Association Between Insurance Status and Access to Hospital Care in Emergency Department Disposition

Arjun K. Venkatesh, MD, MBA, MHS; Shih-Chuan Chou, MD, MPH; Shu-Xia Li, PhD; Jennie Choi, BS; Joseph S. Ross, MD, MHS; Gail D'Onofrio, MD; Harlan M. Krumholz, MD, SM; Kumar Dharmarajan, MD, MBA

IMPORTANCE Studies of public hospitals have reported increasing incidence of emergency department (ED) transfers of uninsured patients for hospitalization, which is perceived to be associated with financial incentives.

OBJECTIVE To examine the differences in risk-adjusted transfer and discharge rates by patient insurance status among hospitals capable of providing critical care.

DESIGN, SETTING, AND PARTICIPANTS A cross-sectional analysis of the 2015 National Emergency Department Sample was conducted, including visits between January 2015 and December 2015. Adult ED visits throughout 2015 (n = 215,028) for the 3 common medical conditions of pneumonia, chronic obstructive pulmonary disease, and asthma, at hospitals with intensive care capabilities were included. Only hospitals with advanced critical care capabilities for pulmonary care were included.

MAIN OUTCOMES AND MEASURES The primary outcomes were patient-level and hospital-level risk-adjusted ED discharges, ED transfers, and hospital admissions. Adjusted odds of discharge or transfer compared with admission among uninsured patients, Medicaid and Medicare beneficiaries, and privately insured patients are reported. Hospital ownership status was used for the secondary analysis.

RESULTS Of the 30,542,691 ED visits to 953 hospitals included in the 2015 National Emergency Department Sample, 215,028 visits (0.7%) were for acute pulmonary diseases to 160 intensive care–capable hospitals. These visits were made by patients with a median (interquartile range [IQR]) age of 55 (40-71) years and who were predominantly female (124,931 [58.1%]). Substantial variation in unadjusted and risk-standardized ED discharge, ED transfer, and hospital admission rates was found across EDs. Compared with privately insured patients, uninsured patients were more likely to be discharged (odds ratio [OR], 1.66; 95% CI, 1.57-1.76) and transferred (adjusted OR [aOR], 2.41; 95% CI, 2.08-2.79). Medicaid beneficiaries had comparable odds of discharge (aOR, 1.00; 95% CI, 0.97-1.04) but higher odds of transfer (aOR, 1.19; 95% CI, 1.05-1.33).

CONCLUSIONS AND RELEVANCE After accounting for hospital critical care capability and patient case mix, the study found that uninsured patients and Medicaid beneficiaries with common medical conditions appeared to have higher odds of interhospital transfer.
The Emergency Medical Treatment and Active Labor Act (EMTALA) was authorized by the US Congress in 1986 to ensure timely access to emergency care. At the time, evidence had accumulated of financially motivated refusal to provide care and medically unwarranted transfers of uninsured and underinsured patients from private to public, hospital-based emergency departments (EDs). The passage of the EMTALA created a federal mandate to provide both a medical screening examination to any patient presenting to an ED and essential universal access to acute emergency care. Although previous analyses of EMTALA investigations have shown reported violations to be rare, these studies were limited to extreme cases and did not examine more subtle refusals of acute care access that occur after completion of an EMTALA-mandated medical screening examination.

Analyses of national data sets have shown that uninsured and underinsured patients, such as Medicaid beneficiaries, particularly those requiring specialized care for severe trauma or psychiatric and renal emergencies, are more likely to be transferred than admitted compared with patients who have private insurance or Medicare coverage. However, previous work did not account for differences in hospital capabilities to care for patients. As a result, the observed transfers may reflect patient needs for appropriate specialty care. Furthermore, previous work modeled ED disposition as a binary decision between transfer and hospital admission, thereby neglecting ED discharge as another potential option for limiting access to acute hospital care.

To overcome these limitations, we examined ED discharges, transfers, and admissions for common medical conditions at hospitals capable of caring for severely ill patients. Specifically, we examined 3 medical conditions commonly evaluated in the ED (pneumonia, chronic obstructive pulmonary disease, and asthma) for which treatment is well defined and for which more severely ill patients can generally be cared for in hospitals with standard intensive care capabilities. Risk-standardized variation in ED admission rates between hospitals has been well documented for these conditions; however, little is known about variation in ED transfer and discharge rates as well as the degree to which patient insurance status may be associated with ED disposition decisions and access to acute hospital care.

