This measure does not exclude patients who have exhausted their vascular access options. Patients with a catheter are defined in CROWNWeb with "Access Type IDs" (16,18,19,20,21,"·") *.*
>
> **Definition**:
> **Patient-months** -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.
>
> **Denominator Criteria (Eligible Cases):**
> All patients aged ≥18 years as of the first day of the reporting month
> **AND**

* 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.

With maintenance hemodialysis (in-center and home HD) for the complete reporting month (G0049):
AND NOT
DENOMINATOR EXCLUSIONS:
Patients with a catheter that have limited life expectancy (G0050):

- Patients under hospice care in the current reporting month **(G0051)**
- Patients with metastic cancer in the past 12 months
    - **Codes to identify metastic cancer**: C77.0, C77.1, C77.2, C77.4, C77.5, C77.8, C78.00, C78.01, C78.02, C78.1, C78.2, C78.30, C78.39, C78.4, C78.5, C78.6, C78.7, C78.80, C78.89, C79.00, C79.01, C79.02, C79.10, C79.11, C79.19, C79.31, C79.32, C79.40, C79.49, C79.51, C79.52, C79.60, C79.61, C79.62, C79.70, C79.71, C79.72, C79.89, C79.9, C7B.00, C7B.01, C7B.02, C7B.03, C7B.04, C7B.09, C7B.1, C7B.8, C80.0, C91.00, C91.01, C91.02, C92.00, C92.01, C92.02, C92.40, C92.41, C92.42, C92.50, C92.51, C92.52, C92.60, C92.61, C92.62, C92.A0, C92.A1, C92.A2, C93.00, C93.01, C93.02, C94.00, C94.01, C94.02, C95.00, C95.01, C95.02
- Patients with end stage liver disease in the past 12 months
    - **Codes to identify end stage liver disease**: I85.00, I85.01, I85.10, I85.11, K70.41, K71.11, K72.01, K72.10, K72.11, K72.90, K72.91, K74.02, K76.6, K76.7, K76.81
- Patients with coma or anoxic brain injury in the past 12 months
    - **Codes to identify coma or anoxic brain injury**: E03.5, G93.1, G93.5, G93.6, R40.20, R40.2110, R40.2111, R40.2112, R40.2113, R40.2114, R40.2120, R40.2121, R40.2122, R40.2123, R40.2124, R40.2210, R40.2211, R40.2212, R40.2213, R40.2214, R40.2220, R40.2221, R40.2222, R40.2223, R40.2224, R40.2310, R40.2311, R40.2312, R40.2313, R40.2314, R40.2320, R40.2321, R40.2322, R40.2323, R40.2324, R40.2340, R40.2341, R40.2342, R40.2343, R40.2344, R40.3, S06.1X0A, S06.1X1A, S06.1X2A, S06.1X3A, S06.1X4A, S06.1X5A, S06.1X6A, S06.1X7A, S06.1X8A, S06.1X9A

OR
Patients on Peritoneal Dialysis for any portion of the reporting month (G0052)
OR
Patient-months where there are more than one Medicare capitated payment (MCP) provider listed for the month (G1025)

NUMERATOR:
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 Instructions:
INVERSE MEASURE - A lower calculated performance rate for this measure indicates better clinical care or control. The "Performance Not Met" numerator option for this measure is the representation of the better clinical quality or control. Submitting that numerator option will produce a performance rate that trends closer to 0%, as quality increases. For inverse measures, a rate of 100% means all of the denominator eligible patients did not receive the appropriate care or were not in proper control.

NUMERATOR NOTE**:** *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. CROWNWeb is the data source for establishing the numerator. CROWNWeb access types recorded period is from 10/1/2021 to 12/31/2022.*

† 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.

