Proposed Changes to Existing Measure for HEDIS®[1] MY 2027: Emergency Department Utilization (EDU)

NCQA seeks comments on proposed modifications to the *Emergency Department Utilization* (EDU) measure.

The EDU measure assesses the risk-adjusted ratio of observed-to-expected (O/E) emergency department (ED) visits for members 18 years of age and older. The measure is currently separately specified for the commercial and Medicare product lines and for different age strata (commercial members 18+, Medicare members 18–64, Medicare members 65+). NCQA seeks to expand this measure into the Medicaid product line for members 18–64 years of age. This initiative was motivated by NCQA's commitment to improving quality across diverse populations.

To examine ED utilization in this population, NCQA tested the concept using 2023-2024 Medicaid administrative claims data using the Merative™ MarketScan® Research Database.[2] Testing demonstrated that the measure can be feasibly reported by health plans with a sufficient denominator size for HEDIS reporting for the Medicaid product line. After evaluating the distribution of events and considering trends in utilization, the outlier definition for the Medicaid product line will be set at 9 or more ED visits. This represents approximately 0.7% of Medicaid members excluded as outliers, which is a similar rate to other product lines and measures. After excluding outliers, the average observed rate of ED visits across Medicaid plans was 597.7 events per 1,000 beneficiaries.

NCQA developed and tested a two-part risk adjustment model for this measure that adjusts for variables such as age, gender and clinical conditions (using the CMS Hierarchical Condition Categories [HCC]). Testing demonstrated that risk adjustment models for the Medicaid 18–64 population performed adequately and were calibrated well. Across the testing population, the O/E ratio was 1.01 (95% confidence interval: 1.01, 1.02). Table 1 contains the distribution of plan-level O/E ratios. The mean plan-level O/E ratio was 0.94. Poor-performing plans in the 90th percentile had 36% more ED visits than expected (O/E ratio: 1.36); high-performing plans in the 10th percentile had 58% fewer ED visits than expected (O/E ratio: 0.42). Note that while the plan-level O/E is slightly lower than 1 (expected for performance on average), the population level O/E is very close to 1, suggesting that the model is well calibrated.

Table 1. Distribution of EDU Measure O/E Ratios Across Medicaid Plans

Age Group	N of Plans*	Mean	Percentile O/E Ratio						
			Min	10th	25th	50th	75th	90th	Max
18-64	48	0.94	0.07	0.42	0.75	1.01	1.20	1.36	1.59

*Includes plans that meet the minimum denominator size of 150 members.
O/E interpretation: 1 = as expected, <1 = better than expected, >1 = worse than expected.

Advisory panels expressed overall support for expanding this measure to the Medicaid product line.

NCQA seeks general feedback on proposed changes and specific feedback on whether you support publishing this measure for the Medicaid product line.

Supporting documents include the current measure specification and evidence workup.

NCQA acknowledges the contributions of the Technical and Utilization Measurement Advisory Panels.

[1]HEDIS® is a registered trademark of the National Committee for Quality Assurance (NCQA).
[2]Data for this analysis was obtained from the Merative™ MarketScan® Research Database. The data assets contain de-identified administrative claims and other data elements, representing a diverse mixture of ages, ethnicities and geographical regions across the United States. The claims data includes medical and pharmacy claims, laboratory results and enrollment records for commercial, Medicare Advantage, and Medicaid enrollees. Study data were accessed using techniques compliant with the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and, because this study involved analysis of pre-existing, de-identified data, it was exempt from Institutional Review Board approval.

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Measure title	Emergency Department Utilization	Measure ID	EDU
Description	For people 18 years of age and older, the risk-adjusted ratio of observed-to-expected emergency department (ED) visits during the measurement period.		
Measurement period	January 1–December 31.		
Copyright and disclaimer notice	Refer to the complete copyright and disclaimer information at the front of the publication. NCQA website: www.ncqa.org. Submit policy clarification support questions via My NCQA (https://my.ncqa.org).		
Clinical recommendation statement/ rationale	Each year, approximately 1 out of 5 U.S. adults uses the ED for health care, and utilization rates have trended upward in recent years. Studies have estimated that up to 60% of all ED visits are potentially preventable or nonurgent, leading to overcrowding, increased wait times and reduction in the ability of hospital staff to provide efficient, quality care to patients with truly emergent conditions. To reduce avoidable ED visits, payers can provide appropriate disease management services, access to primary care clinics and care coordination.		
Citations	Gindi, R.M., L.I. Black, & R.A. Cohen. 2016. "Reasons for Emergency Room Use among U.S. Adults Aged 18–64: National Health Interview Survey, 2013–2014." National Health Statistics Reports; No 90. Hyattsville, MD: National Center for Health Statistics. Sun, R., Z. Karaca, & S. Wong. 2018. "Trends in Hospital Emergency Department Visits by Age and Payer, 2006–2015." HCUP Statistical Brief #238. Agency for Healthcare Research and Quality: Rockville, MD. https://www.hcup-us.ahrq.gov/reports/statbriefs/sb238-Emergency-Department-Age-Payer-2006-2015.pdf Hu, T., K. Mortensen, & J. Chen. 2018. "Medicaid Managed Care in Florida and Racial and Ethnic Disparities in Preventable Emergency Department Visits." *Medical Care* 56: 477–83. Johnson, P.J., N. Ghildayal, A.C. Ward, B.C. Westgard, L.L. Boland, & J.S. Hokanson. 2012. "Disparities in Potentially Avoidable Emergency Department (ED) Care: ED Visits for Ambulatory Care Sensitive Conditions." *Medical Care* 50(12):1020–8.		
Characteristics			
Scoring **Product lines**	Ratio. • Commercial. • Medicaid. • Medicare.		

