

Proposed Changes to Existing Measure for HEDIS^{®1} MY 2020 Emergency Department Utilization (EDU)

NCQA seeks comments on the following proposed changes for the *Emergency Department Utilization (EDU)* measure:

1. Remove ED visits that convert to observation stays from the measure numerator.
 - This change brings the EDU measure into alignment with NCQA's other risk-adjusted utilization measures, where observation stays are treated as a hospitalization event.
2. Classify high-frequency ED utilizers as outliers and remove them from the risk-adjusted ED rate.
 - This change brings the EDU measure into alignment with other NCQA risk-adjusted utilization measures and supports improved risk-adjustment modeling.
3. Add a new indicator that reports the rate of outliers among the plan population.
 - This change promotes transparency through reporting of members who are excluded due to outlier status. It is aligned with other NCQA risk-adjusted utilization measures where high-frequency outliers are excluded.

Background

EDU assesses the rate of ED visits among Medicare and commercial members 18 years of age and older. Health plans report the observed and expected rates of ED visits for the eligible population. Observation stays are included as events in NCQA's risk-adjusted hospitalization measures, and their removal from the EDU measure prevents double counting of these events. We also seek to align our approach to high-frequency utilization with other risk-adjusted utilization HEDIS measures.

Methods

Testing of potential measure changes was conducted in a subset of Medicare Advantage claims covering 2.2 million beneficiaries from July 2016–June 2018. Testing of the commercial product line is ongoing. Preliminary commercial results are in line with findings from the Medicare product line.

Medicare Findings

Observation stays. Stakeholders agreed with the removal of observation stays from the EDU measure, given the inclusion of observation stay events in NCQA's risk-adjusted hospitalization measures. NCQA proposes to remove ED visits that result in observation stays from the EDU measure's numerator. Testing results showed approximately 20% (n=162,057) of total ED visits among Medicare beneficiaries converted to an observation stay, with the highest proportion among beneficiaries 75–84 years of age.² Among the health plans tested, the average number of ED visits that converted to an observation stay was 1,706. Wide variation was observed: Plans in the 10th percentile had 82 ED visits convert to an observation stay; plans in the 90th percentile had 3,176 visits convert.

¹HEDIS[®] is a registered trademark of the National Committee for Quality Assurance (NCQA).

²NCQA identified observation stays using Uniform Billing revenue codes 0760, 0762 and 0769 on outpatient claims.

High Frequency ED Utilization. The Agency for Healthcare Research and Quality (AHRQ) and others have identified a subpopulation of individuals (across all payer sources) who experience a markedly higher frequency of ED use, without evidence of clinical or demographic characteristics differentiating them from other patients. This high utilization is likely attributed to social or behavioral factors, which present a challenge to measurement.

Testing results showed that 4.5% of Medicare beneficiaries 18–64 years of age were high-frequency ED utilizers,³ accounting for 20.4% of visits. Among beneficiaries 65 and older, high-frequency ED use was observed in 4.8% of members and accounted for 16.4% of visits. On average, Medicare plans had 4.4% (10th percentile: 1.0; 90th percentile: 7.7) high-frequency ED users 18–64 and 5.0% (10th percentile: 2.7; 90th percentile: 7.1) high-frequency utilizers 65 and older.

Although we propose the removal of high-frequency ED utilizers from the measure's risk-adjusted rate, NCQA does not intend to exclude outlier members completely. The updated EDU measure includes a separate unadjusted outlier rate to be reported by health plans. This approach is in line with other NCQA risk-adjusted utilization measures.

Removing Both Observation Stays and High Frequency ED Utilizers. NCQA also assessed the impact of making both changes on the EDU measure's eligible population. Table 1 shows the percentage change in the ED visit rate between the HEDIS MY 2018 measure and the proposed MY 2020 measure.