Numerator Options:

Performance Met: The number of adult patient-months in the denominator who were on maintenance hemodialysis using a catheter continuously for three months or longer under the care of the same practitioner or group partner as of the last hemodialysis session of the reporting month **(G1026)**

OR

Performance Not Met: The number of adult patient-months in the denominator who were on maintenance hemodialysis under the care of the same practitioner or group partner as of the last hemodialysis session of the reporting month using a catheter continuously for less than three months **(G1027)**

RATIONALE:

Several observational studies have demonstrated an association between type of vascular access used for hemodialysis and patient mortality[1-4]. Long term catheter use is associated with the highest mortality risk while arteriovenous fistula use has the lowest mortality risk. Arteriovenous grafts (AVG) have been found to have a risk of death that is higher than AVF but lower than catheters.

The measure focus is the process of assessing long term catheter use at chronic dialysis facilities.

This process leads to improvement in mortality as follows: Measure long term catheter rate → Assess value → Identify patients who do not have an AV Fistula or AV graft → Evaluation for an AV fistula or graft by a qualified dialysis vascular access provider → Increase Fistula/Graft Rate → Lower catheter rate → Lower patient mortality.

1. Kasza, J., Wolfe, R., McDonald, S., Marshall, M. R., & Polkinghorne, K. R. (2016). Dialysis modality, vascular access and mortality in end-stage kidney disease: A bi-national registry-based cohort study. Nephrology, 21(10), 878-886. https://doi.org/10.1111/nep.12688
2. Malas MB, Canner JK, Hicks CW, et al. Trends in incident hemodialysis access and mortality. JAMA Surgery. 2015;150(5):441-448.
3. Park HS, Kim WJ, Kim YK, et al. Comparison of outcomes with arteriovenous fistula and arteriovenous graft for vascular access in hemodialysis: a prospective cohort study. Am J Neph. 2016;43(2):120-128.
4. Rosenberry PM, Niederhaus SV, Schweitzer EJ, Leeser DB. Decreasing dialysis catheter rates by creating a multidisciplinary dialysis access program. J Vasc Access. 2018 Nov;19(6):569-572. doi: 10.1177/1129729818762977. Epub 2018 Mar 26.

CLINICAL RECOMMENDATION STATEMENTS:

When this measure was originally developed and specified, the evidence to support the measure was based largely on the National Kidney Foundation (NKF) KDOQI Clinical Practice Guideline for Vascular Access published in 2006. The NKF recently made substantial revisions to these guidelines that were released on 3/12/20. Please see:

Lok CE, Huber TS, Lee T, et al; KDOQI Vascular Access Guideline Work Group. KDOQI clinical practice guideline for vascular access: 2019 update. Am J Kidney Dis. 2020;75(4)(suppl 2):S1-S164. https://www.ajkd.org/article/S0272-6386(19)31137-0/fulltext.

The revised guidelines emphasize a patient-focused approach that recommends the development of an End Stage Kidney Disease (ESKD) Life-Plan, and urges providers to not only consider the current vascular access, but subsequent access needs as well in the context of a comprehensive evaluation of the patient's lifetime with ESKD.

In general, the evidence for the above guidelines has been rated as either low or moderate, with many of the guidelines relying on expert opinion. The evidence review team focused on 16 studies and noted that bloodstream infections were significantly lower among patients who started HD with an AV fistula or AV graft versus a catheter. While three studies from 2015-2016 consistently demonstrated lower mortality with AV fistula or an AV graft compared to a catheter, the studies were considered to be of low quality with moderate risk of bias. Thus, the workgroup refrained from recommending AV fistula on the basis of lower mortality compared to catheter use, instead relying on the evidence indicating lower blood stream infections.

