

Specifications

Descriptive Information

De.1. Measure Type (*Patient-reported outcomes include HRQoL/functional status, symptom/burden, experience with care, health-related behavior.*)*

Outcome

De.2. Measure Title - Measure titles should be concise yet convey who and what is being measured (see [What Good Looks Like](#))*

Standardized Emergency Department Encounter Ratio (SEDR) for Dialysis Facilities

De.3. Brief description of measure (*including type of score, measure focus, target population, timeframe, e.g., Percentage of adult patients aged 18-75 years receiving one or more HbA1c tests per year*)

The Standardized Emergency Department Encounter Ratio is defined to be the ratio of the number of emergency department (ED) encounters that occur for adult dialysis patients treated at a particular facility to the number of encounters that would be expected given the characteristics of the dialysis facility's patients and the national norm for dialysis facilities. Note that in this document an "emergency department encounter" always refers to an outpatient encounter that does not end in a hospital admission. This measure is calculated as a ratio but can also be expressed as a rate.

De.4. IF PAIRED/GROUPED, what is the reason this measure must be reported with other measures to appropriately interpret results?

The Standardized Emergency Department Encounter Ratio (SEDR) should be considered in conjunction with the Standardized Ratio of Emergency Department Encounters Occurring Within 30 Days of Hospital Discharge (ED30) for Dialysis Facilities. These measures present two different aspects of dialysis facilities' emergency department use that assesses complementary elements of care. The SEDR describes emergency department encounter rates with reference to the totality of patients being served by a given facility. The ED30 measure on the other hand estimates the number of index discharges expected to be followed by an emergency department encounter within 4-30 days after the discharge given the observed number of hospital discharges for dialysis patients at the facility. A low SEDR, corresponding to low overall emergency department encounter rates, indicates that the facility has processes in place to avoid the need for unscheduled acute care. A low ED30 indicates that a facility is successful in managing the transition of care that occurs after a hospital discharge. This is analogous to how the NQF endorsed Standardized Hospitalization Ratio (#1463) and Standardized Readmission Ratio (#2496) might also be used together to evaluate facility processes of care.

Measure Specifications

S.1. Measure-specific Web Page (*Provide a URL link to a web page specific for this measure that contains current detailed specifications including code lists, risk model details, and supplemental materials. Do not enter a URL linking to a home page or to general information.*)

N/A

S.2a. If this is an eMeasure, HQMF specifications must be attached. Attach the zipped output from the eMeasure authoring tool (MAT) - if the MAT was not used, contact staff. (Use the specification fields in this online form for the plain-language description of the specifications)

☐ This is an eMeasure

☒ This is not an eMeasure

S.2b. Data Dictionary, Code Table, or Value Sets (*and risk model codes and coefficients when applicable*) must be attached. (*Excel or csv file in the suggested format preferred - if not, contact staff. Provide descriptors for any codes. Use one file with multiple worksheets as needed.*)

☒ Available in attached Excel or csv file

☐ No data dictionary/code table – all information provided in the submission form

S.3.1. For maintenance of endorsement: Are there changes to the specifications since the last updates/submission. If yes, update the specifications for S1-2 and S4-22 and explain reasons for the changes in S3.2.

☐ Yes

☐ No

S.3.2. For maintenance of endorsement, please briefly describe any important changes to the measure specifications since last measure update and explain the reasons.

N/A

S.4. Numerator Statement (*Brief, narrative description of the measure focus or what is being measured about the target population, i.e., cases from the target population with the target process, condition, event, or outcome*). **DO NOT** include the rationale for the measure.

IF an OUTCOME MEASURE, state the outcome being measured. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).

The observed number of outpatient Emergency Department encounters during the reporting period among eligible patients at a facility.

S.5. Numerator Details *(All information required to identify and calculate the cases from the target population with the target process, condition, event, or outcome such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b)*

IF an OUTCOME MEASURE, describe how the observed outcome is identified/counted. Calculation of the risk- adjusted outcome should be described in the calculation algorithm (S.14).

Emergency Department Encounters

Emergency department (ED) encounters are identified from Medicare outpatient claims using revenue center codes that indicate an ED visit (0450, 0451, 0452, 0453, 0454, 0455, 0456, 0457, 0458, 0459, 0981). Note that this means that we include both outpatient ED visits and those that result in an observation stay, but not those that result in a hospital admission. Outpatient ED claims that have overlapping or consecutive dates of service are combined and considered as a single ED encounter. To further ensure that these outpatient ED encounters are distinct from those associated with hospitalizations, we exclude ED encounters where there is an inpatient claim for the patient that has dates of service including any of the same time period covered by the ED encounter.

The total number of emergency department encounters includes multiple encounters (i.e., second, third, etc.) for the same patient during the reporting period.

See denominator details for additional criteria for a patient to be assigned to a particular facility and criteria for identifying emergency department encounters.

The time period for the measure calculation is one calendar year.

S.6. Denominator Statement *(Brief, narrative description of the target population being measured)*

IF an OUTCOME MEASURE, state the target population for the outcome. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).