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Stratifications	Ages as of the last day of the measurement period for Medicaid. • 18–44 years. • 45–54 years. • 55–64 years. Ages as of the last day of the measurement period for commercial and Medicare. • 18–44 years. • 45–54 years. • 55–64 years. • 65–74 years. • 75–84 years. • 18–64 years. • 65+ years. • 85+ years.
Guidance	***Programming Guidance*** **Dual enrollment:** Persons with dual commercial/Medicaid enrollment may only be reported in the commercial product line. Persons with dual Medicaid and Medicare enrollment may only be reported in the Medicare product line. Dual enrollment is assessed after the continuous enrollment criteria are applied. To meet criteria for dual enrollment, persons must have dual enrollment at the end of the continuous enrollment period. ***Risk Adjustment Measure Specific Guidance*** **Observation stays:** For observation stays (Observation Stay Value Set) that do not have a recorded admission or discharge date, set the admission date to the earliest date of service on the claim and set the discharge date to the last date of service on the claim. **Which services count?** • Use all paid, suspended, pending and denied claims when applying risk adjustment comorbidity category determination and the hospice exclusion. • Do not include denied claims when identifying all other events (e.g., observed events); only report claims the organization paid for or expects to pay for (i.e., claims incurred but not paid), with the exception below. • When confirming that an ED visit does not result in an inpatient or observation stay, all inpatient and observation stays must be considered, regardless of payment status (paid, suspended, pending, denied). *For example,* if an ED visit is paid but an inpatient stay is denied, the ED visit resulted in an inpatient stay and is not included in the Emergency Department Utilization measure when identifying observed ED visits. **Supplemental data exceptions:** Supplemental data may only be used for the hospice exclusion. **Transfers:** • Treat transfers *between* institutions as separate admissions.

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	• Base transfer reports *within* an institution on the type and level of services provided. • Report separate admissions when the transfer is between acute and nonacute levels of service or between mental health/chemical dependency services and non-mental health/chemical dependency services. • Count only one admission when the transfer takes place within the same service category, but to a different level of care (e.g., from intensive care to a lesser level of care; from a lesser level of care to intensive care). **Risk adjustment:** Organizations may not use risk assessment protocols to supplement diagnoses for calculation of the risk adjustment scores for these measures. The measurement model was developed and tested using only claims-based diagnoses; diagnoses from additional data sources would affect the validity of the models as they are currently implemented in the specification. ***General Rules*** **Data collection methodology:** Administrative. Refer to *General Guideline: Data Collection Methods* for additional information. **Date specificity:** Dates must be specific enough to determine the event occurred in the period being measured. **Improvement notation:** To interpret the ratio as better or worse than expected, the ratio must be calibrated. Organizations can calibrate ratios by dividing individual organization ratios or national percentiles by the national average ratio. Organizations may be more successful at achieving fewer ED visits than expected, given the types of cases treated by the organization (calibrated ratio with a value <1.0), or may be less successful (calibrated ratio with a value >1.0).
Definitions	
Outlier	Medicare enrollees 18–64 years of age with six or more ED visits in the measurement period. Medicare enrollees 65 years of age and older with four or more ED visits in the measurement period. Commercial enrollees 18 years of age and older with four or more ED visits in the measurement period. Medicaid enrollees 18-64 years of age with nine or more ED visits in the measurement period.
Nonoutlier	Medicare enrollees 18–64 years of age with five or fewer ED visits during the measurement period. Medicare enrollees 65 years of age and older with three or fewer ED visits during the measurement period. Commercial enrollees 18 years of age and older with three or fewer ED visits during the measurement period. Medicaid enrollees 18-64 years of age with eight or fewer ED visits during the measurement period.