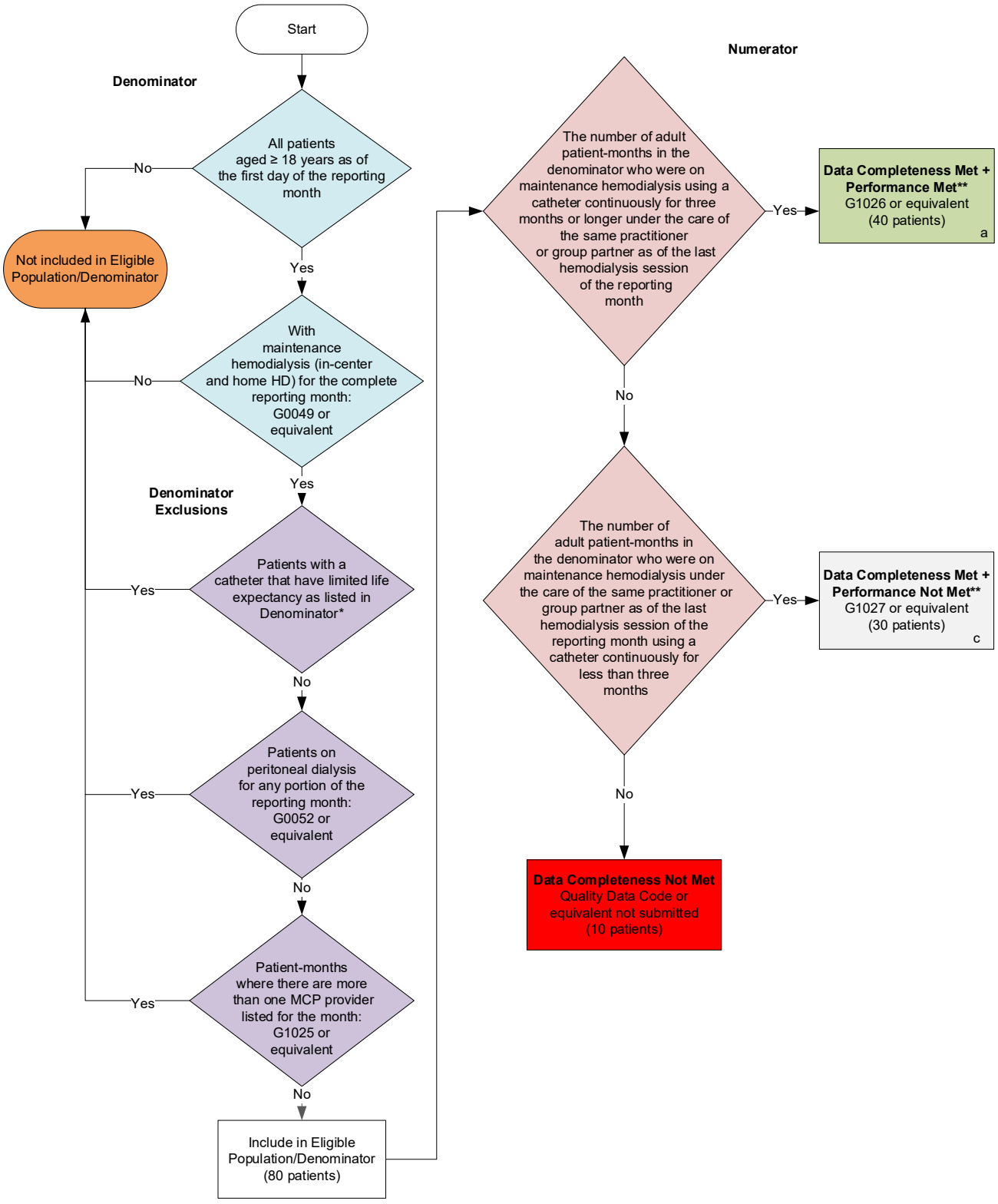
The new guidelines point out the potential for bias in prior studies comparing vascular access types, vascular access complications, and patient outcomes. Specifically, the workgroup notes that the differences in AV fistula and AV graft patency are uncertain, and that AV fistula complication rates in the literature may not be generalizable to all AV fistula.