Table 1. Impact of Removing ED Visits That Convert to Observation Stays and High-Frequency ED Utilizers, Medicare

Age	ED Visit Rate per 1,000 Members (Observed)		Change
	HEDIS MY 2018 Specifications	HEDIS MY 2020 Specifications (After Removing Observation Stays and High-Frequency Utilizers)	
18-64	2,136.3	1,636.2	↓23%
65+	1,668.8	1,315.0	↓21%

NCQA seeks feedback on the following questions:

- 1. Remove Observation Stays.** Should NCQA remove ED visits that convert to observation stays from the measure numerator for all product lines?
- 2. Individuals With a High Frequency of ED Utilization.** NCQA proposes to remove individuals with a high frequency of ED use from the risk-adjusted measure rate. The rate of high-frequency utilizers would be reported separately. Do you approve of this approach?

Supporting documents include the draft measure specification, evidence workup and performance data.

NCQA acknowledges the contributions of the Geriatric Measurement Advisory Panel and the Utilization Measurement Advisory Panel.

³NCQA defined high frequency ED use according to AHRQ thresholds. High utilizers include Medicare beneficiaries age 18-64 with 6 or more ED visits, Medicare beneficiaries age 65 and over with 4 or more ED visits and Commercial beneficiaries 18-64 with 4 or more ED visits during the year.

Emergency Department Utilization (EDU)

SUMMARY OF CHANGES TO HEDIS MEASUREMENT YEAR 2020

- Added definitions for “outlier” and “non-outlier.”
- Revised step 1 in the calculation of observed events to exclude ED visits that result in an observation stay.
- Added step 3 in the calculation of observed events to remove discharges for outlier members.
- Revised the risk adjustment weight table names.
- Specified separate PPV and PUCV risk adjustment weight tables for the Medicare population age 18-64 and the Medicare population age 65 and older.
- Removed step 3 to identify the base risk weight from the calculation of PPV and PUCV; renumbered subsequent steps.
- Added instructions to report outliers separate from non-outliers.
- Revised the data elements tables and added reporting columns for outliers.

Description

For members 18 years of age and older, the risk-adjusted ratio of observed to expected emergency department (ED) visits during the measurement year.

Definitions

Outlier	Medicare members 18–64 years of age with six or more ED visits during the measurement year.
	Medicare members 65 years of age and older with four or more ED visits during the measurement year.
	Commercial members 18 years of age and older with four or more ED visits during the measurement year.
Non-outlier	Medicare members 18–64 years of age with five or fewer ED visits during the measurement year.
	Medicare members 65 years of age and older with three or fewer ED visits during the measurement year.
	Commercial members 18 years of age and older with three or fewer ED visits during the measurement year.
Classification period	The year prior to the measurement year.
PPV	Predicted probability of a visit. The predicted probability of a member having an emergency department visit in the measurement year.
PUCV	Predicted unconditional count of visits. The unconditional count of emergency department visits for members during the measurement year.

Eligible Population

Note: Members in hospice are excluded from the eligible population. Refer to General Guideline 17: Members in Hospice.

Refer to General Guideline 10: Reporting for small denominator limits.

Product lines	Commercial, Medicare (report each product line separately).
Ages	18 years and older as of December 31 of the measurement year.
Continuous enrollment	The measurement year and the year prior to the measurement year.
Allowable gap	No more than one gap in enrollment of up to 45 days during each year of continuous enrollment.
Anchor date	December 31 of the measurement year.
Benefit	Medical.
Event/ diagnosis	None.

Calculation of Observed Events

Step 1 Count each visit to an ED once, regardless of the intensity or duration of the visit. Count multiple ED visits on the same date of service as one visit. Identify all ED visits during the measurement year using either of the following:

- An ED Visit (ED Value Set).
- A procedure code (ED Procedure Code Value Set) with an ED place of service code (ED POS Value Set).

Do not include ED visits that result in an inpatient stay (Inpatient Stay Value Set) or an observation stay (Observation Stay Value Set).