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PPV	Predicted probability of a visit. The predicted probability of a person having an ED visit in the measurement period.
PUCV	Predicted unconditional count of visits. The unconditional count of ED visits during the measurement period.
Initial population	*Measure item count:* Person. *Attribution basis:* Enrollment. • *Benefits:* Medical. • *Continuous enrollment:* The measurement period and the year prior to the measurement period. • *Allowable gap:* No more than one gap of ≤45 days during each year of continuous enrollment. No gaps on the last day of the measurement period. *Ages:* • *Commercial and Medicare:* 18 years of age and older as of the last day of the measurement period. • *Medicaid:* 18–64 years of age as of the last day of the measurement period. ~~18 years of age and older as of the last day of the measurement period.~~ *Gender/sex criteria:* • Administrative Gender of Female (AdministrativeGender code female). • Administrative Gender of Male (AdministrativeGender code male). *Exclusion:* **Episodes for persons in hospice or using hospice services.** Persons who use hospice services (Hospice Encounter Value Set; Hospice Intervention Value Set) or elect to use a hospice benefit any time during the measurement period. Organizations that use the Monthly Membership Detail Data File to identify these persons must use only the run date of the file.
Measure observation	**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 period 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 (POS code 23). 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).

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	Step 3. For the remaining ED visits, calculate the number of visits per person and remove visits for outlier persons. Report these persons as outliers. **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 factors	***Risk Adjustment Determination*** For each person among nonoutliers, identify risk adjustment weights based on comorbidity, age and gender. Weights are specific to product line (Medicare Under 65, Medicare 65 Plus, ~~and~~ commercial, Medicaid). Refer to the reporting indicator column in the risk adjustment tables to ensure that weights are linked appropriately. **Comorbidities:** **Step 1.** Identify all diagnoses for encounters during the year prior to the measurement period. Include the following when identifying encounters: • Outpatient visits, ED visits, telephone visits, nonacute inpatient encounters and acute inpatient encounters (Outpatient, ED, Telephone, Acute Inpatient and Nonacute Inpatient Value Set) with a date of service during the year prior to the measurement period. • Acute and nonacute inpatient discharges (Inpatient Stay Value Set) with a discharge date during the year prior to the measurement period. **Step 2.** Assign each diagnosis to one or more comorbid Clinical Condition (CC) category using Table CC—Mapping in the Risk Adjustment Shared Tables. If the code appears more than once in Table CC—Mapping, it is assigned to multiple CCs. Exclude all diagnoses that cannot be assigned to a comorbid CC category. For persons with no qualifying diagnoses from face-to-face encounters, skip to *Risk Adjustment Calculation*. All digits must match exactly when mapping diagnosis codes to the comorbid CCs. ***Step 3.*** Determine HCCs for each comorbid CC identified. Refer to Table HCC—Rank. For each person's comorbid CC list, match the comorbid CC code to the comorbid CC code in the table, and assign: • The ranking group. • The rank. • The HCC. For comorbid CCs that do not match to Table HCC—Rank, use the comorbid CC as the HCC and assign a rank of 1. One comorbid CC can map to multiple HCCs; each HCC can have one or more comorbid CCs. **Step 4.** Assess each ranking group separately and select only the highest ranked HCC in each ranking group using the "Rank" column (1 is the highest rank possible).

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Drop all other HCCs in each ranking group, and de-duplicate the HCC list if necessary.

- *For example,* assume a person with the following comorbid CCs: CC-85, CC-17 and CC-19 (assume no other CCs).
  - CC-85 does not have a map to the ranking table and becomes HCC-85.
  - HCC-17 and HCC-19 are part of Diabetes Ranking Group 1. Because CC-17 is ranked higher than CC-19 in Ranking Group Diabetes 1, the comorbidity is assigned as HCC-17 for Ranking Group 1.

  The final comorbidities for this person are HCC-17 and HCC-85.

Table HCC—Rank

Ranking Group	CC	Description	Rank	HCC
NA	CC-85	Congestive Heart Failure	NA	HCC-85
Diabetes 1	CC-17	Diabetes With Acute Complications	1	HCC-17
	CC-18	Diabetes With Chronic Complications	2	HCC-18
	CC-19	Diabetes Without Complications	3	HCC-19

Step 5. Identify combination HCCs listed in Table HCC—Comb.

Some combinations suggest a greater amount of risk when observed together. For example, when diabetes *and* CHF are present, an increased amount of risk is evident. Additional HCCs are selected to account for these relationships.

Compare each person's list of unique HCCs to those in the *Comorbid HCC* columns in Table HCC—Comb and assign any additional HCC conditions.

If there are overlapping combinations, use both sets of combinations. Based on the combinations, a person can have none, one or more of these added HCCs.

- *For example,* for a person with comorbidities HCC-17 and HCC-85 (assume no other HCCs), assign HCC-901 in addition to HCC-17 and HCC-85. This *does not* replace HCC-17 and HCC-85.

