CBE ID

3565

Title

Standardized Emergency Department Encounter Ratio (SEDR) for Dialysis Facilities

Project

Management of Acute Events, Chronic Disease, Surgery, and Behavioral Health

Endorsement Status

Endorsed

Is Under Review

Yes

Next Maintenance Cycle

Spring 2026

Previous Endorsement Cycle

Spring 2020

Initial Endorsement

Fri, 11/20/2020 - 05:21

Steward

Centers for Medicare & Medicaid Services

1.0 New or Maintenance

Maintenance

1.1 Measure Structure

Single Measure

1.3 Electronic Clinical Quality Measure (eCQM)

No

1.6 Measure Description

The Standardized Emergency Department Encounter Ratio is the ratio of the observed number of emergency department (ED) encounters that occur for adult Medicare ESRD dialysis patients treated at a particular facility to the number of ED encounters that would be expected given the characteristics of the dialysis facility's patients and the national event rate for dialysis facilities. Medicare patients include those with traditional Fee for Service Medicare and those with Medicare Advantage. The time period for the measure calculation is one calendar year.

Note that for this measure an “ED encounter” always refers to an outpatient encounter that does not end in a hospital admission, but does include observation stays. This measure is calculated as a ratio but can also be expressed as a rate.

1.6a Material Specification Change(s)

Yes

1.6b Summary of Specification Changes

Since the previous endorsement cycle, we have made the following changes:

1. Denominator: the measure now includes Medicare Advantage (MA) patients that had previously been excluded due to lack of outpatient claims data.
2. Risk Adjustment: the measure includes Medicare Advantage as a covariate in the risk adjustment model.

1.7 Measure Type

Outcome

1.8 Level of Analysis

Facility

1.9 Care Setting

Other

1.9b Other Care Setting

Dialysis Facility

1.10 Measure Rationale

Emergency department (ED) encounters are an important indicator of care coordination. In addition, observation stays, generally defined as < 48 hours, have become more frequent since CMS adopted the “Two-Midnight rule” in 2013 to define more highly reimbursed inpatient care. Furthermore, the Hospital Readmissions Reduction Program placed further pressure on health systems to use observation stays to avoid triggering financial penalties. Traditional measures of inpatient hospitalization do not include outpatient ED encounters or observation stays and thus an important arena for unscheduled acute care had been largely unmeasured.

More than half (55.0%) of all patients with 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 [1]. This rate is 6-fold higher than the national mean for US adults in the general population [1]. Furthermore, the Lovasik study notes that among Medicare beneficiaries with ESRD, 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. A study by Zhang and colleagues reported that rates of ED visits among patients on thrice weekly in-center

hemodialysis vary by dialysis schedule (Mon/Weds/Fri; Tues/Thurs/Sat) and by day of week [2]. For example, the ED visit rate (without hospital admission) was highest on the day following the longer interdialytic interval over the weekend (Mondays), suggesting an association with facility structure and treatment schedule.

Missed dialysis treatments are associated with an over two-fold higher risk of an ED visit, suggesting an opportunity for dialysis facilities to establish or strengthen facility practices that can help to reduce skipped or shortened treatments through increased communication, care coordination, and patient education. This, in turn, has the potential to reduce avoidable ED visits. Such a strategy was used by several dialysis providers participating in the Centers for Medicare and Medicaid Innovation's Comprehensive End Stage Renal Disease Care model. For example, participants would keep an extra chair/station available at their facilities, or have arrangements with a sister facility to take a patient that needed an extra dialysis treatment. The result was more diversions of patients from the ED [3].

Finally, the CMS Centers for Medicare and Medicaid Innovation's Comprehensive End Stage Renal Disease Care model, and more recent ETC and Kidney Care Choices Models emphasize care coordination as a central feature of care delivery in order to reduce unnecessary utilization and improve outcomes. During the second performance year, the original Wave 1 cohort of ESCOs (ESRD Seamless Care Organizations) experienced about a 3% reduction in ED use relative to the period before the CEC model was launched [3-5].