The expected number of Emergency Department encounters among eligible patients at the facility during the reporting period adjusted for the characteristics of the patients at the facility.

S.7. Denominator Details *(All information required to identify and calculate the target population/denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b)*

IF an OUTCOME MEASURE, describe how the target population is identified. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).

General Inclusion Criteria for Dialysis Patients

An eligible patient is defined as an adult (aged 18 or more) Medicare dialysis patient with at least 90 days of ESRD treatment. Because we only include a patient's follow-up in the tabulations for this measure after that patient has received chronic renal replacement therapy for at least 90 days, emergency department encounters during the first 90 days of ESRD are not counted.

We assign patients to a particular facility only after they have been on chronic dialysis there for the past 60 days. This 60 day period is used both for patients who started ESRD for the first time and for those who returned to dialysis after a transplant. Emergency Department encounters during the first 60 days of dialysis at a facility do not affect the facility's Standardized Emergency Department Encounter Ratio.

We require that patients reach a certain level of Medicare dialysis bills to be included in the emergency department encounter ratio. Specifically, months within a given dialysis patient-period are used for the Standardized Emergency Department Encounter Ratio calculation when they meet the criterion of being *within two months after a month with either: (a) \$900+ of Medicare dialysis claims OR (b) at least one Medicare inpatient claim*. The intention of this criterion is to assure completeness of information on emergency department encounters for all patients included in the analysis.

Identifying Facility Treatment Histories for Each Patient

For each patient, we identify the dialysis provider at each point in time. Starting with day 91 after onset of ESRD, we attribute patients to facilities according to the following rules. A patient is attributed to a facility once the patient has been treated there for the past 60 days. When a patient transfers from one facility to another, the patient continues to be attributed to the original facility for 60 days and then is attributed to the destination facility. In particular, a patient is attributed to his or her current facility on day 91 of ESRD if that facility had treated him or her for the past 60 days. If on day 91, the facility had not treated a patient for the past 60 days, we wait until the patient reaches day 60 of continuous treatment at that facility before attributing the patient to that facility. When a patient is not treated in a single facility for a span of 60 days (for instance, if there were two switches within 60 days of each other), we do not attribute that patient to any facility. Patients who withdrew from dialysis or recovered renal function remain assigned to their treatment facility for 60 days after withdrawal or recovery.

If a period of one year passes with neither Medicare dialysis claims nor CROWNWeb information to indicate that a patient was receiving dialysis treatment, we consider the patient lost to follow-up and do not include that patient in the analysis. If dialysis claims or other evidence of dialysis reappears, the patient is entered into analysis after 60 days of continuous therapy at a single facility.

Days at Risk for Medicare Dialysis Patients

After patient treatment histories are defined as described above, periods of follow-up in time since ESRD onset are created for each patient. In order to adjust for duration of ESRD appropriately, we define 6 time intervals with cut points at 6 months, 1 year, 2 years, 3 years and 5 years. A new time period begins each time the patient is determined to be at a different facility, or at the start of each calendar year or when crossing any of the above cut points.

The number of days at risk in each of the six time intervals listed above is used to calculate the expected number of emergency department encounters for the patient during that period. The Standardized Emergency Department Encounter Ratio for a facility is the ratio of the total number of observed emergency department encounters to the total number of expected emergency department encounters during all time periods at the facility. Based on a risk adjustment model for the overall national emergency department encounter rate, we compute the expected number of emergency department encounters that would occur for each month that each patient is attributed to a given facility. The sum of all such expectations for patients and months yields the overall number of emergency department encounters that would be expected at the facility given the specific patient mix. This forms the denominator of the measure.

The denominator of the Standardized Emergency Department Encounter Ratio is derived from a proportional rates model (Lawless and Nadeau, 1995; Lin et al., 2000; Kalbfleisch and Prentice, 2002). This is the recurrent event analog of the well-known proportional hazards or Cox model (Cox, 1972; Kalbfleisch and Prentice, 2002). To accommodate large-scale data, we adopt a model with piecewise constant baseline rates (e.g. Cook and Lawless, 2007) and the computational methodology developed in Liu, Schaubel and Kalbfleisch (2012).

References:

- Cook, R. and Lawless, J. The Statistical Analysis of Recurrent Events. New York: Springer. 2007.
- Cox, D.R. (1972) Regression Models and Life Tables (with Discussion). J. Royal statistical Society, Series B, 34, 187-220.
- Kalbfleisch, J.D. and Prentice, R. L. The Statistical Analysis of Failure Time Data. Wiley, New York, 2002.
- Lawless, J. F. and Nadeau, C. Some simple and robust methods for the analysis of recurrent events, Technometrics, 37 1995, 355-364.
- Lin, D.Y., Wei, L.J., Yang, I. and Ying, Z. Semi parametric regression for the mean and rate functions of recurrent events, Journal of the Royal Statistical Society Series B, 62, 2000, 771-730
- Liu, D., Schaubel, D.E. and Kalbfleisch, J.D. Computationally efficient marginal models for clustered recurrent event data, University of Michigan Department of Biostatistics Technical Reports, 2010.