Accordingly, we tested the hypothesis that patients with common pulmonary conditions who were either uninsured or insured by Medicaid were more likely to be transferred or discharged from the ED despite the capability of hospitals to care for them. As a secondary analysis, we examined whether hospital ownership status—nonprofit or for-profit—was a factor in the association between patient insurance status and ED disposition.

**Methods**

**Study Design and Setting**

We conducted a cross-sectional analysis of the 2015 National Emergency Department Sample (NEDS), including visits between January 2015 and December 2015. In the United States, NEDS is the largest, all-payer administrative claims data set of ED visits and includes more than 30 million visits from 953 hospitals, which represent an approximately 20% stratified sample of hospital-based EDs. Patient-level data in the NEDS are de-identified, but the data set includes all ED visits at every included hospital, enabling the assessment of hospital-level variation in ED disposition decisions. This study was deemed to be not human participant research by the Yale University Human Research and Protection Program.

**Selection of Participants and Measurements**

We included all adult (≥18 years) ED visits from January 2015 to December 2015. We excluded visits with an ED disposition of died in ED, left against medical advice, or unknown, as disposition decisions could not be reliably evaluated. Patient-level information available in the NEDS included age, sex, insurance status, median income of zip code of residence, and International Classification of Diseases, Ninth Revision (ICD-9) or International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10) principal and secondary discharge diagnosis codes. Consistent with studies of ED visitation and hospitalization, we applied the Charlson comorbidity index to all secondary diagnoses to enable risk adjustment. We identified each patient's primary insurance status as uninsured (self-pay), Medicaid, Medicare, or private (commercial). Details of this insurance status definition are available in eTable 1 in the Supplement.

For the primary analysis, we examined ED visits for patients who were either uninsured or insured by Medicaid. This focus was based on research suggesting higher transfer rates for both uninsured and Medicaid patients, as well as examples of hospital closings or curtailments of acute care services in response to low Medicaid payment rates, and the hospital perception of uncertainty in Medicaid payment owing to frequent, temporary losses of coverage of patients insured by Medicaid.

We limited the study to ED visits for common medical conditions for which specialized care beyond traditional intensive care capabilities is generally not necessary; namely, we included ED visits for pneumonia, asthma, and chronic obstructive pulmonary disease. To construct this pulmonary cohort of ED visits, we used the Agency for Healthcare Research and Quality Clinical Classifications Software (CCS) to group

**Key Points**

**Question** Are emergency department patients more likely to be transferred to another hospital after stabilization for common medical conditions on the basis of insurance status?

**Findings** In this cross-sectional analysis of 215,028 emergency department visits to 160 US hospitals, uninsured patients and Medicaid beneficiaries were more likely to be transferred for pneumonia, chronic obstructive pulmonary disease, or asthma despite hospital capabilities to provide advanced pulmonary or critical care.

**Meaning** After accounting for differences in hospital capabilities, the study found that uninsured patients who were discharged or transferred from an emergency department with pulmonary disease appeared to not have access to the same level of hospital care as was available to privately insured patients.
Each visit’s principal ED or hospital discharge diagnosis code into meaningful clinical conditions. The CCS schema is a mutually exclusive set of 285 clinical condition categories consisting more than 14 000 ICD-9 and 60 000 ICD-10-CM (Clinical Modification) diagnosis codes and 3900 ICD-9 and 87 000 ICD-10-PCS (Procedure Coding System) procedure codes.27 We identified ED visits for pneumonia (CCS122), chronic obstructive pulmonary disease and bronchiectasis (CCS127), and asthma (CCS128) for inclusion.

To limit confounding of outcomes by necessary transfers of patients requiring specialty care or intensive care capabilities that were unavailable in the hospital, we restricted the data set to hospitals with evidence of advanced critical care capabilities for pulmonary care. To do so, consistent with previous work, we used patient-level procedural codes to identify hospitals that provided both continuous mechanical ventilation for greater than 96 hours (ICD-9 procedure code 96.72 or ICD-10-PCS code 5A1955Z) and inpatient hemodialysis (ICD-9 procedure code 39.95 or ICD-10-PCS codes), both of which may be required for the critical care of patients with respiratory failure, shock, and end-organ damage.28,29 Consistent with studies and publicly reported measures of hospital admission and readmission rates, we excluded hospitals with fewer than 25 ED visits that met the inclusion criteria, to enhance the robustness of study findings.30 We also excluded hospitals that transferred less than 0.05% of their ED patients, to avoid including institutions for which patient transfer was not a realistic hospital-level disposition option. The Figure summarizes the construction of the data set.