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

Inclusion of Medicare Advantage Patients

Legislative changes that became effective in January 2021 removed barriers that had previously prevented ESRD patients from enrolling in Medicare Advantage (MA) plans. In the subsequent years, there have been a substantial increase in the number of ESRD beneficiaries covered by MA plans, now approaching 45% of the dialysis population. Unlike FFS beneficiaries, MA outpatient encounters and administrative records had not been readily available for analyzing facility quality, and so MA patients had been excluded from the previously endorsed version of this measure. With the recent availability of Part C Medicare Advantage encounter data, MA patients can now be included in this measure. Adjustment for MA coverage is important in order to control for potential difference in outcomes related to coverage type since there is wide variation in the frequency of MA patients at the dialysis facility level. In addition, our internal analyses indicate that MA patients have significantly higher rates of ED encounters compared to FFS patients.

While the currently endorsed version of this measure does not include MA patients, this

submission includes MA patients by: (1) incorporating Part C outpatient encounter data to identify ED visits for MA patients, (2) addition of all prevalent comorbidity from Part C encounter data in comorbidity adjustment, and (3) adjusts for MA coverage by including a time dependent covariate.

References:

[1] 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.

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[4] https://www.cms.gov/priorities/innovation/innovation-models/kidney-care-choices-kcc-model

[5] https://www.cms.gov/priorities/innovation/innovation-models/esrd-treatment-choices-model

1.13 Data Dictionary

Attached

1.13a Attach Data Dictionary

SEDR_DataDictionary_Final_04-2026.xlsx

1.14 Numerator

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

1.14a Numerator Details

Emergency department (ED) encounters are identified from Medicare FFS and Part C outpatient

claims using revenue center codes that indicate an ED visit (0450, 0451, 0452, 0453, 0454, 0455, 0456, 0457, 0458, 0459, 0981). 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.

1.15 Denominator

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

1.15a Denominator Details

General Inclusion Criteria for Dialysis Patients

Adult patients are included in the measure only after they have had ESRD for greater than 90 days. This minimum 90-day period assures that patients are eligible for Medicare, either as their primary or secondary insurer, and that follow-up is complete. Thus, the measure excludes ED encounters during the first 90 days of ESRD as well as patients who die or recover kidney function during that time period.

In order to exclude patients who only received temporary dialysis therapy, 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 failed 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.

In order to assure completeness of information on ED encounters for all patients included in the analysis, we restrict to Medicare patients who are either enrolled in Medicare Advantage or who reach a certain threshold of Medicare outpatient dialysis and inpatient claims indicating that Medicare is the primary payor. Specifically, months within a given dialysis patient-period are used for the Standardized Emergency Department Encounter Ratio calculation when the patient is enrolled in Medicare Advantage or meets the criterion of being within two months after a month with either: (a) $1200+ of Medicare dialysis claims OR (b) at least one Medicare inpatient claim.

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 kidney 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 EQRS 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. To adjust for duration of ESRD appropriately, we define six time intervals with cut points at 3-6 months, 6-12months, 1-2 years, 2-3 years, 3-5 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 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 [3-5]. This is the recurrent event analog of the well-known proportional hazards or Cox model [2-3]. To accommodate large-scale data, we adopt a model with piecewise constant baseline rates [1] and the computational methodology developed in Liu, Schaubel and Kalbfleisch [3].

References:

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1.15b Denominator Exclusions

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
- Non-Medicare primary insurance

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

1.15c Denominator Exclusions Details

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.

1.15d Age Group

Adults (18-64 years), Older Adults (65 years and older)

1.16 Type of Score

Ratio

1.17 Measure Score Interpretation

Better performance = Lower score

1.18 Calculation of Measure Score

The numerator is the observed number of ED encounter events for a facility, and the denominator for the same facility is the expected number of ED encounter events adjusted for patient mix. The measure for a given facility is calculated by dividing the numerator by the denominator. See 1.18a for **SEDR_Flowchart_Final_04-2026_508.pdf** attachment.

1.18a Attach measure score calculation diagram

SEDR_Flowchart_Final_04-2026_508.pdf

1.19 Measure Stratification Details

N/A

1.20 Types of Data Sources

Administrative Data, Claims Data, Registries

1.21a Data Collection Tool URL(s)

http://example.com

1.25 Data Source Details

Data are derived from the EQRS patient-specific clinical and administrative data, including ESRD patient list, CMS-2728 Medical Evidence Form, CMS-2746 Death Notification Form, and patient admission and discharge data, from all Medicare certified dialysis facilities, the Medicare Enrollment Database (EDB), and Medicare claims data.