S.8. Denominator Exclusions (*Brief narrative description of exclusions from the target population*)

Exclusions that are implicit in the denominator definition include time at risk while a patient:

- Has had ESRD for 90 days or less
- Is less than 18 years of age

The denominator also excludes patient time at risk for calendar months in which a patient is:

- Actively enrolled in hospice at any time during the calendar month

S.9. Denominator Exclusion Details (*All information required to identify and calculate exclusions from the denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b*)

We exclude from the time at risk for the measure all calendar months in which a patient spends any time enrolled in hospice (enrollment is determined from Medicare hospice claims). Hospice patients are considered to be under the purview of hospice care givers and may have other reasons for Emergency Department use such as pain management.

S.10. Stratification Information *(Provide all information required to stratify the measure results, if necessary, including the stratification variables, definitions, specific data collection items/responses, code/value sets, and the risk-model covariates and coefficients for the clinically-adjusted version of the measure when appropriate – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format with at S.2b)*

N/A

S.11. Risk Adjustment Type (Select type. Provide specifications for risk stratification in measure testing attachment)

Statistical risk model

S.12. Type of score:

Ratio

S.13. Interpretation of Score *(Classifies interpretation of score according to whether better quality is associated with a higher score, a lower score, a score falling within a defined interval, or a passing score)*

Better quality = Lower score

S.14. Calculation Algorithm/Measure Logic *(Diagram or describe the calculation of the measure score as an ordered sequence of steps including identifying the target population; exclusions; cases meeting the target process, condition, event, or outcome; time period of data, aggregating data; risk adjustment; etc.)*

See appendix.

S.15. Sampling *(If measure is based on a sample, provide instructions for obtaining the sample and guidance on minimum sample size.)*

N/A

IF a PRO-based performance measure (PRO-PM), identify whether (and how) proxy responses are allowed.

S.16. Survey/Patient-reported data *(If measure is based on a survey or instrument, provide instructions for data collection and guidance on minimum response rate.)*

N/A

IF a PRO-PM, specify calculation of response rates to be reported with performance measure results.

S.17. Data Source (*Check ONLY the sources for which the measure is SPECIFIED AND TESTED*). If other, please describe in S.18.

- | | |
|--|--|
| <input checked="" type="checkbox"/> Claims (Other) | <input type="checkbox"/> Management Data |
| <input type="checkbox"/> EHRs Hybrid | <input type="checkbox"/> Pharmacy |
| <input type="checkbox"/> Non-Medical Data | <input checked="" type="checkbox"/> Registry |
| <input type="checkbox"/> Claims (Only) | <input type="checkbox"/> Paper Records |
| <input type="checkbox"/> Electronic Health Record (Only) | <input type="checkbox"/> Patient Reported Data |
| <input type="checkbox"/> Imaging-Diagnostic | <input type="checkbox"/> Other |
| <input type="checkbox"/> Laboratory | |
| <input type="checkbox"/> Provider Tool | |

S.18. Data Source or Collection Instrument (*Identify the specific data source/data collection instrument e.g. name of database, clinical registry, collection instrument, etc., and describe how data is collected.*)

IF a PRO-PM, identify the specific PROM(s); and standard methods, modes, and languages of administration.

Data are derived from an extensive national ESRD patient database, which is primarily based on the CMS Consolidated Renal Operations in a Web-enabled Network (CROWN) system. The CROWN data include the Renal Management Information System (REMIS), 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 data), the historical Standard Information Management System (SIMS) database (formerly maintained by the 18 ESRD Networks until replaced by CROWNWeb in May 2012), the National Vascular Access Improvement Initiative's Fistula First Catheter Last project (in CROWNWeb since May 2012), Medicare dialysis and hospital payment records, transplant data from the Organ Procurement and Transplant Network (OPTN), the Nursing Home Minimum Dataset, the Quality Improvement Evaluation System (QIES) Workbench, which includes data from the Certification and Survey Provider Enhanced Report System (CASPER), the Dialysis Facility Compare (DFC) and the Social Security Death Master File. The database is comprehensive for Medicare patients. Non-Medicare patients are included in all sources except for the Medicare payment records. CROWNWeb provides tracking by dialysis provider and treatment modality for non-Medicare patients. Information on hospitalizations is obtained from Part A Medicare Inpatient Claims Standard Analysis Files (SAFs), and past-year comorbidity data are obtained from multiple Part A types (inpatient, home health, hospice, skilled nursing facility claims) and Part B outpatient types of Medicare Claims SAFs.