For the secondary analysis, we used the NEDS hospital ownership status variable, which is based on the American Hospital Association Annual Survey.31 This analysis was limited to 71 of the included 160 hospitals in the cohort for which ownership status information was made available by the Agency for Healthcare Research and Quality on the basis of confidentiality provisions of the data use agreement. With this information, we categorized each nonfederal hospital as either nonprofit or for-profit.

Outcomes
At the hospital level, the primary outcome was the risk-standardized ED discharge, ED transfer, and hospital admission rates. At the patient level, the primary outcome was the risk-adjusted ED discharge, ED transfer, or hospital admission status. The primary outcome was reported on the basis of patient insurance status.

We defined ED discharge as disposition to home or prior dwelling, with a code of routine; transfer other (includes skilled nursing facility, intermediate care facility, and another type of facility); or home health care.32 We defined ED transfer as an ED disposition code of transfer to short-term hospital. We defined admission as an ED disposition code of admitted to this same hospital.

Statistical Analysis
For the primary analysis, we conducted both hospital-level and patient-level analyses. At the hospital level, we calculated and report several measures of ED disposition variations, including both unadjusted and risk-standardized ED discharge, ED transfer, and hospital admission rates, using a hierarchical regression model, as described by Krumholz et al,33 in 3 separate models with each ED disposition outcome as the outcome of a binary event. Each hierarchical model includes a random hospital effect to account for the clustering of observations by hospital.33 For example, to calculate a hospital’s risk-standardized ED discharge rate, we considered discharge as an event and both admission and transfer as nonevents in the regression models. We present medians and percentiles for the unadjusted and risk-standardized ED disposition rates. To further compare the magnitude of variation between different dispositions, we also calculated the coefficient of variation, defined as the ratio of the SD to the mean, for unadjusted and risk-standardized ED discharge rates, ED transfer rates, and hospital admission rates.

At the patient level, we constructed regression models to calculate the odds of ED transfer or discharge compared with hospital admission for patients who were uninsured or underinsured (Medicaid insured) and patients with Medicare or private insurance. We used multinomial logistic regression
models to calculate the adjusted odds ratio (aOR) of ED transfer and discharge in comparison to the reference of hospital admission. By using multinomial regression modeling, we were able to better align our statistical approach with ED decision making in which a clinician is frequently deciding simultaneously between patient discharge, transfer, and admission. To account for differences in patient case mix, we adjusted each regression model for patient age, sex, income, and Charlson comorbidity index. Income was determined with the patient’s zip code–based median household income quartile: $1 to $41999, $42000 to $51999, $52000 to $67999, and $68000 or more. The Charlson comorbidity index was selected on the basis of previous work that validated its use in estimating mortality among ED patients,34,35 its similar predictive performance to clinical risk scores among critically ill patients,36 and evidence of validity for the pulmonary conditions included in this study cohort.37,38

For the secondary analysis, we restricted the study sample to the 71 nonfederal hospitals for which ownership status was reported in the NEDS. We used multinomial logistic regression with the addition of hospital ownership as a fixed effect to report the odds of ED discharge or transfer compared with hospital admission for patients who were uninsured or underinsured and patients with Medicare or private insurance among nonprofit and for-profit hospitals.

Two of us (S-X.L. and J.C.) performed all analyses using SAS, version 9.4 (SAS Institute Inc). Statistical significance was defined as α<.05, and we report all ORs with 95% CIs. We ensured model fit and discrimination through Hosmer-Lemeshow goodness-of-fit test and marginal C statistics.39

Results

Characteristics of Study Sample

The 2015 NEDS included a total of 30542691 ED visits to 953 hospitals. Of these visits, 215028 (0.7%) were for acute pulmonary diseases to 160 intensive care–capable hospitals (Figure). Of all ED visits for pulmonary diseases, 142900 (66.5%) resulted in ED discharge, 3210 (1.5%) in ED transfer to another hospital, and 68918 (32.1%) in hospital admission. These visits were made by patients with a median (interquartile range [IQR]) age of 55 (40-71) years and who were predominantly female (124931 [58.1%]). A total of 20228 (9.4%) visits were uninsured, 54817 (25.5%) insured by Medicaid, and 139983 (65.1%) insured by Medicare or a private plan. Further details of the study sample by ED disposition are shown in Table 1, and the distribution of included visits by primary and secondary expected payers is shown in eTable 2 in the Supplement.

