

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 Ratio of Emergency Department Encounters Occurring Within 30 Days of Hospital Discharge (ED30) 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 Ratio of Emergency Department Encounters Occurring Within 30 Days of Hospital Discharge for Dialysis Facilities (ED30) is defined to be the ratio of the number of index discharges from acute care hospitals that are followed by an outpatient emergency department encounter within 4-30 days after discharge for adult dialysis patients treated at a particular dialysis facility, to the expected number of index discharges followed by an ED encounter within 4-30 days given the discharging hospital's characteristics, characteristics of the dialysis facility's patients, and the national norm for dialysis facilities. Note that in this document, "hospital" always refers to acute care hospital and "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 ED30 should be considered in conjunction with the Standardized Emergency Department Encounter Ratio (SEDR). These measures present two different aspects of dialysis facilities' emergency department use that assess 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 is the observed number of index discharges that are followed by an outpatient emergency department encounter within 4-30 days after discharge for adult dialysis patients treated at a particular dialysis facility, to the expected number of index discharges followed by an ED encounter within 4-30 days of discharge. 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 index hospital discharges during a year that are followed by an emergency department encounter within 4–30 days of the discharge among 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).

General Inclusion Criteria for Dialysis Patients

To be eligible for the measure a patient must be an adult (aged 18 or more) Medicare dialysis patient with at least 90 days of ESRD treatment on date of index discharge. Thus, index discharges during the first 90 days of ESRD are not counted. The 90 days of ESRD is counted without regard to which facility, or the number of facilities, a patient received their dialysis treatments. The date of index discharge is considered day 0 when identifying ED visits within 4-30 days of discharge.

Index Discharges

We use Medicare inpatient hospital claims to identify acute hospital discharges. All live discharges of eligible patients in a calendar year are considered eligible for this measure. Those that do not meet one of the exclusion criteria described in the next section are considered index discharges.

Assignment of Index Discharges to Facilities

Index discharges are attributed to the facility of record on the day of discharge for the patient. That is, if the patient transfers dialysis facilities at the time of hospital discharge, it is the new facility that is assigned the index discharge.

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 that has dates of service included in any of the same time period covered by the ED encounter.

An ED encounter “follows” the index discharge only if there is no intervening inpatient hospitalization. In other words, if after hospital discharge there is another inpatient hospitalization and then an ED encounter within the time frame the original index discharge is not counted as having been followed by an ED encounter. If eligible, the second hospitalization could become a new index discharge. The measure does not count the number of ED encounters after each index discharge, but instead determines whether or not there is at least one such encounter. If there are multiple ED encounters during days 4-30 after an index discharge, only the first ED encounter during that time is relevant to determining whether or not the index discharge is counted as having been followed by an ED encounter. ED encounters that occur before the 4th day after index discharge are not considered.

The 4-30 day time frame was selected to harmonize with the Standardized Readmission Ratio (NQF #2496) that also uses the same time period after an index hospitalization. This time interval was selected in response to providers and stakeholders concerns that there may be up to 72 hours before a

patient is seen at the facility after hospital discharge.

The time period for the measure calculation is one calendar year, meaning that index discharges must occur during the calendar year. The subsequent ED encounters may occur during that calendar year or the first 30 days of the following 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 index hospital discharges during a year that are followed by an emergency department encounter within 4-30 days of the discharge among eligible patients at a facility, adjusted for the characteristics of the patients, the dialysis facility, and the discharging hospitals.

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).

Expected Calculation

We calculate each dialysis facility's expected number of index hospital discharges during a year that are followed by an ED encounter within 4-30 days of the discharge. The expected number is calculated by fitting a model with random effects for discharging hospitals, fixed effects for facilities, and regression adjustments for a set of patient-level characteristics. We compute the expectation for the given facility assuming ED encounter rates corresponding to an "average" facility with the same patient characteristics and same discharging hospitals as this facility. Model details are provided in the Appendix.

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

Exclusions that are implicit in the denominator definition include discharges for which the patient:

- Has had ESRD for 90 days or less at time of discharge
- Is less than 18 years of age at the time of discharge

We also exclude discharges and emergency department encounters for which the patient was:

- Actively enrolled in hospice at any time of during the calendar month of the discharge date or ED encounter admit date

The hospice exclusion is done because 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.