Table HCC—Comb

Comorbid HCC 1	Comorbid HCC 2	Comorbid HCC 3	HCC-Combination	HCC-Comb Description
HCC-17	HCC-85	NA	HCC-901	Combination: Diabetes and CHF
HCC-18	HCC-85	NA	HCC-901	Combination: Diabetes and CHF
HCC-19	HCC-85	NA	HCC-901	Combination: Diabetes and CHF

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Risk adjustment	***Risk Adjustment Calculation*** 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 person might have during the measurement period. **For each nonoutlier person in the initial population, assign PPV risk weights.** **Step 1.** For each person with a comorbidity HCC Category, link the PPV weights. **Step 2.** Link the age-gender PPV weights for each person. **Step 3.** Sum all PPV weights associated with the person (comorbidities, age and gender). **Step 4.** Calculate the predicted probability of each person having at least one visit based on the sum of the weights for each person using the formula below. $$\text{PPV} = \frac{e^{(\sum \text{PPV WeightsForEachPerson})}}{1+e^{(\sum \text{PPV WeightsForEachPerson})}}$$ Truncate the final PPV for each person to 10 decimal places. Do not truncate or round in previous steps. **For each person in the initial population, assign PUCV risk weights.** **Step 1**. For each person with a comorbidity HCC Category, link the PUCV weights. If a person does not have any comorbidities to which weights can be linked, assign a weight of 1. **Step 2.** Link the age-gender PUCV weights for each person. **Step 3.** Calculate the predicted unconditional count of visits in the measurement period by multiplying all PUCV weights (comorbidities, age and gender). Use the following formula: PUCV = Age/Gender Weight * HCC Weight ***Note:*** *Multiply by each HCC associated with the person. For example, assume a person with HCC-2, HCC-10, HCC-47. The formula would be:* *PUCV = Age/gender Weight * HCC-2 * HCC-10 * HCC-47* Truncate the final PUCV for each person to 10 decimal places. Do not truncate or round in previous steps. *Expected count of ED visits.* Calculate the final person-level expected count of ED visits for each category using the formula below: Expected Count of ED Visits = PPV x PUCV Round the person-level results to 4 decimal places using the .5 rule and sum over all persons in the category. **Step 4.** Use the formula below to calculate the covariance of the predicted outcomes for each category. For categories with a single person (n_c=1), set the covariance to zero. Do not round the covariance before using it in step 5.

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	$$COV_c = \frac{\sum_{m=1}^{n_c}(PPV_m - mean(PPV)_c) \times (PUCV_m - mean(PUCV)_c)}{n_c - 1}$$ Where: c denotes an individual category n_c is the number of persons in the category indicated by c m is an individual person within the category indicated by c PPV_m is the truncated PPV for the person denoted by m $mean(PPV)_c$ is the unrounded and untruncated mean PPV in the category indicated by c $mean(PUCV)_c$ is the unrounded and untruncated mean PUCV $PUCV_m$ is the truncated PUCV for the person denoted by m 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. $$Variance_c = \sum_{m=1}^{n_c}(PPV_m \times PUCV_m)^2 \times \left(1 + (1 - PPV_m)^2 + \left(\frac{2 \times COV_c}{PPV_m \times PUCV_m}\right)\right)$$ Where: c denotes an individual category n_c is the number of persons in the category indicated by c m is an individual person within the category indicated by c PPV_m is the truncated PPV for the person denoted by m $PUCV_m$ is the truncated PUCV for the person denoted by m n_c is the number of persons in the category indicated by c Round the variance for reporting to 4 decimal places using the .5 rule.
Summary of changes	• Added the Medicaid product line.
Data element tables	***Reporting:*** **Number of nonoutliers** The number of nonoutlier persons for each age group, reported as the NonOutlierPersonCount. ***Reporting:*** **Number of outliers** The number of outlier persons for each age group, reported as the OutlierPersonCount. ***Calculated:*** **Number of persons in the initial population** The number of persons in the initial population (including outliers) for each age group and totals. Calculated by IDSS as the PersonCount. ***Calculated:*** **Outlier rate** The number of outlier persons (OutlierPersonCount) divided by the number of

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persons in the initial population (PersonCount), multiplied by 1,000 for each age group and totals. Calculated by IDSS as the OutlierRate.

Reporting: **Number of observed events among nonoutlier persons**
The number of observed ED visits for each age group, reported as the ObservedCount.

Calculated: **Observed visits per 1,000 nonoutlier persons**
The number of observed ED visits (ObservedCount) divided by the number of nonoutlier persons in the initial population (NonOutlierPersonCount), multiplied by 1,000 for each age group and totals. Calculated by IDSS as the ObservedRate.

Reporting**: Number of expected events among nonoutlier persons**
The number of expected ED visits for each age group, reported as the ExpectedCount.

Calculated**: Expected visits per 1,000 nonoutlier persons**
The number of expected ED visits (ExpectedCount) divided by the number of nonoutlier persons in the initial population (NonOutlierPersonCount), multiplied by 1,000 for each age group and totals. Calculated by IDSS as the ExpectedRate.

Reporting**: Variance among nonoutlier persons**
The variance (*Risk Adjustment Calculation,* PUCV, step 5) for each age group, reported as the CountVariance.