The 160 study hospitals, compared with all 953 NEDS hospitals, were predominantly metropolitan-based non-teaching institutions (70 [43.8%] vs 313 [32.8%]), and nearly all were located in urban areas (154 [96.3%] vs 724 [76.0%]), with a similar proportion of known trauma centers (61 [38.1%] vs 319 [33.5%]). The median (IQR) annual ED visit volume of the included hospitals was 35813 (25305-57643) visits, compared with a median (IQR) volume of 22242 (7580-46654) visits for all NEDS hospitals. The median (IQR) annual ED visit volume for pulmonary conditions for included hospitals was 1175 (750-1801) compared with a median (IQR) volume of 876 visits (334-1805) for all NEDS hospitals. Detailed hospital-level characteristics are shown in eTable 3 in the Supplement.

Main Findings

Hospital-Level Variation in ED Disposition

In the primary hospital-level analysis (Table 2), substantial variation was found in unadjusted and risk-standardized ED discharge, ED transfer, and hospital admission rates. The median (IQR) risk-standardized ED discharge rate was 66.2% (60.2%-71.9%), the median (IQR) risk-standardized ED transfer rate was 1.3% (1.0%-1.9%), and the median (IQR) risk-standardized hospital admission rate was 32.3% (26.6%-37.7%). Variation was particularly high for the outcome of ED transfer, which had associated risk-standardized
ED transfer rates ranging from 0.8% at the 5th percentile to 4.6% at the 95th percentile, representing a coefficient of variation of 120.4, which was substantially higher than the coefficient of variations for ED discharge (17.3) and hospital admission (33.4).

### Table 2. Unadjusted and Risk-Standardized Variation in Hospital-Level ED Disposition

<table>
<thead>
<tr>
<th>Variable</th>
<th>Unadjusted rate</th>
<th>% Coefficient of Variation</th>
<th>5th Percentile</th>
<th>25th Percentile</th>
<th>Median</th>
<th>75th Percentile</th>
<th>95th Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED discharge</td>
<td>64.8 (11.7)</td>
<td>18.0</td>
<td>43.9</td>
<td>58.0</td>
<td>65.2</td>
<td>73.0</td>
<td>82.4</td>
</tr>
<tr>
<td>Hospital admission</td>
<td>33.6 (11.6)</td>
<td>34.5</td>
<td>15.8</td>
<td>25.2</td>
<td>33.1</td>
<td>39.9</td>
<td>54.6</td>
</tr>
<tr>
<td>ED transfer</td>
<td>1.6 (1.9)</td>
<td>119.6</td>
<td>0.52</td>
<td>0.69</td>
<td>1.1</td>
<td>1.6</td>
<td>4.5</td>
</tr>
</tbody>
</table>

Risk-standardized rate

<table>
<thead>
<tr>
<th>Variable</th>
<th>Unadjusted rate</th>
<th>% Coefficient of Variation</th>
<th>5th Percentile</th>
<th>25th Percentile</th>
<th>Median</th>
<th>75th Percentile</th>
<th>95th Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED discharge</td>
<td>63.17 (11.0)</td>
<td>17.3</td>
<td>40.9</td>
<td>62.0</td>
<td>67.8</td>
<td>80.1</td>
<td>90.5</td>
</tr>
<tr>
<td>Hospital admission</td>
<td>27.5 (9.2)</td>
<td>33.4</td>
<td>19.4</td>
<td>24.6</td>
<td>32.3</td>
<td>36.5</td>
<td>44.6</td>
</tr>
<tr>
<td>ED transfer</td>
<td>1.4 (1.7)</td>
<td>120.4</td>
<td>0.8</td>
<td>1.0</td>
<td>1.2</td>
<td>1.3</td>
<td>4.6</td>
</tr>
</tbody>
</table>

Abbreviation: ED, emergency department.