Additionally we exclude hospital discharges that:

- Do not result in a live discharge

- Result in a patient dying, being transplanted, discontinuing dialysis, recovering renal function, or being lost to follow-up within 30 days with no emergency department encounter or hospitalization
- Are against medical advice
- Include a primary diagnosis for cancer, mental health or rehabilitation (see below for excluded CCSs)
- Are from a PPS-exempt cancer hospital
- Result in another hospitalization within four days of discharge

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)*

- Death in hospital/within 30 days of discharge: We determine a patient's death date from a number of sources: CMS Medicare Enrollment Database, CMS forms 2746 and 2728, OPTN transplant follow-up form, CROWNWeb database, Social Security Death Master File, and Inpatient Claims. In addition, if the discharge status on the index discharge claim indicates death and the death date occurs within 5 days after discharge we consider this a death in the hospital.
- Discharged against medical advice: We determine discharge status from the inpatient claim.
- Certain diagnoses: The primary diagnosis at discharge is available on the inpatient claim; we group these diagnoses into more general categories using AHRQ's Clinical Classification Software (CCS; see <http://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp> for descriptions of each CCS).

The excluded CCSs for a primary diagnosis for cancer, mental health or rehabilitation are shown below.

- Cancer: 42, 19, 45, 44, 17, 38, 39, 14, 40, 35, 16, 13, 29, 15, 18, 12, 11, 27, 33, 32, 24, 43, 25, 36, 21, 41, 20, 23, 26, 28, 34, 37, 22, 31, 30
- Psychiatric: 657, 659, 651, 670, 654, 650, 658, 652, 656, 655, 662
- Rehab for prosthesis: 254
- PPS-exempt cancer hospitals: The following hospitals are listed as PPS-exempt cancer hospitals in the Federal Register (<http://www.gpo.gov/fdsys/pkg/FR-2011-07-18/html/2011-16949.htm>): 050146, 050660, 100079, 100271, 220162, 330154, 330354, 360242, 390196, 450076, 500138

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.)*

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

N/A

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.)*

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

N/A

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

☒ Claims (Other)

☐ Management Data

☐ EHRs Hybrid

☐ Pharmacy

☐ Non-Medical Data

☒ Registry

☐ Claims (Only)

☐ Paper Records

☐ Electronic Health Record (Only)

☐ Patient Reported Data

☐ Imaging-Diagnostic

☐ Other

☐ Laboratory

☐ 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 is 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

☐ Clinician : 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 within 30 days of an index discharge 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). This has been demonstrated in the ESRD population as well with 27% of patients being treated in an ED within 30 days of hospital discharge, most frequently for congestive heart failure (Harel et al., 2015)

More than half (55%) 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 encounters subsequent to a hospital discharge may help dialysis facility efforts to prevent emergent unscheduled care, for example through greater care coordination, 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

Harel, Z.;Wald, R.;McArthur, E.;Chertow, G. M.;Harel, S.;Gruneir, A.;Fischer, H. D.;Garg, A.

X.;Perl, J.;Nash, D. M.;Silver, S.;Bell, C. M. Rehospitalizations and Emergency Department Visits after Hospital Discharge in Patients Receiving Maintenance Hemodialysis. J Am Soc Nephrol. 2015 26(12):3141-50 doi:10.1681/ASN.2014060614

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.

After applying all exclusion criteria, we evaluated all Medicare-certified dialysis facilities (n=5,959) treating Medicare dialysis patients (n=201,938) that had at least 11 index discharges in 2014. Median facility size was 66 patients. The distribution of ED30 across these facilities is shown in the tables below. ED30 rates vary widely across facilities. For example, for the 5,959 facilities included in 2014, the ED30 varied from 0.00 to 3.37. The mean value was 1.03 and the SD was 0.45 (see Table 1). Table 2 shows the deciles of ED30 for 2015.

Table 1. ED30 Performance Score Descriptives, 2014

Variable	Number of facilities	Mean	Std Dev	Minimum	P25	Median	P75	Maximum
ED30 (2014)	5,959	1.03	0.45	0.00	0.74	0.99	1.29	3.37

Table 2. Deciles of ED30, 2014

Deciles	N	Minimum	Maximum
1	595	0.00	0.52
2	596	0.52	0.68
3	596	0.68	0.80
4	596	0.80	0.90
5	596	0.90	0.99
6	596	0.99	1.10
7	596	1.10	1.22
8	596	1.22	1.37
9	596	1.37	1.60
10	596	1.60	3.37

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.

Several studies suggest that rates of frequent ED use and similarly post-acute care use in the general population differ by race, female sex, insurance status, age, and other sociodemographic (SDS) and socioeconomic (SES) characteristics (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). Additionally, Hastings et al., report that Medicare beneficiaries that had a return ED visit or other acute care encounter were of older age, had Medicaid status, and had higher chronic health burden (Hastings et al, 2008). These indicate potential disparities in care along with different clinical risk factors.

The odds of an ED visit after a discharge are shown below for various patient subgroups.