S.19. Data Source or Collection Instrument (*available at measure-specific Web page URL identified in S.1 OR in attached appendix*)

☐ Available at measure-specific web page URL identified in S.1

☐ Available in attached appendix at A.1

☒ No data collection instrument provided

S.20. Level of Analysis (*Check ONLY the levels of analysis for which the measure is SPECIFIED AND TESTED*)

☐ Other

☐ Integrated Delivery System

☐ Clinician: Individual

☐ Population: Community, County or City

☐ Clinicians: Group/Practice

☐ Population: Regional and State

☒ Facility

☐ Health Plan

S.21. Care Setting (*Check ONLY the settings for which the measure is SPECIFIED AND TESTED*)

☐ Emergency Department

☐ Emergency Medical Services/Ambulance

☐ Birthing Center

☐ Urgent Care - Ambulatory

☐ No Applicable Care Setting

☐ Home Health

☐ Ambulatory Surgery Center

☐ Hospice

☐ Nursing Home / SNF

☐ Hospital: Hospital

☐ Clinician Office/Clinic

☐ Hospital: Critical Care

☐ Inpatient Rehabilitation Facility

☐ Hospital: Acute Care Facility

☐ Behavioral Health: Inpatient

☐ Imaging Facility

☐ Behavioral Health: Outpatient

☐ Laboratory

☐ Long Term Acute Care

☐ Pharmacy

☐ Outpatient Rehabilitation

☐ Other

☒ Dialysis Facility

S.22. COMPOSITE Performance Measure - Additional Specifications (*Use this section as needed for aggregation and weighting rules, or calculation of individual performance measures if not individually endorsed.*)

N/A

Importance

Importance to Measure and Report is a threshold criterion that must be met in order to recommend a measure for endorsement. All three sub-criteria must be met to pass this criterion. See guidance on evidence.

Evidence (Measure evaluation criterion 1a)

1a. Attach evidence submission form

1a.1. For maintenance of endorsement:

N/A

Is there new evidence about the measure since the last update/submission?

Please update any changes in the evidence attachment in red. Do not remove any existing information. If there have been any changes to evidence, the Committee will consider the new evidence. If there is no new evidence, no updating of the evidence information is needed.

☐ Yes

☐ No

Performance Gap - Opportunity for Improvement (Measure evaluation criterion 1b)

1b.1. Briefly explain the rationale for this measure (e.g., how the measure will improve the quality of care, the benefits or improvements in quality envisioned by use of this measure)

Emergency department encounters are an important indicator of care coordination and quality of life. In the general population studies have shown higher risk of an emergency department encounter subsequent to a discharge from an inpatient hospitalization or an outpatient emergency department encounter (e.g., see Hastings et al., 2008).

More than half (55.0%) of all patients with end-stage renal disease (ESRD) visit the ED during their first year of dialysis, and patients with ESRD have a mean of 2.7 ED visits per patient-year (Lovasik et al., 2016). This rate is 6-fold higher than the national mean rates for US adults in the general population (CDC, 2011). Furthermore, the Lovasik study notes that among Medicare beneficiaries, 30% of hospital admissions that originate in the ED are for diagnoses that are often dialysis related such as complications of vascular access, congestive heart failure/fluid overload, septicemia, and hyperkalemia.

Measures of the frequency of ED use may help dialysis facility level efforts to prevent emergent unscheduled care and control escalating medical costs.

References:

Centers for Disease Control and Prevention. National hospital ambulatory medical care survey: 2011 emergency department summary tables. <http://www.cdc.gov/nchs/fastats/injury.htm> 2011 [cited 2017 January 9].

Hastings NS., Oddone EZ., Fillenbaum G, Shane R J., Schmader KE. Frequency and predictors of adverse health outcomes in older Medicare beneficiaries discharged from the emergency department. *Med Care*. 2008 Aug; 46(8):771-7

Lovasik BP, Zhang R, Hockenberry JM, Schrager JD, Pastan SO, Mohan S, Patzer RE. Emergency Department Use and Hospital Admissions Among Patients With End-Stage Renal Disease in the United States. *JAMA Intern Med*. 2016 Oct 1; 176(10):1563-1565.

IF a PRO-PM (e.g. HRQoL/functional status, symptom/burden, experience with care, health-related behaviors), provide evidence that the target population values the measured PRO and finds it meaningful. (Describe how and from whom their input was obtained.)

IF a COMPOSITE (e.g., combination of component measure scores, all-or-none, any-or-none), SKIP this question and provide rationale for composite in question 1c.3 on the composite tab.

1b.2. Provide performance scores on the measure as specified (current and over time) at the specified level of analysis. (This is required for maintenance of endorsement. Include mean, std dev, min, max, interquartile range, scores by decile. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities include). This information also will be used to address the sub-criterion on improvement (4b) under Usability and Use.

We calculated the measure for each year 2012-2015 (Table 1). We included all Medicare-certified dialysis facilities with eligible time at risk for the measure. We excluded transplant-only facilities and Veteran Affairs (VA) facilities. The distribution of the SEDR for each year is shown in the table below (restricted to facilities with at least 5 patient years at risk). Standardized ED Visit rates vary widely across facilities. For example, for the 6,256 facilities included in 2015, the SEDR varied from 0.00 to 6.49 (Table 1). The mean value was 1.00 and the SD was 0.36. The second table (Table 2) shows the deciles of the SEDR for 2015.