Step 2 Exclude encounters with any of the following:

- A principal diagnosis of mental health or chemical dependency (Mental and Behavioral Disorders Value Set).
- Psychiatry (Psychiatry Value Set).
- Electroconvulsive therapy (Electroconvulsive Therapy Value Set).

Step 3 For the remaining ED visits, calculate the number of visits per member and remove visits for outlier members. Report these members as outliers in Table EDU-A-2/3.

Step 4 Calculate the total using all ED visits identified after completing steps 1–3. Assign each remaining ED visit to an age and stratification category using the reporting instructions below.

Risk Adjustment Determination

For each non-outlier member in the eligible population, use the steps in the *Utilization Risk Adjustment Determination* section in the *Guidelines for Risk Adjusted Utilization Measures* to identify risk adjustment categories based on presence of comorbidities.

Risk Adjustment Weighting and Calculation of Expected Events

Calculation of risk-adjusted outcomes (counts of ED visits) uses predetermined risk weights generated by two separate regression models. Weights from each model are combined to predict how many visits each member may have during the measurement year.

For each **non-outlier** member in the eligible population, assign Predicted Probability of a Visit (PPV) risk weights.

- Step 1** For each member with a comorbidity HCC Category, link the PPV weights.
- *For the Medicare product line, use the following tables:*
 - *Members 18–64:* Table EDU-MA-PPV-ComorbidHCC-Under65.
 - *Members 65 and older:* Table EDU-MA-PPV-ComorbidHCC-65Plus.
 - *For the commercial product line, use Table EDU-Comm-PPV-ComorbidHCC.*

- Step 2** Link the age-gender PPV weights for each member using the following tables.

- *For the Medicare product line, use the following tables:*
 - *Members 18–64:* Table EDU-MA-PPV-Under65.
 - *Members 65 and older:* Table EDU-MA-PPV-65Plus.
- *For the commercial product line, use Table EDU-Comm-PPV.*

- Step 3** Sum all PPV weights associated with the member (HCC, age and gender **base-weight**).

- Step 4** Calculate the predicted probability of each member having at least one visit based on the sum of the weights for each member using the formula below.

$$PPV = \frac{e^{(\sum PPV\ WeightsForEachMember)}}{1 + e^{(\sum PPV\ WeightsForEachMember)}}$$

Truncate intermediate calculations to 10 decimal places.

Note: The risk adjustment tables will be released on November 1, 2020, and posted to www.ncqa.org.

For each member in the eligible population, assign Predicted Unconditional Count of Visits (PUCV) risk weights.

- Step 1** For each member with a comorbidity HCC Category, link the PUCV weights. If a member does not have any comorbidities to which weights can be linked, assign a weight of 1.
- *For the Medicare product line, use the following tables:*
 - *Members 18–64:* Table EDU-MA-PUCV-ComorbidHCC-Under65.
 - *Members 65 and older:* Table EDU-MA-PUCV-ComorbidHCC-65Plus.
 - *For the commercial product line, use Table EDU-Comm-PUCV-ComorbidHCC.*

- Step 2** Link the PUCV age-gender weights for each member using the following tables.

- *For the Medicare product line, use the following tables:*
 - *Members 18–64:* Table EDU-MA-PUCV-Under65.
 - *Members 65 and older:* Table EDU-MA-PUCV-65Plus.
- *For the commercial product line, use Table EDU-Comm-PUCV.*

- Step 3** Calculate the predicted unconditional count of visits in the measurement year, by multiplying all PUCV weights (HCC, age, gender ~~and base weight~~). Use the following formula:

$$\text{PUCV} = \text{Base Weight} \text{ Age/gender Weight} * \text{HCC Weight}$$

Note: Multiply by each HCC associated with the member. For example, assume a member with HCC-2, HCC-10, HCC-47. The formula would be:

$$\text{PUCV} = \text{Base Weight} \text{ Age/gender Weight} * \text{HCC-2} * \text{HCC-10} * \text{HCC-47}$$

Note: Truncate intermediate calculations to 10 decimal places.