### Table 3. Differences in ED Disposition by Patient Insurance Status

<table>
<thead>
<tr>
<th>Insurance Status</th>
<th>ED Discharge Disposition</th>
<th>ED Transfer Disposition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Observed Rate, % OR (95% CI)</td>
<td>aOR (95% CI)</td>
</tr>
<tr>
<td>Uninsured</td>
<td>88.8 (2.40-2.53)</td>
<td>1.6 (1.57-1.76)</td>
</tr>
<tr>
<td>Medicaid</td>
<td>80.2 (1.12-1.16)</td>
<td>1.0 (0.97-1.04)</td>
</tr>
<tr>
<td>Medicare</td>
<td>47.4 (0.24-0.25)</td>
<td>0.66 (0.63-0.68)</td>
</tr>
<tr>
<td>Private</td>
<td>78.5 [Reference]</td>
<td>1 [Reference]</td>
</tr>
</tbody>
</table>

Abbreviations: aOR, adjusted odds ratio; ED, emergency department; OR, odds ratio.

Odds ratio reflects odds of ED discharge or transfer compared with hospital admission (reference category). Adjusted ORs are ORs adjusted for age, sex, zip code income, and Charlson comorbidity index score.

### Table 4. Differences in ED Disposition by Hospital Ownership Status

<table>
<thead>
<tr>
<th>Insurance Status</th>
<th>ED Discharge</th>
<th>ED Transfer</th>
<th>ED Discharge</th>
<th>ED Transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonprofit or Federal Ownership (n = 48)</td>
<td>1.63 (1.47-1.80)</td>
<td>0.70 (0.47-1.05)</td>
<td>1.33 (1.12-1.59)</td>
<td>1.64 (0.97-2.76)</td>
</tr>
<tr>
<td>For-profit Ownership (n = 23)</td>
<td>0.99 (0.93-1.06)</td>
<td>0.74 (0.58-0.96)</td>
<td>0.72 (0.64-0.81)</td>
<td>0.43 (0.27-0.68)</td>
</tr>
</tbody>
</table>

### Table 3. Differences in ED Disposition by Patient Insurance Status

<table>
<thead>
<tr>
<th>Insurance Status</th>
<th>ED Discharge</th>
<th>ED Transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uninsured</td>
<td>1.63 (1.47-1.80)</td>
<td>0.70 (0.47-1.05)</td>
</tr>
<tr>
<td>Medicaid</td>
<td>0.99 (0.93-1.06)</td>
<td>0.74 (0.58-0.96)</td>
</tr>
<tr>
<td>Medicare</td>
<td>0.69 (0.65-0.74)</td>
<td>0.65 (0.52-0.81)</td>
</tr>
<tr>
<td>Private</td>
<td>1 [Reference]</td>
<td>1 [Reference]</td>
</tr>
</tbody>
</table>

Abbreviations: aOR, adjusted odds ratio; ED, emergency department.

### ED Disposition and Insurance Status

In the primary patient-level analysis, uninsured patients (1.6% [331 of 20228]) and Medicaid beneficiaries (1.3% [726 of 54817]) were more often transferred compared with privately insured patients (1.2% [530 of 42649]) (Table 3). Both uninsured patients (aOR, 2.41; 95% CI, 2.08-2.79) and Medicaid beneficiaries (aOR, 1.19; 95% CI, 1.05-1.33) were more likely to be transferred compared with privately insured patients after adjustment for patient age, sex, income, and Charlson comorbidity index (Table 3). In addition, uninsured patients (88.8% [17 967 of 20 228]) and Medicaid beneficiaries (80.2% [43 962 of 54 817]) were more often discharged compared with privately insured patients (78.5% [33 487 of 42 649]). In adjusted analyses, uninsured patients were more likely to be discharged (OR, 1.66; 95% CI, 1.57-1.76) compared with privately insured patients, whereas Medicaid beneficiaries had similar odds of discharge (aOR, 1.00; 95% CI, 0.97-1.04).

### Hospital Ownership Status

In the secondary analysis (Table 4), among the 71 hospitals [44.4% with available ownership data, 23 (44.4%) were for-profit and 48 (30.0%) nonprofit. The odds of ED transfer for uninsured patients was lower than that for privately insured patients in nonprofit hospitals (aOR, 0.70; 95% CI, 0.47-1.05) but higher in for-profit hospitals (aOR, 1.64; 95% CI, 0.97-2.76); however, the wide 95% CIs preclude statements of association. Uninsured patients also had higher odds of ED discharge in both nonprofit and for-profit hospitals. Medicaid beneficiaries had lower odds of ED transfer in both nonprofit (aOR, 0.74; 95% CI, 0.58-0.96) and for-profit (aOR, 0.43; 95% CI, 0.27-0.68) hospitals.
Discussion

Among a national sample of ED visits for common medical conditions at hospitals with critical care capabilities, we found that, after accounting for patient characteristics, both uninsured patients and Medicaid beneficiaries were more likely to be transferred to another hospital compared with those with private insurance. These findings are consistent with studies conducted over the past decade and confirm the belief that financial incentives, or a patient’s ability to pay, may be associated with hospitalization decisions.\(^4\) - \(^6\) The present study confirms the hypotheses of previous research, indicating that hospital transfer patterns are associated with patient insurance status despite accounting for the usual caveats, namely, interhospital transfer was necessary for specialty or critical care services unavailable at the index hospital.