Table 1. SEDR Performance Score Descriptives, 2012-2015

Variable	Number of Facilities	Number of Patients	Mean	Std Dev	Min	Max	Inter Quartile Range
Standardized ED Visit Ratio, 2012	5,663	394,778	1.01	0.37	0.00	3.44	0.45
Standardized ED Visit Ratio, 2013	5,842	404,353	1.01	0.36	0.00	3.83	0.42
Standardized ED Visit Ratio, 2014	6,059	413,602	1.00	0.36	0.00	3.85	0.42
Standardized ED Visit Ratio, 2015	6,256	421,570	1.00	0.36	0.00	6.49	0.42

Table 2. Deciles of Standardized ED Visit Ratio, 2015

Deciles	N	Minimum	Maximum
1	625	0.00	0.60
2	626	0.60	0.72
3	626	0.72	0.81
4	625	0.81	0.88
5	626	0.88	0.96
6	626	0.96	1.04
7	625	1.04	1.13
8	626	1.13	1.25
9	626	1.25	1.46
10	625	1.46	6.49

1b.3. If no or limited performance data on the measure as specified is reported in 1b2, then provide a summary of data from the literature that indicates opportunity for improvement or overall less than optimal performance on the specific focus of measurement. Include citations.

N/A

1b.4. Provide disparities data from the measure as specified (current and over time) by population group, e.g., by race/ethnicity, gender, age, insurance status, socioeconomic status, and/or disability. (This is required for maintenance of endorsement. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included.) For measures that show high levels of performance, i.e., “topped out”, disparities data may demonstrate an opportunity for improvement/gap in care for certain sub-populations. This information also will be used to address the sub-criterion on improvement (4b) under Usability and Use.

Race, female sex, insurance status, younger age, and SES have been shown to be predictors of differential emergency department utilization in the general population (Capp et al., 2015; Colligan et al., 2016; LaCalle et al., 2010; Zuckerman and Shen 2004). In the ESRD population, low health literacy (a proxy of SES) was found to be a predictor of ED use in one study (Green et al., 2013), as well as SDS/SES factors of younger age, female sex, black race, and public insurance (Medicaid) while lower ED use was associated with private insurance (Lovasik et al., 2016).

Age:

For the 18-24 age group, Hazard Ratio =1.81, $p<0.0001$.

For the 25-44 age group, Hazard Ratio = 1.41, $p<0.0001$.

For the 45-59 age group, Hazard Ratio = 1.13, $p<0.0001$.

The 60-74 age group was used as the reference group.

For the 75+ age group, Hazard Ratio = 1.02, $p<0.0001$.

Sex:

For Female: Hazard Ratio = 1.05, $p<0.0001$.

Male was used as the reference group.

Race:

White was used as the reference group.

For Black: Hazard Ratio =1.17, $p<0.0001$.

For Native Americans: Hazard Ratio =1.05, $p<0.0001$.

For Asian/PI: Hazard Ratio =0.83, $p<0.0001$.

For Other race: Hazard Ratio = 1.04, $p\text{-value} =0.008$

Ethnicity:

Non-Hispanic was used as the reference group.

For Hispanic: Hazard Ratio = 1.04, $p\text{-value} = <0.0001$.

For Unknown ethnicity: Hazard Ratio =1.02, $p\text{-value}=0.204$.

Employment Status:

Unemployed was used as the reference group.

For Employed: Hazard Ratio =0.88, $p<0.0001$.

For Other/Unknown*: Hazard Ratio =0.96, and the $p<0.0001$.

* Other/Unknown group includes Homemaker, Retired due to age/preference, retired due to disability, Medical leave of absence, or missing employment status.

Medicare Coverage:

Medicare as primary w/o Medicaid was used as the reference group.

Medicare as primary with Medicaid: Hazard Ratio = 1.21, and the $p\text{-value} <0.0001$.

Medicare as secondary/Medicare HMO: Hazard Ratio = 0.40, and the $p\text{-value} <0.0001$.

Our results indicate potential disparities in emergency department utilization. Differences are observed by age (younger age), sex (females), race (blacks, Native Americans, and other), dual Medicare-Medicaid status, and employment status (unemployed).

For example, compared to the reference group, younger age groups had higher risk of an emergency department encounter. This was highest for 18-24 year olds, with a negative gradient for the 25-44 age group, the 45-59 age group, and the 75+ age group. Females had higher risk of an emergency department encounter compared to males (5% higher). Black patients also had a higher risk (17% higher) of an emergency department visit compared to whites, as do Native Americans (5% higher) and patients of other race (4% higher). However, Asian/Pacific Islander patients had a lower risk (17% lower). Hispanic patients had a higher risk (4%) of an emergency department encounter compared to non-Hispanic patients. Patients who were employed (at ESRD incidence) had a 12% lower risk of an emergency department encounter, compared to unemployed patients (unemployed at ESRD incidence). Finally, patients dually covered by Medicare and Medicaid had a 21% higher risk of an emergency department encounter compared to patient with Medicare as their primary insurance, while those with MSP/Medicare HMO had 60% lower risk of an ED encounter.