In addition, the database includes transplant data from the Scientific Registry of Transplant Recipients (SRTR), data from the Nursing Home Minimum Dataset, and the provider and survey and certification data from the Internet Quality Improvement and Evaluation System (iQIES) data.

Information on ED visits is obtained from Medicare FFS and Part C outpatient claims, and past-year comorbidity data are obtained from multiple claim types (inpatient, home health, hospice (Part A only), skilled nursing facility claims).

Fee-for-service (FFS) Medicare Part A (inpatient) and Part B (outpatient and physician supplier, hospice, home health, and skill nursing) claims for dialysis patients are included in the current database; additionally, the database incorporates Part C Medicare Advantage (MA) data for the MA enrollees. This database ensures that hospital, outpatient dialysis, and other billable services under Medicare – whether FFS or MA – are captured.

1.26 Minimum Sample Size

There is not a minimum sample size needed to calculate the performance score. Public reporting of this measure on DFCC would be restricted to facilities with at least five patient years at risk to ensure stable estimates and for the measure to comply with restrictions on reporting of potentially identifiable patient information related to small cell size.

2.1 Attach Logic Model

SEDR_Logic-Model_Final_04-2026_508.pdf

2.2 Evidence of Measure Importance

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 [1]. Recent research points to many additional opportunities to further reduce unnecessary ED use in this population. Programs developed to impact dialysis provider practices have been shown to improve intermediate outcomes (reduced catheter vascular access [3], small solute adequacy, anemia management volume overload [1], hospitalization, and mortality.

Cohen and colleagues [9] reported that missed dialysis treatments are associated with an over two-fold higher risk of an ED visit, suggesting an opportunity for dialysis facilities to establish or strengthen facility practices that can help to reduce skipped treatments through increased communication, care coordination, and patient education. This, in turn, has the potential to reduce avoidable ED visits. Given the association between missed dialysis treatments and increased risk of an ED visit [4], dialysis facility interventions that improve adherence to the treatment schedule would be expected to decrease ED utilization. Other interventions, such as telehealth, have been demonstrated to reduce ED utilization in high-risk dialysis patients [5].

Zhang and colleagues [10] reported that rates of ED visits among patients receiving thrice weekly in-center hemodialysis vary by dialysis schedule (Mon/Weds/Fri; Tues/Thurs/Sat) and by day of week. For example, the ED visit rate (without hospital admission) was highest on the day following the longer interdialytic interval over the weekend (Mondays), suggesting an association with facility structure and treatment schedule.

In the general population, outpatient ED visits were reported to have increased more slowly for Medicare patients being treated by patient-centered medical home practices when compared to non-patient-centered medical homes [6]. PCMH provide comprehensive care and treat all the patient's clinical and mental and health issues; rely on care coordination across providers and provide expanded access to care around the clock (AHRQ; https://www.ahrq.gov/ncepcr/research/care-coordination/pcmh/define.html). A comparable example that may hold promise of reducing ED use among ESRD dialysis patients is the recent CMS Centers for Medicare and Medicaid Innovation's Comprehensive End Stage Renal Disease (ESRD) Care model that emphasizes care coordination as a central feature of care delivery in order to reduce utilization and improve outcomes. During the second performance year, the original Wave 1 cohort of ESCOs (ESRD Seamless Care Organizations) experienced about a 3% reduction in ED use relative to the period before the CEC model was launched [11].

Finally, low health literacy has been associated with increased use of ED services [7] and some studies have indicated that patient education interventions can reduce ED utilization [8].

In-Line References:

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[5] Effects of Early Frequent Nephrology Care on Emergency Department Visits among Patients with End-stage Renal Disease Chen YY, Chen L, Huang JW, Yang JY. Int J Environ Res Public Health. 2019 Mar 31;16(7):1158. doi: 10.3390/ijerph16071158.

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[12] Chan, K. E.;Thadhani, R. I.;Maddux, F. W. Adherence barriers to chronic dialysis in the United States. J Am Soc Nephrol. 2014 25(11):2642-8 doi:10.1681/asn.2013111160

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2.4 Performance Gap

Data for Table 1 are from the ESRD patient treatment history file described above in 1.15a for the year 2023. The total number of dialysis facilities included in the performance scores was 7,488. The total number of patients included in the performance scores was 517,165.