Of the studies that the evidence review team for the guidelines considered when evaluating outcomes such as patient survival and access patency, only five were from 2015 or later. These are all observational studies, although some are from national registries such as USRDS or ANZDATA that accurately represent the population considered for the measure. These studies are consistent with prior work that indicates that AV fistula are associated with better patient survival when compared with dialysis catheters[1-2, 4-5], and that this is true even in older patients[5]. However, AV fistula are more likely to require additional surgeries to achieve a functional access[1] when compared to AV grafts. This is offset by AV grafts requiring more procedures to maintain patency during the first year after creation[3].

1. Woo K, Goldman DP, Romley JA. Early Failure of Dialysis Access among the Elderly in the Era of Fistula First. Clin J Am Soc Nephrol. 2015;10(10):1791–1798. doi:10.2215/CJN.09040914
2. Kasza, J., Wolfe, R., McDonald, S., Marshall, M. R., & Polkinghorne, K. R. (2016). Dialysis modality, vascular access and mortality in end-stage kidney disease: A bi-national registry-based cohort study. Nephrology, 21(10), 878-886. https://doi.org/10.1111/nep.12688
3. Leake AE, Yuo TH, Wu T, et al. Arteriovenous grafts are associated with earlier catheter removal and fewer catheter days in the United States Renal Data System population. J Vasc Surg. 2015;62(1):123-127.
4. Malas MB, Canner JK, Hicks CW, et al. Trends in incident hemodialysis access and mortality. JAMA Surgery. 2015;150(5):441-448.
5. Park HS, Kim WJ, Kim YK, et al. Comparison of outcomes with arteriovenous fistula and arteriovenous graft for vascular access in hemodialysis: a prospective cohort study. Am J Neph. 2016;43(2):120-128.

2022 Clinical Quality Measure Flow for Quality ID #482: Hemodialysis Vascular Access: Practitioner Level Long-term Catheter Rate

Disclaimer: *Refer to the measure specification for specific coding and instructions to submit this measure.*



SAMPLE CALCULATIONS

Data Completeness=
Performance Met (a=40 patients) + Performance Not Met (c=30 patients) = 70 patients = **87.50%**
Eligible Population / Denominator (d=80 patients) = 80 patients

Performance Rate=**
Performance Met (a=40 patients) = 40 patients = **57.14%**
Data Completeness Numerator (70 patients) = 70 patients

*See the posted measure specification for specific coding and instructions to submit this measure.
**A lower calculated performance rate for this measure indicates better clinical control and care.
NOTE: Submission Frequency: Patient-Periodic

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2022 Clinical Quality Measure Flow Narrative for Quality ID #482: Hemodialysis Vascular Access: Practitioner Level Long-term Catheter Rate

***Disclaimer**: Refer to the measure specification for specific coding and instructions to submit this measure.*

1. Start with Denominator

2. Check *All patients aged greater than or equal to 18 years as of the first day of the reporting month:*

    a. If *All patients aged greater than or equal to 18 years as of the first day of the reporting month* equals No, do not include in *Eligible Population/Denominator*. Stop processing.

    b. If *All patients aged greater than or equal to 18 years as of the first day of the reporting month* equals Yes, proceed to *With maintenance hemoialysis (in-center and home HD) for the complete reporting month.*

3. Check *With maintenance hemodialysis (in-center and home HD) for the complete reporting month*:

    a. If *With maintenance hemodialysis (in-center and home HD) for the complete reporting month* equals No, do not include in *Eligible Population/Denominator*. Stop processing.

    b. If *With maintenance hemodialysis (in-center and home HD) for the complete reporting month* equals Yes, proceed to *Patients with a catheter that have limited life expectancy*.