While there are notable differences by younger age, race, sex and insurance status, it is unclear if these disparities in emergency department encounters are based on different clinical risk factors for these subgroups or differences in care quality.

Refer to Risk Adjustment section (2b4) for further analyses on race, ethnicity, sex and socioeconomic status.

References:

Capp R, West DR, Doran K, Sauaia A, Wiler J, Coolman T, Ginde AA. Characteristics of Medicaid-Covered Emergency Department Visits Made by Nonelderly Adults: A National Study. J Emerg Med. 2015 Dec; 49(6):984-9.

Colligan EM, Pines JM, Colantuoni E, Howell B, Wolff JL. Risk Factors for Persistent Frequent Emergency Department Use in Medicare Beneficiaries. Ann Emerg Med. 2016 Jun; 67(6):721-9.

Green JA, Mor MK, Shields AM, Sevic MA, Arnold RM, Palevsky PM, Fine MJ, Weisbord SD. Associations of health literacy with dialysis adherence and health resource utilization in patients receiving maintenance hemodialysis. Am J Kidney Dis. 2013 Jul; 62(1):73-80.

LaCalle E, Rabin E. Frequent users of emergency departments: the myths, the data, and the policy implications. Ann Emerg Med. 2010 Jul; 56(1):42-8.

Lovasik BP, Zhang R, Hockenberry JM, Schrage JD, Pastan SO, Mohan S, Patzer RE. Emergency Department Use and Hospital Admissions Among Patients With End-Stage Renal Disease in the United States. JAMA Intern Med. 2016 Oct 1; 176(10):1563-1565.

Zuckerman S, Shen YC. Characteristics of occasional and frequent emergency department users: do insurance coverage and access to care matter? Med Care. 2004 Feb; 42(2):176-82.

1b.5. If no or limited data on disparities from the measure as specified is reported in 1b.4, then provide a summary of data from the literature that addresses disparities in care on the specific focus of measurement.

N/A

Include citations. Not necessary if performance data provided in 1b.4.

Scientific Acceptability

Testing Attachment

2. Attach measure testing form

2.1. For maintenance of endorsement:

N/A

Reliability testing: If testing of reliability of the measure score was not presented in prior submission(s), has reliability testing of the measure score been conducted? If yes, please provide

results in the Testing attachment. (Do not remove prior testing information – include date of new information in red.)

☐ Yes

☐ No

2.2. For maintenance of endorsement:

N/A

Has additional empirical validity testing of the measure score been conducted? If yes, please provide results in the Testing attachment. (Do not remove prior testing information – include date of new information in red.)

☐ Yes

☐ No

2.3. For maintenance of endorsement:

N/A

Risk adjustment: For outcome, resource use, cost, and some process measures, risk-adjustment that includes SDS factors is no longer prohibited during the SDS Trial Period (2015-2016). Please update sections 1.8, 2a2, 2b2, 2b4, and 2b6 in the Testing attachment and S.14 and S.15 in the online submission form in accordance with the requirements for the SDS Trial Period. NOTE: These sections must be updated even if SDS factors are not included in the risk-adjustment strategy. If yes, and your testing attachment does not have the additional questions for the SDS Trial please add these questions to your testing attachment:

What were the patient-level sociodemographic (SDS) variables that were available and analyzed in the data or sample used? For example, patient-reported data (e.g., income, education, language), proxy variables when SDS data are not collected from each patient (e.g. census tract), or patient community characteristics (e.g. percent vacant housing, crime rate).

Describe the conceptual/clinical and statistical methods and criteria used to select patient factors (clinical factors or sociodemographic factors) used in the statistical risk model or for stratification by risk (e.g., potential factors identified in the literature and/or expert panel; regression analysis; statistical significance of $p < 0.10$; correlation of x or higher; patient factors should be present at the start of care)

What were the statistical results of the analyses used to select risk factors?

Describe the analyses and interpretation resulting in the decision to select SDS factors (e.g. prevalence of the factor across measured entities, empirical association with the outcome, contribution of unique variation in the outcome, assessment of between-unit effects and within-unit effects)

- ☐ Yes - Updated information required during the SDS Trial Period is included.
- ☐ No - This measure is not risk-adjusted.

Feasibility

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

Data Elements Generated as Byproduct of Care Processes ([Measure evaluation criterion 3a](#))

3a.1. How are the data elements needed to compute measure scores generated? (Check all that apply)

Data used in the measure are:

- ☒ Generated "or collected" by and used by healthcare personnel during the provision of care (e.g., blood pressure, lab value, diagnosis, "depression score")
- ☒ Coded by someone other than person obtaining original information (e.g., DRG, ICD-9 codes on claims)
- ☐ Abstracted from a record by someone other than person obtaining original information (e.g., chart abstraction for quality measure or registry)
- ☐ Other

Electronic Sources ([Measure evaluation criterion 3b](#))

3b.1. To what extent are the specified data elements available electronically in defined fields (*i.e., data elements that are needed to compute the performance measure score are in defined, computer-readable fields*) Update this field for maintenance of endorsement.