Calculated: **O/E ratio**
The number of observed events among nonoutlier persons (ObservedCount) divided by the number of expected events among nonoutlier persons (ExpectedCount) for each age group and totals. Calculated by IDSS as the OE.

Organizations that submit HEDIS data to NCQA must provide the following data elements.

Table EDU-1: Data Elements for Emergency Department Utilization

Metric	Age	Data Element	Reporting Instructions
EmergencyDepartmentUtilization	18-44	NonOutlierPersonCount	For each Stratification
	45-54	OutlierPersonCount	For each Stratification
	55-64	PersonCount	NonOutlierPersonCount + OutlierPersonCount
	Total	OutlierRate	OutlierPersonCount / PersonCount (Permille)
		ObservedCount	For each Stratification
		ObservedRate	1000 * ObservedCount/ NonOutlierPersonCount
		ExpectedCount	For each Stratification
		ExpectedRate	1000 * ExpectedCount / NonOutlierPersonCount
		CountVariance	For each Stratification
		OE	ObservedCount / ExpectedCount

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Table EDU-2/3: Data Elements for Emergency Department Utilization

Metric	Age	Data Element	Reporting Instructions
EmergencyDepartmentUtilization	18-44	NonOutlierPersonCount	For each Stratification
	45-54	OutlierPersonCount	For each Stratification
	55-64	PersonCount	NonOutlierPersonCount + OutlierPersonCount
	18-64	OutlierRate	OutlierPersonCount / PersonCount (Permille)
	65-74	ObservedCount	For each Stratification
	75-84	ObservedRate	1000 * ObservedCount/ NonOutlierPersonCount
	85+	ExpectedCount	For each Stratification
	65+	ExpectedRate	1000 * ExpectedCount / NonOutlierPersonCount
	Total	CountVariance	For each Stratification
		OE	ObservedCount / ExpectedCount

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Emergency Department Utilization (EDU)
Measure Workup

Topic Overview

Importance and Prevalence

In 2022, approximately 20% of adults had visited the emergency department (ED) in the prior 12 months (Cairns et al., 2024). Within the last decade, ED utilization has trended steadily upward, reaching over an estimated 155 million visits annually. In 2022, the most common reason for ED visits was stomach or abdominal pain, followed by chest pain, cough and shortness of breath (National Center for Health Statistics, 2024). Researchers investigating utilization have found that behavioral health factors also increase both the likelihood and number of ED visits in older adults with higher needs and higher costs (Daly, 2022; Karaca & Moore, 2020). People may use the ED rather than lower cost urgent care or primary care facilities due to 1) perceived severity of the medical problem, 2) inconvenient doctor's office hours and 3) lack of access to primary care providers.

In recent studies, researchers estimate between 30% and 60% of all ED visits are potentially avoidable or nonurgent, with an approximated savings of up to $4.4 billion annually if preventable ED visits instead occurred in urgent care or primary care settings (Giannouchos et al., 2022; Moore & Liang, 2020; Uscher-Pines et al., 2013). Avoidable ED use can cause overcrowding, increase wait times and limit hospital staff from providing efficient, quality care to people with truly emergent conditions. Additionally, avoidable ED use strains limited hospital and community resources, as ED visits are costlier to hospitals and individuals seeking care than comparable office visits. In some studies, researchers have suggested that nonurgent ED visits can be prevented by optimization of care in outpatient settings (Giannouchos et al., 2021; Nummedal et al., 2024). Key interventions for potentially preventable ED visits are described in greater detail below.

High-frequency ED Utilizers (Also Known as "Super-utilizers")

A very small portion of the population accounts for a disproportionate share of ED utilization across all health payers. In 2014, 6.1% of Medicare enrollees under the age of 65 accounted for over one quarter of ED visits among that population, and 4.5% of Medicare enrollees over 65 years old accounted for over 16% of ED visits for that population. High-frequency ED utilizers have been shown to have differences in their behaviors and reasons for ED utilization compared to non-high frequency ED utilizers, across all payer types. Among all payers, individuals with 3 or more chronic conditions accounted for a larger share of ED visits for high-frequency ED utilizers than among other individuals. Among Medicare enrollees ages 65 and older, those with 3 or more chronic conditions constituted 33.3% of visits for high-frequency ED utilizers and only 26.7% of visits for other individuals. Similar trends are seen in private insurance and Medicaid populations. High-frequency ED utilizers under 65 also had a greater share of discharges against medical advice compared to other individuals. For Medicare, 3.5% of high-frequency ED utilizers were discharged against medical advice, compared to 2.6% for other individuals. For Medicaid and private insurance, 3.2% and 2.2% of high-frequency ED utilizers were discharged against medical advice compared to 1.9% and 1.5% of other individuals, respectively by payer (Jiang et al., 2017).