Table 1. Performance Scores by Decile

See 2.4a for attached table

2.4a Attach Performance Gap Results

SEDR_2.4a_Table-1_04-2026_508.pdf

2.6 Meaningfulness to Target Population

During the 2015 ED Technical Expert Panel (TEP) which included 3 patient members, some TEP members cited care fragmentation and lack of ownership over patient outcomes that often occur within the U.S. health care system contribute to avoidable ED use. They noted that many dialysis patients rely heavily on their nephrologists (versus primary care physicians) for more comprehensive as well as primary care due to their frequent interactions as part of the regular dialysis treatment schedule. There was agreement that better communication among providers including the dialysis facility is needed to avoid preventable ED visits.

The TEP agreed that ED encounters that do not result in admission are not well monitored as a quality indicator. Panelists recommended both the development of a measure of overall ED use that did not result in an admission along with a measure focused on ED visits occurring shortly after an inpatient discharge. ED encounter measures would provide facilities with a more complete picture of their performance on key clinical outcomes of mortality, hospitalization, readmission, and ED usage.

3.1 Contributions Towards Closing Care Gaps

This domain is optional for the Spring 2026 cycle.

4.1a Data Structure and Availability

All the data incorporated into our database come from structured data. Data collection for this measure is accomplished via data sources including EQRS, a web-based and electronic batch submission platform maintained and operated by CMS contractors, Medicare Claims, and other supplemental data sources (see Section 1.25 Data Source Details). Publicly reported measures like this one are reviewed on a regular basis by dialysis facility providers and rare instances of inaccurate or missing data are present (based on comments received during facility previews). For this measure maintenance submission, Medicare Advantage patients are now being included in the measure through the addition of Medicare Advantage Part C encounter data.

4.1b Implementation Costs and Burden

As the data required for this measure are already part of routine data collection, no additional costs or burden are anticipated.

4.1c Confidentiality

A public reporting threshold of at least 5 patient-years at risk in a given facility is in place for Dialysis Facility Care Compare on Medicare.gov (DFCC) to avoid potential compromise of confidentiality.

4.3 Feasibility Informed Final Measure

No feasibility challenges have been identified that resulted in a change to the measure. Changes to the measure were made to include Medicare Advantage patients that had previously been excluded and do not affect the feasibility profile.

4.4 Proprietary Information

Not a proprietary measure and no proprietary components

5.1.1 Data Used for Testing

Data are derived from registry and claims data explained in more detail in question 1.25, encompassing the years 2020-2023.

5.1.1a Dates of Testing Data

January-December 2020-2023

5.1.2 Differences in Data

None

5.1.3 Characteristics of Measured Entities

See 7.1 Supplemental Attachment for a PDF of the text and table for 5.1.3

5.1.4 Characteristics of Units of the Eligible Population

See 7.1 Supplemental Attachment for a PDF of the text and table for 5.1.4

5.2.1 Level(s) of Reliability Testing Conducted

Accountable entity level (i.e., measure score) (e.g., signal-to-noise analysis)

5.2.2 Method(s) of Reliability Testing

We evaluated the reliability of the SEDR using 2023 data from Medicare End-Stage Renal Disease (ESRD) dialysis patients. A key metric for this evaluation is the *inter-unit reliability* (IUR), which quantifies the proportion of total variation in a measure that is attributable to true differences between facilities, rather than to random variation. By definition, IUR ranges from 0 to 1, with higher values indicating that most of the observed variation in the quality measure reflects actual differences in facility performance—thereby implying higher precision in comparing facilities.

However, due to the ratio form of SEDR, directly estimating the within-facility variance is not straightforward. We use a bootstrap-based approach to estimate this component of variability.

Let $T_1,\ldots,T_N$ represent the SEDR values for N facilities. For each facility i with n_i subjects, r, we draw bootstrap samples *with replacement* from its patients (we found B=100 to be sufficient based on numerical experiments). For each sample, we compute the corresponding bootstrapped SEDRs, denoted of $T^*_{i,1}, \ldots T^*_{i,B}$. We then compute the sample variance of these bootstrapped SEDRs for each facility, denoted S_i^{*2}.