- ☐ ALL data elements are in defined fields in electronic health records (EHRs)
- ☐ ALL data elements are in defined fields in electronic claim
- ☐ ALL data elements are in defined fields in electronic clinical data (e.g., clinical registry, nursing home MDS, home health OASIS)
- ☒ ALL data elements are in defined fields in a combination of electronic sources
- ☐ Some data elements are in defined fields in electronic sources
- ☐ No data elements are in defined fields in electronic sources
- ☐ Patient/family reported information (may be electronic or paper)

3b.2. If ALL the data elements needed to compute the performance measure score are not from electronic sources, specify a credible, near-term path to electronic capture, OR provide a rationale for using other than electronic sources. For maintenance of endorsement, if this measure is not an eMeasure (eCQM), please describe any efforts to develop an eMeasure (eCQM).

N/A

3b.3. If this is an eMeasure, provide a summary of the feasibility assessment in an attached file or make available at a measure-specific URL. Please also complete and attach the NQF Feasibility Score Card.

N/A

Data Collection Strategy ([Measure evaluation criterion 3c](#))

3c.1. Required for maintenance of endorsement. Describe difficulties (as a result of testing and/or operational use of the measure) regarding data collection, availability of data, missing data, timing and frequency of data collection, sampling, patient confidentiality, time and cost of data collection, other feasibility/implementation issues.

N/A

IF a PRO-PM, consider implications for both individuals providing PRO data (patients, service recipients, respondents) and those whose performance is being measured.

3c.2. Describe any fees, licensing, or other requirements to use any aspect of the measure as specified (e.g., value/code set, risk model, programming code, algorithm)?

N/A

Usability and Use

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

NQF-endorsed measures are expected to be used in at least one accountability application within 3 years and publicly reported within 6 years of initial endorsement in addition to performance improvement.

4.1. Current and Planned Use (*check all the current and planned uses; for any current uses that are checked, provide a program name and URL for the specific program*)

Intended Use	Specific Plan for Use	Current Use	For current use, provide Program Name and URL
a. Public Reporting	X		
b. Public Health/Disease Surveillance			
c. Payment Program			
d. Regulatory and Accreditation Programs			
e. Professional Certification or Recognition Program			
f. Quality Improvement with Benchmarking (external benchmarking to multiple organizations)			
g. Quality Improvement (Internal to the specific organization)			

Accountability/Transparency ([measure evaluation criterion 4a](#))

4a.1. For each CURRENT use, checked above (update for maintenance of endorsement), provide:

1. Name of program and sponsor
2. Purpose
3. Geographic area and number and percentage of accountable entities and patients included
4. Level of measurement and setting

N/A

4a.2. If not currently publicly reported OR used in at least one other accountability application (e.g., payment program, certification, licensing) what are the reasons? (e.g., *Do policies or actions of the developer/steward or accountable entities restrict access to performance results or impede implementation?*)

Development of the measure was recently completed so there has been no opportunity for public reporting or use in another accountability application

4a.3. If not currently publicly reported OR used in at least one other accountability application, provide a credible plan for implementation within the expected timeframes -- any accountability application

within 3 years and publicly reported within 6 years of initial endorsement. (Credible plan includes the specific program, purpose, intended audience, and timeline for implementing the measure within the specific timeframes. A plan for accountability applications addresses mechanisms for data aggregation and reporting.)

Public Reporting: CMS will consider implementing the SEDR measure as part of CMS' Dialysis Facility Compare (DFC) public reporting program, whose purpose is to help dialysis patients and their caregivers understand the quality of care provided by dialysis facilities and to be able to compare selected aspects of care between dialysis facilities. All Medicare-certified dialysis facilities that treat dialysis patients in the U.S. are reported on DFC.

Improvement ([measure evaluation criterion 4b](#))

4b. Refer to data provided in 1b but do not repeat here. Discuss any progress on improvement (trends in performance results, number and percentage of people receiving high-quality healthcare; Geographic area and number and percentage of accountable entities and patients included.)

N/A

If no improvement was demonstrated, what are the reasons? If not in use for performance improvement at the time of initial endorsement, provide a credible rationale that describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.

N/A

Unexpected findings ([measure evaluation criterion 4c](#))

4c.1. Please explain any unexpected findings (positive or negative) during implementation of this measure including unintended impacts on patients.

N/A

4c.2. Please explain any unexpected benefits from implementation of this measure.

N/A

Vetting of the measure by those being measured by others

This is a new sub-criterion for use and usability in 2016. It is not a must-pass criterion. It will be used to consider whether the measure is eligible for the "Endorsement+" designation.

4d1.1. Describe how performance results, data, and assistance with interpretation have been provided to those being measured or other users during development or implementation.