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

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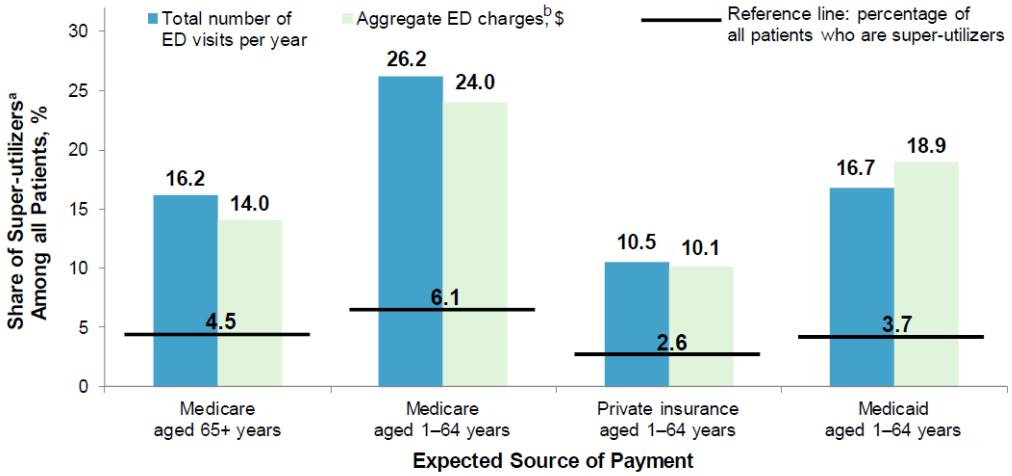
- Medicare aged 65+ -- *four or more* ED visits per year.
- Medicare aged 1 to 64 -- *six or more* ED visits per year.
- Private insurance aged 1 to 64 -- *four or more* ED visits per year.
- Medicaid aged 1 to 64 -- *six or more* ED visits per year.

Figure 1. Share of ED super-utilizers[a] among all patients by payer, 13 States, 2014



Abbreviations: ED, emergency department

Note: ED visits comprise patients who were treated in the ED and then released from the ED, transferred to another nonhospital health facility, or died in the ED. Patients who were treated in the ED and then admitted to a hospital for inpatient services were not included.

[a] Super-utilizers are patients aged 1–64 years covered by Medicare or Medicaid with six or more ED visits and privately insured patients aged 1–64 years or Medicare patients aged 65 years and older with four or more ED visits in 2014 (approximately 2 standard deviations above the mean within each payer group).

[b] Charges represent the total charges for ED services. ED costs are not presented because ED cost-to-charge ratios are not available.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), State Emergency Department Databases (SEDD) from 13 States, 2014

The National Committee for Quality Assurance (NCQA) conducted testing of large Medicare and commercial sample populations to determine high-frequency ED utilizer thresholds and confirmed those specified by AHRQ.

Disparities in Utilization

In the United States, ED utilization rates are higher among women as well as Black and unhoused individuals (Giannouchos et al., 2022). The highest rates of ED use are reported among Medicare and Medicaid enrollees, as these populations tend to be in poorer health with more chronic conditions, relative to those with commercial insurance or no coverage (Decker et al., 2013; Gindi et al., 2016).

Implementation of the Patient Protection and Affordable Care Act (ACA) was projected to reduce disparities by increasing health care coverage and access to primary health care services and decrease reliance on the ED. However, shortly after implementation of the ACA in 2014, there was no apparent decline in ED use within any racial or ethnic group. In fact, researchers found that Black adults still had the highest ED use despite increased health care coverage under the ACA (Chen et al., 2016). Lack of access to other providers as the reason for an ED visit was most prevalent among non-Hispanic Black adults, compared to non-Hispanic White adults and Hispanic adults (Gindi et al., 2016). These trends have continued, with data from 2022 showing that the ED visit rate was significantly higher for Black adults, 91 visits per 100 people, compared to all other racial and ethnic groups. The next highest ED visit rate was for White adults, 45 visits per 100 people ($p < 0.05$) (Cairns et al., 2024). This suggests health disparities are not solely related to health care coverage

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and highlights the need for better care coordination and health service availability.

Behaviors associated with health care coverage may influence how individuals who gain or lose coverage interact with the health care system for chronic and acute concerns. Studies have found an association between loss of Medicaid coverage and delaying care or avoiding care due to financial burden (Gordon et al., 2020; McIntyre et al., 2024).

Research on Payer-level Interventions

Efforts to reduce preventable ED utilization are primarily centered on hospital-level interventions. However, researchers have highlighted the need for interventions beyond the hospital. Important components to explore for these interventions are chronic disease management and care coordination. Providing appropriate disease management in primary care for ambulatory care sensitive conditions can reduce preventable ED visits, particularly among members of AHRQ's priority populations, including women, children, non-White racial and ethnic groups, populations with special health care needs (chronic illness, disabilities and end of life care needs), older adults, low-income populations and inner-city and rural residents (Johnson et al., 2012). Care coordination can also decrease ED utilization disparities. In a study of Florida's Statewide Mandatory Managed Care program, researchers showed that, after implementation, there was a significant reduction in preventable ED visits among non-Hispanic Black ($p < 0.01$) and Hispanic ($p < 0.01$) Medicaid enrollees compared to non-Hispanic White Medicaid enrollees (Hu et al., 2018).