An estimate of the within-facility variance of SEDR, namely, $\sigma_{t,w}^2$, is given by the bootstrap variance:

$$S_{t,w}^2 = \Sigma^N_{i=1}[(n_i-1)\, S_i^{*2}]/\, \Sigma^N_{i=1}(n_i-1).$$

Calling on formulas from the one-way analysis of variance, an estimate of the overall variance of T_i is

$$S_t^2 = \Sigma^N_{i=1}[n_i (T_i - \check{T})^2]/ [n'(N-1)],$$

where

$$\check{T} = Sn_i T_{i/} Sn_i$$

is the weighted mean of the observed SEDR and

$$n' = (Sn_i - Sn_i^2/Sn_i)/(N-1)$$

is approximately the average facility size (number of patients per facility). Note that S_t^2 is the total variation of SEDR and is an estimate of $\sigma_b^2 + \sigma_{t,w}^2$, where σ_b^2 is the between-facility variance, the true signal reflecting the differences across facilities. Thus, the estimated IUR, which is defined by

$$IUR = \sigma_b^2/(\sigma_b^2 + \sigma_{t,w}^2),$$

can be estimated with $(S_t^2 - S_{t,w}^2)/S_t^2$.

Note: SEDR calculations were restricted to facilities with at least five patient-years at risk to ensure stable estimates and comply with restrictions on reporting of potentially identifiable patient information related to small cell size.

5.2.3 Reliability Testing Results

The overall IUR for SEDR is 0.62.

See 5.2.3a for **SEDR_5.2.3a_Table 2A_Table 2B_IUR Additional Info_Final_04-2026_508.pdf**, which contains additional information about SEDR's IUR

5.2.3a Attach Additional Reliability Testing Results

SEDR_5.2.3a_Table-2A_Table-2B_IUR-Additional-Info_Final_04-2026_508.pdf

5.2.4 Interpretation of Reliability Results

The IUR for SEDR in 2023 is 0.62 which indicates that almost two-thirds of the variation can be attributed to the between-facility differences and less than roughly one-third to within-facility variation.

Table 2a. Accountable Entity Level Reliability Testing Results by Denominator, Target Population Size

See 5.2.3a for **SEDR_5.2.3a_Table 2A_Table 2B_IUR Additional Info_Final_04-2026_508.pdf**

Table 2b. Accountable Entity Level Reliability Testing Results by Reliability Score

See 5.2.3a for **SEDR_5.2.3a_Table 2A_Table 2B_IUR Additional Info_Final_04-2026_508.pdf**

5.3.1 Level(s) of Validity Testing Conducted

Accountable entity level (i.e., measure score) (e.g., criterion validity)

5.3.2 Type of Accountable Entity Level Validity Testing Conducted

Empirical validity testing at the accountable entity-level (e.g., criterion validity, construct validity, known groups analysis)

5.3.3 Method(s) of Validity Testing

Empirical validity testing - validation of performance measure scores:

To validate SEDR we first stratified facilities into the ‘better than/as expected’ and ‘worse than expected’ categories of SEDR. Next, we calculated mean performance scores for several quality measures: Standardized Mortality Ratio (SMR), Standardized Transfusion Ratio (STrR), Standardized Fistula Rate (SFR), Percentage of Prevalent Patients Waitlisted (PPPW), Standardized Hospitalization Ratio (SHR), and Emergency Department Visit within 30 days of discharge (ED30). We then compared mean performance scores across the combined strata of ‘better than/as expected’ ‘and ‘worse than expected’ performance categories for SEDR.

We expect better mean performance on the above quality measures for facilities classified as ‘better than/as expected’ for SEDR compared to facilities classified as ‘worse than expected.’ Compared to facilities that perform ‘worse than expected’, facilities that perform ‘better than/as expected’ on SEDR are likely to have more successful care coordination and other processes of care in place that may help patients avoid an ED visit:

- SMR: We expect to observe a lower mean standardized mortality ratio for facilities in the 'better than/as expected' category for SEDR compared to facilities classified as 'worse than expected.' Facilities with a higher rate of ED utilization may not have care processes in place to support management of acute crises such as cardiovascular related events, infections, and others that places patients at risk of dying.
- STrR: We expect to observe a lower mean standardized transfusion event ratio for facilities in the 'better than/as expected' category for SEDR compared to facilities classified as 'worse than expected.' Facilities that have a lower STrR likely have processes of care in place to support robust anemia management and other care processes compared to facilities with a higher STrR.
- Standardized Fistula Rate (SFR): We expect to observe a higher mean standardized fistula rate for facilities in the 'better than/as expected' category for SEDR compared to facilities classified as 'worse than expected.' AVFs are typically considered to be the preferred vascular access due to lower risk of infection and potential need for hospitalization or other acute care. Higher standardized fistula rates suggest facilities are successful at creating AVFs due to more robust processes to coordinate care outside of the dialysis facility. Facilities that do a better job at care coordination reduce the likelihood that patients will experience a preventable and unscheduled acute event resulting in an ED visit.
- PPPW: We expect to observe a higher mean standardized percentage of prevalent patients on the waitlist for facilities in the 'better than/as expected' category for SEDR compared to facilities classified as 'worse than expected.' Facilities that have a higher standardized percentage of patients on the transplant waitlist suggest they may have more robust processes to coordinate care outside of the dialysis facility with other providers and the transplant center, compared to facilities with lower percentages. This includes the facility taking steps to ensure patients maintain sufficient health status in order to be placed on the waitlist. Therefore, facilities that have higher standardized waitlist percentages are likely deploying effective care coordination and other care processes that may reduce the likelihood of patients getting preventable and unscheduled acute care from the ED.
- SHR: We expect that facilities classified as 'worse than expected' for SEDR will have a standardized hospitalization ratio that is close to the national norm. SEDR only captures outpatient ED visits that do not result in an admission which, by definition, is a different patient subpopulation than SHR. Patients that require acute care from the ED without an admission likely have lower acuity medical needs that can be handled in an outpatient setting without admission. Therefore, we expect this measure will have the weakest relationship to the current measure as we do not expect SEDR flagging to be related to how facilities perform on SHR.
- ED30: We expect to observe a lower mean ED30 ratio for facilities classified as 'better than/as expected' for SEDR compared to facilities classified as 'worse than expected' since both measures are a reflection of outpatient ED use. As such, we expect that this will have the strongest relationship with the current measure. However, the measures represent two different aspects of dialysis patients' emergency department use that assess complementary elements of facility care. A low SEDR, corresponding to low overall emergency department encounter rates, indicates that the facility has processes (e.g. patient/staff education, assistance with primary care, frequent evaluation of target weight) 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 (e.g. medication reconciliation, evaluation of target weight, assistance with follow up appointments) that occurs after a hospital discharge.

5.3.4 Validity Testing Results

See 5.3.4a for **SEDR_5.3.4_Final_508.pdf**, which contains the text and table for this question

5.3.4a Attach Additional Validity Testing Results

SEDR_5.3.4_Final_508.pdf

5.3.5 Interpretation of Validity Results

On average, the standardized mortality ratio was 8% higher than the national average for facilities that were 'worse than expected,' and 2% lower from the national average (SMR = 0.98) for facilities that were 'better than/as expected' for SEDR.

On average, the standardized transfusion event ratio was 5% higher than the national average for facilities classified as 'worse than expected' while the 'better than/as expected' classification group of facilities were 6% lower than the national average. This suggests that facilities which have lower numbers of transfusion events likely have better processes of care in place to support robust anemia management and other care processes, thus reducing patient utilization of the ED for some acute care needs.

Overall, the average SFR was 58.57% for facilities classified as 'better than/as expected' and 55.63% in facilities classified as 'worse than expected.' The results reinforce the observation that patients with AVFs have lower risk of infection and potential need for acute care or hospitalization compared to patients with other access types, such as long-term catheter. Higher facility standardized fistula rates suggests facilities may be doing a better job at care coordination, reducing patient utilization of the ED for many acute care needs. While the difference in fistula rates was small between facilities this may reflect that national trends in AVF rates have generally plateaued across many US dialysis facilities.

The mean facility standardized percentage of patients waitlisted (PPPW) in facilities classified as 'better than/as expected' was 16.05% compared to facilities classified as 'worse than expected' (14.94%), suggesting that facilities that have higher rates of patients on the transplant waitlist may have more robust processes to coordinate care outside of the dialysis facility with other providers. These facilities could be deploying more effective care coordination and other care processes that may reduce the likelihood of patients utilizing the ED for many acute care needs.