- Expected Count of ED Visits** Report the final member-level expected count of ED visits for each category using the formula below. Round to four decimal places using the .5 rule and enter these values into the reporting table.

$$\text{Expected Count of ED Visits} = \text{PPV} \times \text{PUCV}$$

- Step 4** Use the formula below to calculate to calculate the covariance of the predicted outcomes for each category (i.e., gender and age group). Do not round the covariance before using it in step 5.

$$\text{COV}_c = \frac{\sum_{m=1}^{n_c} (\text{PPV}_m - \text{mean}(\text{PPV})_c) \times (\text{PUCV}_m - \text{mean}(\text{PUCV})_c)}{n_c - 1}$$

Where:

- c denotes an individual category
- n_c is the number of members in the category indicated by c
- m is an individual member within the category indicated by c
- PPV_m is the unrounded PPV for the member denoted by m
- $\text{mean}(\text{PPV})_c$ is the unrounded mean PPV in the category indicated by c
- PUCV_m is the unrounded PUCV for the member denoted by m
- $\text{mean}(\text{PUCV})_c$ is the unrounded mean PUCV in the category indicated by c

- Step 5** Once the covariance between PPV and PUCV for a given category is calculated, it can be used as indicated in the formula below to calculate the variance for that category.

$$\text{Variance}_c = \sum_{m=1}^{n_c} (\text{PPV}_m \times \text{PUCV}_m)^2 \times \left(1 + (1 - \text{PPV}_m)^2 + \left(\frac{2 \times \text{COV}_c}{\text{PPV}_m \times \text{PUCV}_m} \right) \right)$$

Where:

- c denotes an individual category
- n_c is the number of members in the category indicated by c
- m is an individual member within the category indicated by c
- PPV_m is the unrounded PPV for the member denoted by m
- PUCV_m is the unrounded PUCV for the member denoted by m
- n_c is the number of members in the category indicated by c

Round the variance for reporting to 4 decimal places using the .5 rule.

Reporting: Number of Members in the Eligible Population

The number of members in the eligible population (**including outliers**) for each age and gender group and enter these values in the reporting table (Table EDU-A-2/3).

Reporting: Number of Non-Outliers

The number of non-outlier members for each age and gender group and the overall total. Enter these values in Table EDU-A-2/3.

Reporting: Number of Outliers

The number of outlier members for each age and gender group and the overall total. Enter these values in Table EDU-A-2/3.

Calculated: Outlier Rate

The number of outlier members divided by the number of members in the eligible population, displayed as permillage (multiplied by 1,000), for each age and gender group and the overall total. Calculated by IDSS.

Reporting: Number of Observed Events Among Non-outlier Members

The number of observed ED visits within each age and gender group and total (Table EDU-B-2/3).

Calculated: Observed Visits per 1,000 Non-Outlier Members

The number of observed ED visits divided by the number of **non-outlier** members in the eligible population, multiplied by 1,000 within each age and gender group and total. Calculated by IDSS.

Reporting: Number of Expected Events Among Non-Outlier Members

The number of expected ED visits within each age and gender group and total (Table EDU-B-2/3).

Calculated: Expected Visits per 1,000 Non-Outlier Members

The number of expected ED visits divided by the number of **non-outlier** members in the eligible population, multiplied by 1,000 within each age and gender group and total. Calculated by IDSS.

Reporting: Variance

The variance (from Risk Adjustment Weighting and Calculation of Expected Events, PUCV, step 6) within each age and gender group and total (Table EDU-B-2/3).