Researchers have thoroughly documented health disparities, with increasing focus on preventable hospitalizations and ED visits among non-White racial and ethnic populations. Cultural competency training has been emphasized in recent years to ensure the health care delivery system respectfully interacts with and understands differences in health care utilization and goals for people from diverse backgrounds. The National Standards for Culturally and Linguistically Appropriate Services (CLAS), published by the Office of Minority Health, emphasize language assistance and health literacy services to address underlying social elements (e.g., limited English proficiency) that may be factors in higher ED utilization (Adepoju et al., 2015).

Benefits (Improvements in Quality) Envisioned by Use of this Measure

Many ED visits are necessary, and this measure does not aim for a reduction of ED utilization rates to zero. Rather, this measure intends 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 detailed in this workup suggests that reducing preventable ED visits requires involvement from payers. The lack of recent data on this topic in the literature may signal a need for continued research efforts. Further, this measure can act as an indicator of potential health care quality problems in chronic disease management and acute care, alerting health payers to focus additional resources on effective care coordination in their respective networks.

Emergency Department Utilization in Populations With Medicaid Coverage

Trends in Utilization

ED use for populations with Medicaid coverage grew steadily between 2013 and 2017 (likely due to the implementation of the ACA) and remained stable from 2017 to 2021 (Santo et al., 2024). Using data from the 2022 National Hospital Ambulatory Medical Care Survey (NHAMCS), researchers estimated that the national ED visit rate for people with health care coverage through

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Medicaid, Children's Health Insurance Program (CHIP) or other state-based programs is 99 visits per 100 people (National Center for Health Statistics, 2024), higher than ED visit rates for Medicare (56 visits per 100 people) and commercial insurance (21 visits per 100 people). In a study of the factors associated with ED overuse, Medicaid enrollees had 2.9 times the odds ($p < 0.001$) of presenting to the ED than non-Medicaid enrollees, adjusting for demographics, education, employment and poverty status (Bakare et al., 2023).

In 2013, among ED visits by adults ages 18 to 64 years old, Medicaid enrollees constituted 23.7% of all visits. In 2016, this increased to 37.2% of all ED visits among this age group. In 2016, the share of ED visits among adults ages 18 to 64 was higher for Medicaid enrollees (37.2%) compared to commercially insured enrollees (34.8%). This trend continued from 2017 to 2021 (Santo et al., 2024).

Statistics from the CDC show that Medicaid enrollees use EDs more frequently than individuals with commercial insurance, Medicare and those with no coverage (Joffe, 2023). AHRQ researchers report that, of the over 118.5 million ED visits in 2018, approximately 42.7 million (36%) of those visits had Medicaid as the primary expected payer (Weiss & Jiang, 2021). Top reasons for ED visits among the population with Medicaid coverage are similar to those for other health care coverage types. The ten most frequent reasons for treat-and-release ED visits among adults with Medicaid coverage (by first-listed diagnosis) are non-specific chest pain, abdominal pain, superficial injury/contusion, musculoskeletal pain, urinary tract infection, respiratory signs/symptoms, sprains and strains, skin and subcutaneous tissue infections, open wounds to limbs and chronic obstructive pulmonary disease and bronchiectasis (Sun & Wong, 2018). These top ten diagnoses accounted for 35.7% of all ED visits in 2018 with Medicaid as the primary expected payer (Weiss & Jiang, 2021).

Current Policy Landscape

Policies under the ACA, such as Medicaid expansion, have been shown to increase access to preventive health services and reduce financial barriers to health care. However, evidence on the association between Medicaid expansion under the ACA and change in ED utilization rates is inconclusive. In one study of selected states with and without Medicaid expansion, researchers used a difference-in-differences analysis to evaluate data from 2011-2017. They found that Medicaid expansion decreased ED visit rates in expansion states, from 50.5 ED visits per 1,000 people before expansion to 48.3 ED visits per 1,000 people after expansion, while increasing rates in nonexpansion states, from 53.9 ED visits per 1,000 people before expansion to 56.3 ED visits per 1,000 people after expansion. When comparing the difference in visit rate changes between expansion and nonexpansion states, there was a significant decrease of 4.7 ED visits per 1,000 people ($p < 0.01$) (Giannouchos et al., 2022). In related studies, researchers found that ED visit rates increased in expansion states relative to nonexpansion states. There were 2.5 more visits per 1,000 people observed in expansion states than nonexpansion states ($p < 0.05$) (Nikpay et al., 2017). Furthermore, another study found that improvements under the ACA have not translated to an overall reduction in ED utilization disparities across payers (Griffith & Bor, 2020). Using the same data and similar parameters as Giannouchos and colleagues, researchers found that ED use for nonurgent conditions increased in expansion states relative to

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nonexpansion states, whereas for emergent conditions it did not (Sabbatini & Dugan, 2022).