Facilities classified as 'better than/as expected' and those classified as 'worse than expected' for SEDR performed similarly on SHR. The mean SHR was 0.98 for 'better than/as expected' and 1.01 for facilities classified as 'worse than expected' for SEDR. These respective values are close to the

national mean of 1.0 indicating flagging for SEDR is not related to how facilities perform on SHR. This suggests that both measures are capturing different patient subpopulations and different facets of facility care quality.

The ED30 ratio on average for facilities classified as 'better than/as expected' for SEDR was close to the national average (1.03), while facilities classified as 'worse than expected' had an ED30 ratio 47% higher than the national average. These results reinforce that both ED30 and SEDR assess complementary elements of care that are likely reflected by internal processes that support greater access to care and other clinical triaging of patients that may be experiencing onset of an acute event, which may help reduce patient utilization of the ED for preventable acute care needs.

Taken together these results provide validation support for SEDR. Performance on key quality measures that were expected to be related to ED use was also related to facility flagging in the respective 'better than/as expected' or 'worse than expected' categories.

5.4.1 Methods Used to Address Risk Factors

Statistical risk adjustment model with risk factors

5.4.2 Conceptual Model Rationale

See 5.4.2a for **SEDR_Conceptual Model_5.4.2 Rationale_04-2026_508.pdf**, which contains the text and table for this question, along with the conceptual model on Page 1

5.4.2a Attach Conceptual Model

SEDR_Conceptual-Model_5.4.2-Rationale_04-2026_508.pdf

5.4.3 Variable Distribution Across Measured Entities

See 5.4.3a for **SEDR_5.4.3 Variable Distribution Across Measured Entities_04-2026_508.pdf**, which contains the text and table for this question

5.4.3a Attach Descriptive Statistics for Risk/Case-mix Variables

SEDR_5.4.3-Variable-Distribution-Across-Measured-Entities_04-2026_508.pdf

5.4.4 Risk/Case-Mix Adjustment Modeling and/or Stratification Results

See 5.4.4a for **SEDR_5.4.4 Risk_Case-Mix Adjustment Modeling_04-2026_508.pdf**, which contains the text and tables for this question

5.4.4a Attach Risk/Case-mix Adjustment Modeling and/or Stratification Specifications

SEDR_5.4.4-Risk_Case-Mix-Adjustment-Modeling_04-2026_508.pdf

5.4.5 Calibration and Discrimination

The c-statistic for a recurrent event model measures the concordance between the observed rate of recurrent events and the model-based rate. The C-statistic for SEDR is 0.61.

See 5.4.5a for calibration and discrimination testing results, found in **SEDR_5.4.5a_Final_508.pdf**.

5.4.5a Attach Calibration and Discrimination Testing Results

SEDR_5.4.5a_Final_508.pdf

5.4.6 Interpretation of Risk/Case-mix Factor Findings

See 7.1 Supplemental Attachment section for **SEDR_5.4.6. Interpretation of Risk_04-2026_508.pdf**, which contains the text and table for this question.

5.4.7 Final Approach to Address Risk Factors

Statistical risk adjustment model with risk factors

6.1.1 Current Status

In use

6.1.2 Current or Planned Use(s)

Public Reporting

6.1.3 Program Details

Name of the program and sponsor
Dialysis Facility Care Compare, Centers for Medicare and Medicaid Services
URL of the program
https://www.medicare.gov/care-compare
Purpose of the program

Dialysis Facility Care Compare helps patients find detailed information about Medicare-certified dialysis facilities. They can compare the services and the quality of care that facilities provide.

Geographic area and percentage of accountable entities and patients included

United States. All Medicare-certified dialysis facilities that have at least 5 patient years at risk are included in the measure calculation for the program. Five patient-years at risk means that the total time at risk in the measure denominator for the reporting period of calendar year 2023 must meet or exceed 5 patient-years exposure. For the October 2024 Dialysis Facility Compare refresh, 7,106 U.S. dialysis facilities serving 278,531 patients had SEDR results reported.