Note

- *Supplemental data may not be used for this measure.*

Table EDU-A-2/3: ~~Number of Members in the~~ Eligible Population and Outlier Rate

Age	Sex	Members in the Eligible Population	Non-outlier Members	Outlier Members	Outlier Rate
18-44	Male				
	Female				
	Total				
45-54	Male				
	Female				
	Total				
55-64	Male				
	Female				
	Total				
65-74	Male				
	Female				
	Total				
75-84	Male				
	Female				
	Total				
85+	Male				
	Female				
	Total				
18-64 Total	Male				
	Female				
	Total				
65+ Total	Male				
	Female				
	Total				
Total	Male				
	Female				
	Total				

Table EDU-B-2/3: *Non-Outlier Member* Number of ED visits by Age and Risk Adjustment

Age	Sex	Observed ED Visits	Observed ED Visits/ 1,000 Members	Expected ED Visits	Expected ED Visits/ 1,000 Members	Variance	O/E Ratio
18-44	Male						
	Female						
	Total						
45-54	Male						
	Female						
	Total						
55-64	Male						
	Female						
	Total						
65-74	Male						
	Female						
	Total						
75-84	Male						
	Female						
	Total						
85+	Male						
	Female						
	Total						
18-64 Total	Male						
	Female						
	Total						
65+ Total	Male						
	Female						
	Total						
Total	Male						
	Female						
	Total						

Emergency Department Utilization (EDU)

Measure Workup

Measure Description

The *Emergency Department Utilization (EDU)* measure assesses emergency department utilization for a plan population risk adjusted for age, gender and comorbidities. This measure highlights potential health care quality differences between plans and the impact of effective care coordination and system-level interventions for:

1. **Medicare:** Plan beneficiaries 18 years of age and older.
2. **Commercial:** Plan members 18 years of age and older.

Evidence Overview

Background and Importance

Each year, approximately 1 out of every 5 U.S. adults utilizes an emergency department (ED) for health care (Gindi 2016). ED utilization rates have trended upward since 2006, reaching a 10-year high in 2015 for all age groups (Sun 2018). Stomach or abdominal pain was the most common medical complaint for ED visits in 2015, followed by chest pain, fever and cough (Rui 2015). Studies have found that behavioral health factors also increase both the likelihood and number of ED visits in high-needs/high-cost older adults (Weilburg 2018). Common reasons for patients visiting the ED rather than urgent care or primary care facilities include perceived severity of the medical problem, inconvenient doctor's office hours and lack of access to primary care providers.

Recent studies estimate that between 30% and 60% of all ED visits are unnecessary or nonurgent, with a potential savings of up to \$5 billion annually if preventable ED visits occurred in urgent care or primary care settings instead (Hu 2018; NEHI 2010; Uscher-Pines 2013). Unnecessary ED use causes overcrowding, increased wait times and a resulting inability of hospital staff to provide efficient, quality care to patients with truly emergent conditions. Additionally, unnecessary use strains limited hospital and community resources because ED visits are costlier to hospitals and patients than comparable office visits. Several studies have suggested that nonurgent ED visits can be prevented by optimal care in outpatient settings.