Age:

For the 18-<25 age group: OR = 1.55, p-value <.0001.

For the 25-<44 age group: OR = 1.36, p-value <.0001.

For the 45-<59 age group: OR = 1.13, p-value <.0001.

The 60-<75 age group was used as the reference group.

For the 75+ age group: OR = 0.98, p-value <.0001.

Sex:

For Female: OR = 1.00, p-value 0.1974.

Male was used as the reference group.

Race:

White was used as the reference group.

For Black: OR = 1.15, p-value <.0001.

For Native American/Alaskan Native: OR = 0.90, p-value = 0.1279.

For Asian/Pacific Islander: OR = 0.93, p-value 0.0952.

For Other race: OR = 0.92, p-value = 0.3767.

Ethnicity:

For Hispanic: OR = 1.08, p-value = 0.0060.

Non-Hispanic was used as the reference group.

For Unknown: OR = 1.24, p-value = 0.4389.

Employment Status:

Unemployed was used as the reference group.

For Employed: OR = 0.97, p-value 0.0509.

For Other: OR = 0.96, p-value 0.0299.

Medicare Coverage:

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

Medicare as primary with Medicaid: OR = 1.14, p-value <.0001.

Medicare as secondary/Medicare HMO: OR = 0.20, p-value <.0001.

Our results indicate potential disparities in emergency department utilization within 4-30 days of an inpatient discharge. Differences are observed by age (younger age), race (blacks), ethnicity (Hispanic), and dual Medicare-Medicaid status.

Compared to the reference age group, those who were younger had higher odds of an emergency department encounter subsequent to a recent discharge (4-30 days). The odds were highest for 18-<25 year olds, with a negative gradient for the 25-<44 age group, and the 45-<59 age group. Compared to whites, black patients had 15% higher odds of an emergency department encounter within 4-30 days. Compared to non-Hispanic patients, Hispanic patients had 8% higher odds of an emergency department encounter within 4-30 days. Finally, those with dual Medicare-Medicaid status had 14% higher odds of an ED encounter while those with Medicare as secondary coverage had 80% lower odds of an ED encounter within 4-30 days of an index discharge.

While there are notable differences by younger age, black race, and Hispanic ethnicity, as well as Medicare coverage, it is unclear if these disparities in emergency department encounters following discharge from an inpatient admission 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.

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

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, 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.

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

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.

Because data are derived from administrative databases, there is no additional data collection required.

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

N/A

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			

Intended Use	Specific Plan for Use	Current Use	For current use, provide Program Name and URL
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 ED30 measure as part of CMS' Dialysis Facility Compare (DFC) public reporting program. DFC provides information that can help dialysis patients and their caregivers and other consumers 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 2496: Standardized Readmission Ratio (SRR) for dialysis facilities
- NQF 2505: Emergency Department Use without Hospital Readmission During the First 30 Days of Home Health
- Standardized Emergency Department Encounter Ratio (SEDR) for Dialysis Facilities (currently undergoing endorsement review with ED30).

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 Ratio of Emergency Department Encounters Occurring Within 30 Days of Hospital Discharge (ED30) for Dialysis Facilities and Standardized Emergency Department Encounter Ratio (SEDR) 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. The ED30 and SRR are both intended to encourage care coordination for patients recently discharged from an inpatient admission, but measure two different outcomes after discharge.

The proposed ED30 applies to the same target population—adult Medicare-covered dialysis patients who have had ESRD for more than 90 days—as the SEDR. The target population for CMS' Standardized Readmission Ratio (SRR) for dialysis facilities (NQF #2496) is similar but also includes pediatric patients and the first 90 days of ESRD treatment.

ED30, SRR, and SEDR adjust for a similar set of patient characteristics. All three measures adjust for prior-year comorbidities although the SRR comorbidity list is different than that for the ED30 and SEDR. The SEDR includes adjustment for comorbidities at ESRD incidence. The ED30 and SRR adjust for a number of factors related to the index discharge that are not included in the SEDR model because index discharges are not relevant in that context.

The definition of index discharges is very similar for SRR and ED30 but there are some differences: 1) SRR excludes index discharges that follow a patient's 12th admission in the year; 2) ED30 excludes index discharges that occur in a calendar month in which the patient was enrolled in hospice; 3) ED30 excludes index discharges that result in a patient dying, being transplanted, discontinuing dialysis, recovering renal function, or becoming lost-to-follow-up within 30 days with no emergency department encounter or hospitalization while SRR excludes only those that result in patient dying within 30 days with no readmission.

ED30 and Emergency Department Use without Hospital Readmission During the First 30 Days of Home Health also 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 (logistic 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). 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