How many and which types of measured entities and/or others were included? If only a sample of measured entities were included, describe the full population and how the sample was selected.

4d1.2. Describe the process(es) involved, including when/how often results were provided, what data were provided, what educational/explanatory efforts were made, etc.

4d2.1. Summarize the feedback on measure performance and implementation from the measured entities and others described in 4d.1.

Describe how feedback was obtained.

4d2.2. Summarize the feedback obtained from those being measured.

4d2.3. Summarize the feedback obtained from other users.

4d.3. Describe how the feedback described in 4d.2 has been considered when developing or revising the measure specifications or implementation, including whether the measure was modified and why or why not

Related and Competing Measures

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

Relation to Other NQF-endorsed® Measures ([Measure evaluation criterion 5](#))

5. Are there related measures (conceptually, either same measure focus or target population) or competing measures (conceptually both the same measure focus and same target population)? If yes, list the NQF # and title of all related and/or competing measures. (Can search and select measures.)

☒ Yes

☐ No

Harmonization of Related Measures ([Measure evaluation criterion 5a](#))

5a.1. If this measure conceptually addresses EITHER the same measure focus OR the same target population as NQF-endorsed measure(s):

- NQF 1463: Standardized Hospitalization Ratio (SHR) for Dialysis Facilities
- NQF 2505: Emergency Department Use without Hospital Readmission During the First 30 Days of Home Health

- Emergency Department Encounters Occurring Within 30 Days of Hospital Discharge (ED30) (currently undergoing endorsement review with SEDR)

Are the measure specifications harmonized to the extent possible?

☒ Yes

☐ No

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

These measures are not completely harmonized. Each measure assesses different outcomes as reflected in certain differences across the measure specifications.

The proposed Standardized Emergency Department Encounter Ratio (SEDR) for Dialysis Facilities and Standardized Ratio of Emergency Department Encounters Occurring Within 30 Days of Hospital Discharge (ED30) for Dialysis Facilities measures both focus on dialysis facilities' ED use, but they measure different aspects of ED use. The SEDR measures the overall rate of ED use while the ED30 focuses on ED use closely following a hospitalization. Both SEDR and ED30 apply to the same target population - adult Medicare-covered dialysis patients who have had ESRD for more than 90 days.

The SEDR and SHR are both intended to encourage appropriate management of acute conditions but measure two different acute care outcomes. SEDR measures outpatient acute care services while SHR measure inpatient acute care services.

SEDR is harmonized with SHR and ED30 in several aspects. All are harmonized to the population they measure (Medicare-covered ESRD patients); however SHR also includes pediatric patients. All three measures have risk adjustment for prevalent comorbidities while only SEDR and SHR also adjust for incident comorbidities taken from CMS form 2728. Exclusions: 1) Only SEDR and ED30 exclude hospice patients; 2) ED30 includes additional exclusions based on discharge type, that are not part of SEDR or SHR; 3) ED30 adjusts for discharging hospital, acknowledging that for ED encounters after a hospital discharge, that hospitals also bear accountability for properly coordinating care with the dialysis facility.

SEDR and NQF measure 2505: Emergency Department Use without Hospital Readmission During the First 30 Days of Home Health have the same focus (emergency department encounters). Differences: 1) Home Health is focused on emergency department use within the first 30 days of home health; 2) each measure has distinct target populations; 3) risk adjustment factors; and 4) model type (2-stage Cox model vs multinomial logistic model). For example, the Home Health 30 measure adjusts for over 400 covariates that were statistically significantly predictive of acute care hospitalization or emergency use (without admission). SEDR currently adjusts for a set of comorbidities present at ESRD incidence and for a set of prevalent comorbidities. Because of the different care settings and comorbidity profile of Home Health patients, different risk adjustment approaches are justified.

Competing Measure(s) ([Measure evaluation criterion 5b](#))

5b.1. If this measure conceptually addresses both the same measure focus and the same target population as NQF- endorsed measure(s):

N/A

Describe why this measure is superior to competing measures (e.g., a more valid or efficient way to measure quality); OR provide a rationale for the additive value of endorsing an additional measure. (Provide analyses when possible.)

Additional

Appendix

A.1. Supplemental materials may be provided in an appendix.

All supplemental materials (such as data collection instrument or methodology reports) should be organized in one file with a table of contents or bookmarks. If material pertains to a specific submission form number, that should be indicated. Requested information should be provided in the submission form and measure testing attachment. There is no guarantee that supplemental materials will be reviewed.

☐ Available at measure-specific web page URL identified in S.1

☒ Available in attached file

☐ No appendix

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List the workgroup/panel members' names and organizations. Describe the members' role in measure development.

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Measure Developer/Steward Updates and Ongoing Maintenance Ad.2. Year the Measure Was First Released

Ad.3. Month and Year of Most Recent Revision

Ad.4. What is your frequency for review/update of this measure?

Ad.5. When is your next scheduled review/update for this measure?

Ad.6. Copyright Statement

Ad.7. Disclaimers

Ad.8. Additional Information/Comments