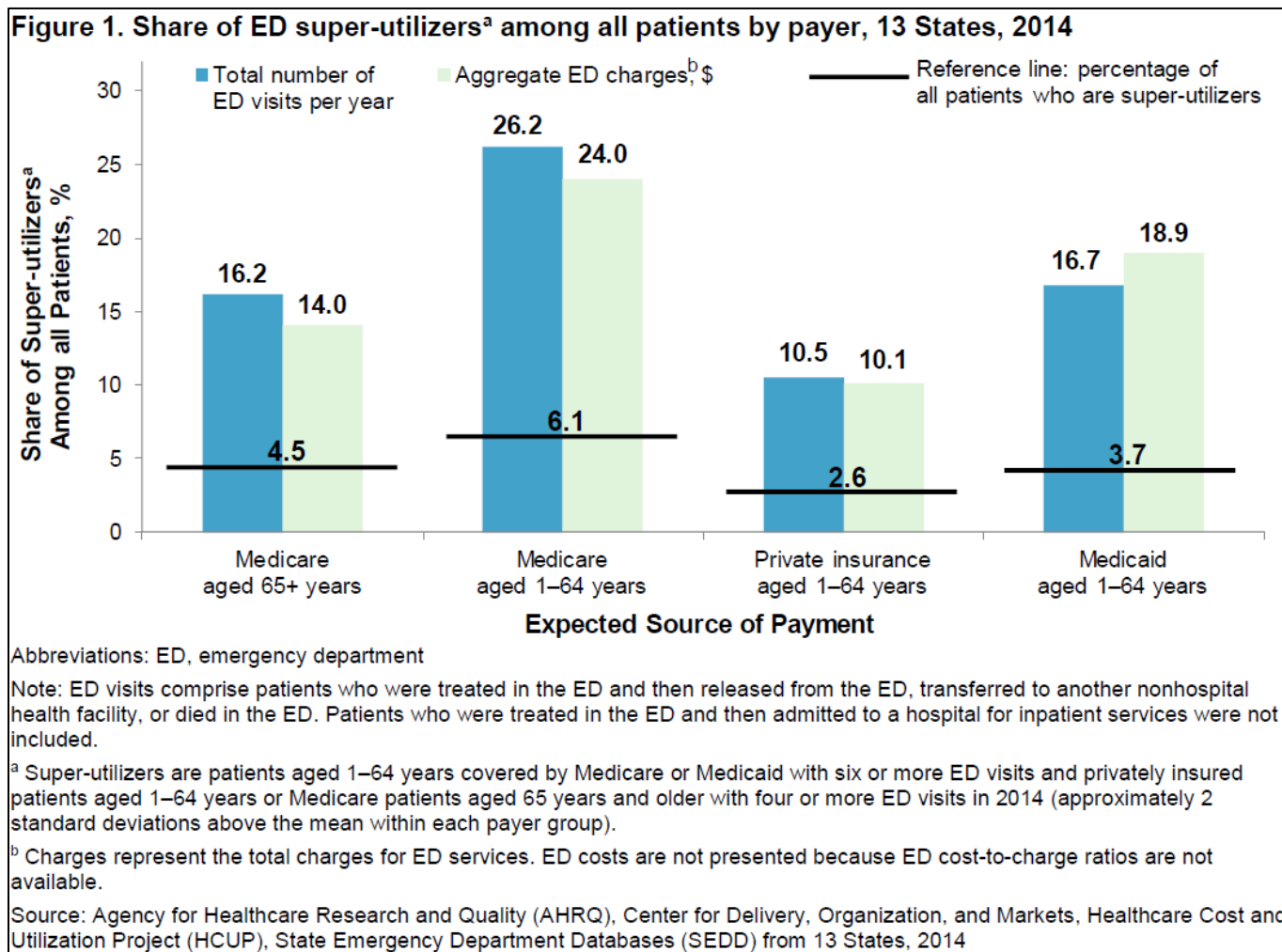
ED Super-Utilizers

Research has shown that a very small portion of the population accounts for a disproportionate share of ED utilization across all health payers. In 2014, 6% of Medicare beneficiaries under the age of 65 accounted for over 25% of ED visits among that population and 4.5% of Medicare beneficiaries over 65 accounted for over 16% of ED visits for that population (Figure 1; Jiang 2017). This subpopulation is heterogeneous, with no demographic or clinical characteristics differentiating them from other patients, and there are likely socioeconomic factors that cannot be accounted for during measurement.

Expanding on earlier work on hospital in-patient super-utilizers, the Agency for Health Care Research and Quality (AHRQ) released a Healthcare Cost and Utilization Project statistical brief in February 2017. Using a cut-off rule of two standard deviations above the mean number of ED visits for each payer, ED super-utilizers were specified by AHRQ as follows:

- Medicare 65+ years: *Four or more* ED visits per year.
- Medicare 1–64 years: *Six or more* ED visits per year.
- Private insurance 1–64 years: *Four or more* ED visits per year.

- Medicaid 1–64 years: *Six or more* ED visits per year.



NCQA recently conducted testing of a large Medicare and commercial sample population to determine the thresholds and confirmed those specified by AHRQ.