4. Check *Patients with a catheter that have limited life expectancy:*

    a. If *Patients with a catheter that have limited life expectancy* equals Yes*,* do not include *in Eligible Population/Denominator.* Stop processing.

    b. If *Patients with a catheter that have limited life expectancy* equals No*,* proceed to *Patients on peritoneal dialysis for any portion of the reporting month.*

5. *Check Patients on peritoneal dialysis for any portion of the reporting month:*

    a. If *Patients on peritoneal dialysis for any portion of the reporting month* equals Yes*,* do not include in *Eligible Population/Denominator*. Stop processing.

    b. If *Patients on peritoneal dialysis for any portion of the reporting month equals* No, proceed to *Patient-months where there are more than one MCP patient provider listed for the month.*

6. *Check Patient-months where there are more than one MCP patient provider listed for the month:*

    a. If *Patient-months where there are more than one MCP patient provider listed for the month* equals Yes, do not include in *Eligible Population/Denominator*. Stop processing.

    b. If *Patient-months where there are more than one MCP patient provider listed for the month* equals No, include in Eligible Population/Denominator.

7. *Denominator Population:*

    a. Denominator Population is all Eligible Patients in the Denominator. Denominator is represented as Denominator in the Sample Calculation listed at the end of this document. Letter d equals 80 patients in the Sample Calculation.

8. *Start Numerator*

9. Check *The number of adult patient-months in the denominator who were on maintenance hemodialysis using a catheter continuously for three months or longer under the care of the same practitioner or group partner as of the last hemodialysis session of the reporting month.*

    a. If *The number of adult patient-months in the denominator who were on maintenance hemodialysis using a catheter continuously for three months or longer under the care of the same practitioner or group partner as of the last hemodialysis session of the reporting month* equals Yes, include in *Data Completeness Met and Performance Met***.*

        i. *Data Completeness Met and Performance Met*** letter is represented in the Data Completeness and Performance Rate in the Sample Calculation listed at the end of this document. Letter a equals 40 patients in the Sample Calculation.

    b. If *The number of adult patient-months in the denominator who were on maintenance hemodialysis using a catheter continuously for three months or longer under the care of the same practitioner or group partner as of the last hemodialysis session of the reporting month* equals No, proceed to *The number of adult patient-months in the denominator who were on maintenance hemodialysis under the care of the same practitioner or group partner as of the last hemodialysis session of the reporting month using a catheter continuously for less than three months.*

10. Check *The number of adult patient-months in the denominator who were on maintenance hemodialysis under the care of the same practitioner or group partner as of the last hemodialysis session of the reporting month using a catheter continuously for less than three months.*

    a. If *The number of adult patient-months in the denominator who were on maintenance hemodialysis under the care of the same practitioner or group partner as of the last hemodialysis session of the reporting month using a catheter continuously for less than three months* equals Yes, *include in Data Completeness Met and Performance Not Met***.*

        i. *Data Completeness Met and Performance Not Met*** letter is represented in the Data Completeness in the Sample Calculation listed at the end of this document. Letter c equals 30 patients in the Sample Calculation.

    b. If *The number of adult patient-months in the denominator who were on maintenance hemodialysis under the care of the same practitioner or group partner as of the last hemodialysis session of the reporting month using a catheter continuously for less than three months* equals No, check *Data Completeness Not Met*

11. *Check Data Completeness Not Met:*

    a. If *Data Completeness Not Met,* the Quality Data Code or equivalent was not submitted. 10 patients have been subtracted from the Data Completeness Numerator in the Sample Calculation.

Sample Calculations

Data Completeness equals Performance Met (a equals 40 patients) plus Performance Not Met (c equals 30 patients) divided by Eligible Population / Denominator (d equals 80 patients). All equals 70 patients divided by 80 patients. All equals 87.5 percent.

Performance Rate** equals Performance Met (a equals 40 patients) divided by Data Completeness Numerator (70 patients). All equals 40 patients divided by 70 patients. All equals 57.14 percent.

*See the posted measure specification for specific coding and instructions to submit this measure.

**A lower calculated performance rate for this measure indicates better clinical control and care

NOTE: Submission Frequency: Patient-Periodic

The measure diagrams were developed by CMS as a supplemental resource to be used in conjunction with the measure specifications. They should not be used alone or as a substitution for the measure specification.