Furthermore, we found that uninsured patients were markedly more likely to be discharged from the ED. This finding has been consistently observed over the past several decades despite a higher likelihood of serious illness.\(^10\) That the uninsured had nearly half of the admission rate of the privately insured in this study, even after risk adjustment, was an unanticipated finding, given the relatively standard clinical guidelines used for hospitalization decisions for the common pulmonary conditions studied. These findings may be explained by a higher threshold for inpatient admission from the perspective of the patients, the physicians, or both for financial reasons.\(^10\) - \(^44\) Previous work assessing admissions alone found that uninsured patients were less likely to be admitted than the privately insured for various conditions, including trauma, cardiovascular, and pulmonary diseases.\(^4\) - \(^44\) For traumatic injuries and acute cardiovascular disease, in particular, lack of admission has been associated with increases in mortality,\(^43\) and future research should explore similar outcomes among patients evaluated for other common cardiopulmonary conditions.

To the extent that financial incentives are associated with disposition decisions, transferring uninsured or Medicaid patients may have simply moved the gateway to the hospital from the front door of the ED to the front door of the hospital. Traditional EMTALA violations, such as refusing to provide or providing inadequate medical screening examinations in the ED are rare; however, our findings suggest that financial incentives may be associated with access to inpatient hospital care. The EMTALA is commonly described as an unfunded mandate,\(^45\) and hospitals provide access to an ED visit for acute diagnostic and treatment services through a complete ED visit that often exceeds the medical screening examination requirements of the law\(^46\); however, subsequently transferring patients on the basis of their ability to pay may not adhere to the EMTALA expectation for appropriate transfers as those beyond the capacity of the hospital. In addition, the discharge of patients after ED evaluation is entirely ignored by the law, despite concerns that interpretation of the stabilization requirements of the EMTALA may allow for unstable patients to be discharged with only instructions to seek care elsewhere.\(^47\) Policymakers should seek to rectify these gaps in hospital care access by acknowledging these hospitalization patterns and developing financing policies capable of fully supporting the hospitalization needs of uninsured patients.

By restricting this analysis to hospitals capable of providing critical care for patients with pulmonary conditions, we were less prone to incorrectly identifying medically necessary transfers as financially motivated. In addition, by accounting for both discharge and admission decisions in the evaluation of transfer practices, we were able to consider the full spectrum of patient dispositions from the ED. As such, our finding of distinct ED disposition patterns for patients with different insurance types should encourage the reevaluation of previous studies and promote a more comprehensive examination of the association between ED disposition variations and access to hospital care.

We were encouraged to find that coverage by public insurance provided similar access to hospital admission for patients presenting to the ED when compared with those who were privately insured, a finding consistent with previous work that demonstrated improved access to care among Medicaid beneficiaries.\(^48\) - \(^51\) In the case of acute hospital care, expanded Medicaid coverage may offer financial advantages to hospitals\(^52\) in addition to the Disproportionate Share Hospital payments.\(^53\) - \(^55\) Therefore, policymakers should continue to consider the importance of health insurance coverage to population access to acute hospital care.

Despite the limited availability of hospital ownership data, the secondary analysis findings were nearly opposite those of Kindermann et al\(^5\): for-profit ownership status appeared to be more likely associated with ED transfer for uninsured patients, whereas visits to nonprofit-owned hospitals by the uninsured were less likely to result in a transfer. The financial rationale for this situation is clear but requires further study using more complete data sets before any specific conclusions based on hospital governance and financial structure can be drawn. The findings, however, support the general trend toward underlying patterns of acute care access association with financial incentives.