ED Utilization Disparities

In the U.S., ED utilization rates are higher among females, African Americans and homeless individuals (Rui 2015). The association between adult ED use and health insurance type has also been documented. The highest rates of ED use are reported among Medicare and Medicaid beneficiaries because this population tends to be in poorer health with more chronic conditions (Decker 2013; Gindi 2016).

Implementation of the Affordable Care Act (ACA) was projected to reduce disparities by increasing health insurance coverage and access to primary health care services while decreasing reliance on the ED. However, the ACA has yielded no apparent decline in ED use across any race or ethnic group, and African Americans continue to have the highest ED use despite increased health care coverage under the ACA (Chen 2016). “Lack of access to a primary care provider” as the reason for an ED visit was highest among non-Hispanic Black adults, compared with non-Hispanic Whites and Hispanics (Gindi 2016). This suggests that health disparities are not solely related to health insurance coverage and highlights the need for better care coordination and health service availability.

Research on Payer-Level Interventions

Most of the focus and resources aimed at reducing preventable ED utilization are centered on hospital-level interventions, but recent studies have highlighted the need for intervention activities beyond the emergency room. One avenue to explore is care coordination and disease management. Providing appropriate disease management in primary care for ambulatory care-sensitive conditions can reduce preventable ED visits, particularly for chronic conditions among underserved populations (Johnson 2012). Care coordination efforts can also be employed to decrease ED utilization disparities. A study of Florida's Statewide Mandatory Managed Care program showed that after implementation, there was a statistically significant reduction in preventable ED visits among racial and ethnic minorities (Hu 2018).

Disparities in health care have been well documented, with increasing focus on preventable hospitalizations and ED visits among racial and ethnic minority groups. Cultural competency training has been emphasized in recent years to ensure the health care delivery system is keeping up with increasing diversity in the United States. The National Standards for Culturally and Linguistically Appropriate Services (CLAS), published by the Office of Minority Health, emphasizes language assistance and health literacy services to address underlying social elements (i.e., limited English proficiency) that may be factors in higher ED utilization (Adepoju 2015).

Potential Benefits (Improvements in Quality)

Many ED visits are necessary, and this measure does not aim for a reduction of ED utilization rates to zero. Its intent is to assess a health care system's success with disease management and outpatient care for conditions that do not warrant an ED visit. The research suggests that reducing preventable ED visits requires involvement from payers. This measure can act as an indicator of potential health care quality problems in chronic disease management and acute care, signaling health payers to focus more effort and resources on the accessibility, availability and efficacy of primary care in their networks.

Controversy/Contradictory Evidence

Little is known about the reasons for high ED utilization rates; they are likely to involve complex factors such as socioeconomic status and social determinants, as well as individual care-seeking behavior. The relationship between socioeconomic status and health is multifaceted, making it difficult to parse which health conditions are related to health care quality and which to patients' unmet social needs.

Some payer-level efforts, including financial incentives, patient education and encouragement for expanded hours for primary care providers, have not prevented an increase in ED use (Uscher-Pines 2013). Additionally, there are concerns that certain interventions, such as managed care and financial incentives for patients, may inadvertently increase ED utilization (Morgan 2013).

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HEDIS Health Plan Performance Rates: Emergency Department Utilization

Note: Lower rates signify better performance.

Note: Rates reflect reported performance on the current EDU measure and do not reflect proposed changes.

Product Line: Commercial

Table 1. HEDIS EDU Measure Performance—Observed ED Visit Rate—Commercial Plans

Measurement Year	Age Group	Total Number of Plans (N)	Number of Plans Reporting (N (%))	Performance Rates (ED Visits per 1,000 Members)						
				Mean	Standard Deviation	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile
2018*	18-64	405	401 (99.0)	189.8	52.6	134.8	158.2	184.0	212.0	243.2
2017		406	401 (98.8)	189.7	54.8	135.2	159.2	184.7	211.6	242.8
2016		420	411 (97.9)	188.5	50.6	133.6	156.8	184.3	211.9	243.8

*For 2018 the average denominator across plans was 150,560 individuals, with a standard deviation of 272,095.