Applicable level of analysis and care setting

Facility level, Dialysis Facilities

,
Name of the program and sponsor
Dialysis Facility Reports, Centers for Medicare and Medicaid Services
URL of the program
https://data.cms.gov/quality-of-care/medicare-dialysis-facilities
Purpose of the program

The Dialysis Facility Reports (DFRs) are provided as a resource for characterizing selected aspects of clinical experience at this facility relative to other caregivers in this state, End Stage Renal Disease (ESRD) Network, and across the United States. Since these data could be useful in quality improvement and assurance activities, each state's surveying agency may utilize the DFRs as a resource during their survey and certification process. Measures included in the DFRs are updated annually and available to dialysis facilities to review and submit comments prior to their release to State Survey Agencies and Regional Offices in September of each year.

Geographic area and percentage of accountable entities and patients included

United States. All Medicare-certified dialysis facilities and have at least 5 patient years at risk are included in the measure calculation for the program. Five patient-years at risk means that the total time at risk in the measure denominator for the reporting period of calendar year 2023 must meet or exceed 5 patient-years exposure. For the FY 2025 Dialysis Facility Reports, 7,106 U.S. dialysis facilities serving 278,531 patients had SEDR results reported.

Applicable level of analysis and care setting

Facility level, Dialysis Facilities

6.1.4 Attributes for Accountability Use

This measure is best suited for an accountability program that focuses on End Stage Renal Disease (ESRD) patients. Specifically, ESRD patients with Medicare coverage (either traditional Medicare or a Medicare Advantage Plan) would be the target population. Programs that focus on the dialysis facility as the accountable entity are ideal, as opposed to programs that focus on the Nephrologist or provider. As such, this is an outpatient measure with limited adjustments for social risk factors. However, additional adjustments could be made at the program level based on the needs or design of the program.

6.2.1 Actions of Measured Entities to Improve Performance

As described in the logic model there are multiple resources facilities have available which can help them prevent avoidable ED events. These include:

- Identification of patients with missed/shortened treatments and counseling or removal of barriers (e.g. assistance with transportation) to improve adherence to dialysis prescription
- Tracking patients who do not achieve target weight for improved fluid management by

offering additional or prolonged dialysis treatments
- Reconcile medications after hospitalization or change in care setting to avoid medication errors
- Establish relationships with outpatient vascular access centers so that efficient management of vascular access problems (e.g. access thrombosis or malfunction) can be achieved without reliance on the Emergency Department
- Regular review and training refresher for infection control
- Educate patients about when to receive care in the ED vs. dialysis clinic or primary care and who to contact if questions or concerns arise between treatments

6.2.2 Feedback on Measure Performance

For DFCC, feedback can be provided any time through contacting the dialysisdata.org helpdesk. Preview periods allow for specific times for facilities to review and comment on measure calculations, and provide an opportunity to request a list of patients included in the measure calculation.

Comments received during DFCC preview periods tend to be rare. What few questions we get are generally technical in nature, asking for clarification on how the SEDR is calculated for particular facilities, including questions about patient assignment and application of risk adjustment criteria.

6.2.3 Consideration of Measure Feedback

The revisions made to the measure specifications during this maintenance review were not directly in response to specific feedback received during public reporting (which, as described above, was more general in nature).

Based on enrollment information from the Medicare Enrollment Database (EDB), the percentage of ESRD dialysis beneficiaries enrolled in Medicare Advantage (MA) has steadily increased over time. From 12% in 2010, the proportion rose to 22% by 2020. Prior to 2020, there was an annual increase of approximately 1%. However, since 2021, the annual increase has been more than 5%.

The growth in ESRD beneficiaries joining MA plans carries significant implications for the metrics used to assess dialysis facility performance. Contrary to the data from Fee-For-Service (FFS) Medicare beneficiaries, MA outpatient encounters and administrative records had not been readily available for the purposes of analyzing facility quality, except for internal CMS use in risk adjustment and performance assessment.

6.2.4 Progress on Improvement

See 7.1 Supplemental Attachment section for **SEDR_6.2.4 Progress on Improvement_04-2026_508.pdf**, which contains the text and table for this question

6.2.5 Unexpected Findings

None

7.1 Supplemental Attachment

SEDR_7.1-Supplemental-Attachment.zip

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The measure developer is different from the measure steward

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