Limitations

These results must be interpreted within the limitations of a cross-sectional analysis of an administrative database limited to patients with select pulmonary diagnoses. Although we controlled for demographics and used well-established methods to account for comorbidities, we used administrative data that did not include clinical details of illness severity, such as examination and laboratory findings; information on the hospital environment, such as bed availability; and information on social context, including patient preferences that may have affected ED disposition decisions. Furthermore, although we selected hospitals that can provide advanced pulmonary care but are unlikely to encounter patients who would require medically necessary transfers, we were unable to determine the appropriateness of the transfers examined in this study. In addition, our sample was restricted to capable hospitals to minimize bias and therefore reflects a sample of hospitals; in turn, the observed disposition rates are not representative of all hospitals across the United States. The secondary analyses, which were based on hospital ownership, should only be hypothesis-generating in nature as they are both underpowered and prone to selection bias because of limited data availability.
Conclusions

More than 3 decades after the passage of the EMTALA, we found differences in access to hospital care based on patient insurance status, suggesting a unique modern-day barrier to hospitalization for common medical conditions. Policymakers should broaden the scope of hospital quality, payment, and certification initiatives to reduce these disparities and improve access to hospital-based care.

ARTICLE INFORMATION
Accepted for Publication: January 5, 2019.
Published Online: April 1, 2019.

Author Affiliations: Department of Emergency Medicine, Yale University School of Medicine, New Haven, Connecticut (Venkatesh, D’Onofrio); Yale New Haven Hospital–Center for Outcomes Research and Evaluation, New Haven, Connecticut (Venkatesh, Li, Ross, Krumholz); Department of Emergency Medicine, Brigham and Women’s Hospital, Boston, Massachusetts (Chou); Yale University School of Medicine, New Haven, Connecticut (Choi); Department of Health Policy and Management, Yale School of Public Health, New Haven, Connecticut (Ross, Krumholz); Section of General Medicine, Department of Internal Medicine, Yale School of Medicine, New Haven, Connecticut (Ross); Division of Cardiology, Department of Internal Medicine, Yale University School of Medicine, New Haven, Connecticut (Krumholz); Closer Health, Jersey City, New Jersey (Dharmarajan).

Author Contributions: Drs Venkatesh and Li had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.
Concept and design: Venkatesh, Choi, D’Onofrio. Acquisition, analysis, or interpretation of data: All authors.

Conflict of Interest Disclosures: Dr Venkatesh reported working under contract with the Centers for Medicare & Medicaid Services (CMS) during the conduct of this study. Dr Ross reported grants from the US Food and Drug Administration (FDA), CMS, Medtronic, Johnson & Johnson, the National Heart, Lung, and Blood Institute of the National Institutes of Health, the Agency for Healthcare Research and Quality (AHRQ), Blue Cross Blue Shield Association, and the Laura and John Arnold Foundation outside the submitted work. Dr Krumholz reported working under contract with CMS during the conduct of the study. Dr Dharmarajan obtained funding from Venkatesh.

Administrative, technical, or material support: Venkatesh, Choi.
Supervision: Venkatesh, D’Onofrio.

Conflict of Interest Disclosures: Dr Venkatesh reported working under contract with the Centers for Medicaid & Medicare Services (CMS) during the conduct of this study. Dr Ross reported grants from the US Food and Drug Administration (FDA), CMS, Medtronic, Johnson & Johnson, the National Heart, Lung, and Blood Institute of the National Institutes of Health, the Agency for Healthcare Research and Quality (AHRQ), Blue Cross Blue Shield Association, and the Laura and John Arnold Foundation outside the submitted work. Dr Krumholz reported working as the chief scientific officer at Closer Health, a Medicare Advantage company, and working under contract with CMS during the conduct of the study. No other disclosures were reported.

Funding/Support: This study was supported in part by an Emergency Medicine Foundation Health Policy Scholar Award and a Yale Center for Clinical Investigation grant KL2 TR000140 from the National Center for Advancing Translational Science of the NIH (Dr Venkatesh), by a Paul B. Beeson Career Development Award grant K23AG048331 from the National Institute on Aging and the American Federation for Aging Research, and a Yale Claude D. Pepper Older Americans Independence Center grant P30AG121342 (Dr Dharmarajan).

Role of the Funder/Sponsor: The funders had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication.

Additional Contributions: The authors acknowledge the state organizations participating in the AHRQ Healthcare Cost and Utilization Project from Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Hawaii, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, and Wyoming.

REFERENCES
Research  
Original Investigation

Association Between Insurance and Hospital Access in ED Disposition

E8  
JAMA Internal Medicine  
Published online April 1, 2019

© 2019 American Medical Association. All rights reserved.