State-level Medicaid interventions for ED utilization have varying levels of success. In Michigan, for example, improved access to primary care through Patient Centered Medical Homes contributed to a 19% lower rate of ED visits for adults and a 25% lower rate of ambulatory care-sensitive inpatient stays for adults (Bettinger et al., 2019). Colorado's Bridges to Care (B2C) program redirects Medicaid enrollees with a history of frequent ED use to primary care providers, assists in prescription management and facilitates transportation and housing procurance. The program led to 29.7% fewer ED visits and 123.2% more primary care visits among these high utilizers, including those with behavioral health comorbidities, compared to enrollees in the control group (Capp et al., 2017).

The Centers for Medicare & Medicaid Services gives states the option to charge up to $8 to a Medicaid enrollee for visiting an ED without a true emergency (Medicaid and CHIP Learning Collaboratives, 2014). This option, however, has only been enforced in 14 states with several exemptions and varying success at reducing visit rates.

Disparities in the Medicaid Population

Medicaid enrollees have differential ED utilization and experiences in obtaining ED care by race and ethnicity. In a 2022 study, researchers found that Black adult Medicaid enrollees had 9.5 more ED visits per 100 enrollees per year than non-Hispanic White adult Medicaid enrollees ($p < 0.001$). Additionally, Black adult Medicaid enrollees had 4.3 more potentially avoidable ED visits per 100 enrollees per year than non-Hispanic White adult Medicaid enrollees ($p < 0.001$) (Wallace et al., 2022).

Medicaid enrollees with specific chronic conditions may also experience disparities in utilization and health outcomes. In a 2024 study analyzing Medicaid claims, researchers investigated ED utilization in a cohort of people with epilepsy. When stratifying their classification and regression tree model by race and ethnicity, they found that while race and ethnicity were not predictors of higher ED utilization within this population, comorbidities predicting higher ED visits varied by racial and ethnic group. For Hispanic individuals, back problems and injury were important predictors of ED utilization; for White individuals, anxiety and mood disorders and injury were notable; for Black individuals, injury, urinary tract infections, headache and anxiety and mood disorders were predictors of higher ED utilization (Bensken et al., 2023).

Additionally, in a 2023 study of adult Medicaid enrollees who had an ED visit for chest pain, researchers found that people with any behavioral health or serious behavioral health diagnoses had 1.9 times ($p < 0.05$) and 2.6 times ($p < 0.05$) the odds of being rehospitalized for a cardiovascular condition after 6 months, respectively, compared to enrollees without behavioral health diagnoses (Kumar et al., 2022). In a 2022 study of adult Medicaid enrollees between the ages of 18 and 64 years old with a diabetes diagnosis, researchers found that Black enrollees had 1.5 times higher ED utilization for preventable diabetes conditions relative to White enrollees ($p < 0.05$) (Chehal et al., 2023).

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Considerations for Policy or Practice

Little is known about the reasons for high ED utilization rates, which likely involve complex factors such as socioeconomic status and social determinants of health, as well as individual care-seeking behaviors, described above. The relationship between socioeconomic status and health is multifaceted, making it difficult to distinguish which health outcomes are related to health care quality and which are related to a person's experience of unmet social needs.

More granular research may be needed to better understand care patterns for other groups, including older adults and people with behavioral health conditions, with high ED utilization for conditions that may be treated effectively in urgent, transitional or primary care settings (Jehloh et al., 2022, Serrano et al., 2018). Some payer-level efforts, including financial disincentives, education and encouragement for primary care providers to expand available hours, have not prevented an increase in ED use. In one study, researchers found state-specific evidence for changes in ED use for non-emergent and primary care treatable conditions after Medicaid expansion. In New York State, ED and primary care are substitutes state-wide, meaning that one location's utilization increases because of a decrease in the other. However, in highly urban and lower income counties during nights and weekends, ED use and primary care are complements (i.e., the ED is used *in addition* to primary care). Thus, aspects of primary care access may be differently related to low-acuity ED use (Denham et al., 2024).

Furthermore, there are concerns that certain interventions, such as managed care and financial incentives for individuals, may inadvertently increase ED utilization (Nummedal et al., 2024). In recent research, researchers suggest that for some states, expanding Medicaid improves the efficiency of ED use, resulting in fewer ED visits for conditions that may be prevented with better access to primary care. However, in other states, especially those that may have lower ambulatory capacity to meet increased demand for any health care utilization from people newly enrolled in Medicaid, there may be a notable, initial increase in ED visits as enrollees seek care that they had delayed while not having health insurance (Sabbatini & Dugan, 2022).

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