Table 2. HEDIS EDU Measure Performance—O/E Ratio—Commercial Plans

Measurement Year	Age Group	Total Number of Plans (N)	Number of Plans Reporting (N (%))	Performance Rates (O/E Ratio)						
				Mean	Standard Deviation	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile
2018*	18-64	405	401 (99.0)	1.0	0.3	0.8	0.9	0.9	1.1	1.3
2017		406	401 (98.8)	1.1	0.3	0.8	0.9	1.0	1.2	1.3
2016		420	411 (97.9)	1.1	0.3	0.8	0.9	1.1	1.2	1.3

*For 2018 the average denominator across plans was 27,430 individuals, with a standard deviation of 49,635.

Product Line: Medicare**Table 3. HEDIS EDU Measure Performance—Observed ED Visit Rate—Medicare Plans (Ages 65 and Over Only)**

Measurement Year	Age Group	Total Number of Plans (N)	Number of Plans Reporting (N (%))	Performance Rates (ED Visits per 1,000 Members)						
				Mean	Standard Deviation	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile
2018*	65-74	525	416 (79.2)	386.8	205.3	210.0	246.1	314.2	468.7	706.4
	75-84	525	398 (75.8)	442.5	163.1	301.7	338.6	389.9	493.0	672.6
	85+	525	346 (65.9)	547.8	134.4	403.5	481.0	540.9	599.2	705.1
2017	65-74	505	415 (82.2)	403.0	218.5	215.2	250.7	325.7	489.5	738.5
	75-84	505	400 (79.2)	452.8	167.3	307.2	346.4	406.9	510.7	678.3
	85+	505	344 (68.1)	563.8	131.9	418.9	486.8	553.0	630.4	725.2
2016	65-74	506	461 (91.1)	413.7	289.1	203.8	246.4	313.7	506.8	803.9
	75-84	506	456 (90.1)	458.1	234.1	282.6	332.2	399.6	516.6	750.0
	85+	506	450 (88.9)	550.5	197.9	345.7	454.7	532.0	649.0	766.2

*For 2018 the average denominator across plans was: 17,017 individuals, with a standard deviation of 43,899 for ages 65–74; 12,183 individuals, with a standard deviation of 31,331 for ages 75–84; 5,021 individuals, with a standard deviation of 12,838 for ages 85 and over.

Table 4. HEDIS EDU Measure Performance—O/E Ratio—Medicare Plans (Ages 65 and Over Only)

Measurement Year	Age Group	Total Number of Plans (N)	Number of Plans Reporting (N (%))	Performance Rates (O/E Ratio)						
				Mean	Standard Deviation	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile
2018*	65-74	525	416 (79.2)	1.1	0.4	0.7	0.8	1.0	1.3	1.6
	75-84	525	397 (75.6)	1.0	0.3	0.7	0.9	1.0	1.1	1.4
	85+	525	344 (65.5)	1.0	0.2	0.7	0.8	1.0	1.1	1.3
2017	65-74	505	415 (82.2)	1.2	0.4	0.8	0.9	1.1	1.4	1.7
	75-84	505	400 (79.2)	1.1	0.3	0.8	0.9	1.1	1.2	1.4
	85+	505	342 (67.7)	1.0	0.3	0.7	0.9	1.0	1.2	1.3
2016	65-74	506	451 (89.1)	1.1	0.5	0.7	0.9	1.1	1.4	1.9
	75-84	506	445 (87.9)	1.1	0.4	0.7	0.8	1.0	1.2	1.5
	85+	506	438 (86.6)	1.1	0.4	0.7	0.8	1.0	1.2	1.5

*For 2018 the average denominator across plans was: 5,464 individuals, with a standard deviation of 13,463 for ages 65–74; 5,188 individuals, with a standard deviation of 12,925 for ages 75–84; 2,955 individuals, with a standard deviation of 7,389 for ages 85 and over.