



# The Association Between Insurance and Transfer of Noninjured Children From Emergency Departments

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**Study objective:** Among children requiring hospital admission or transfer, we seek to determine whether insurance is associated with the decision to either admit locally or transfer to another hospital.

**Methods:** This cross-sectional study used Healthcare Cost and Utilization Project 2012 Nationwide Emergency Department Sample. Pediatric patients receiving care in emergency departments (EDs) who were either admitted or transferred were included. Clinical Classifications Software was used to categorize patients into noninjury diagnostic cohorts. Multivariable logistic regression models adjusting for potential confounders, including severity of illness and comorbidities, and incorporating nationally representative weights were used to determine the association between insurance and the odds of transfer relative to admission.

**Results:** A total of 240,620 noninjury pediatric ED events met inclusion criteria. Patient and hospital characteristics, including older age and nonteaching hospitals, were associated with greater odds of transfer relative to admission. Patients who were uninsured or had self-pay had higher odds of transfer (odds ratio [OR] 3.84; 95% confidence interval [CI] 2.08 to 7.09) relative to admission compared with those with private insurance. Uninsured and self-pay patients also had higher odds of transfer across all 13 diagnostic categories, with ORs ranging from 2.96 to 12.00. Patients with Medicaid (OR 1.05; 95% CI 0.90 to 1.22) and other insurances (OR 1.14; 95% CI 0.87 to 1.48) had similar odds of transfer compared with patients with private insurance.

**Conclusion:** Children without insurance and those considered as having self-pay are more likely to be transferred to another hospital than to be admitted for inpatient care within the same receiving hospital compared with children with private insurance. This study reinforces ongoing concerns about disparities in the provision of pediatric ED and inpatient care. [Ann Emerg Med. 2017;69:108-116.]

Please see page 109 for the Editor's Capsule Summary of this article.

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## INTRODUCTION

### Background

Each year, more than 27 million children seek care in emergency departments (EDs) in the United States.<sup>1</sup> Many EDs, however, are not fully equipped with the recommended pediatric supplies<sup>2</sup> and may not have access to the pediatric specialists and resources needed to provide definitive care.<sup>3,4</sup> As a result, many children receiving treatment in EDs of hospitals with limited pediatric resources are transferred to another hospital's ED or inpatient unit for admission. Although interfacility transports of children are often warranted, the process of transferring to another hospital can create emotional and economic burdens on the patient

and family, may involve expensive transport services,<sup>5</sup> and may result in higher overall hospital costs than if the child were cared for at the local hospital.<sup>6</sup>

### Importance

The Emergency Medical Treatment and Labor Act (EMTALA) requires hospitals to make decisions on patient transfer and admission independent of insurance status.<sup>7</sup> That is, the decision to transfer a patient to another hospital for admission should only depend on clinical factors or the need for specialty services. However, patterns observed in the medical literature evaluating adult patients have suggested that factors other than medical need are

### Editor's Capsule Summary

#### *What is already known on this topic*

Because many emergency departments (EDs) have limited pediatric capacity, children who seek care may require interfacility transfer.

#### *What question this study addressed*

Is the rate of interfacility transfer from the ED related to insurance status?

#### *What this study adds to our knowledge*

In a nationally representative database, approximately 2% of noninjury-related pediatric ED visits resulted in an interfacility transfer. Uninsured children had higher transfer rates compared with children with either private or public insurance.

#### *How this is relevant to clinical practice*

Lack of insurance appears to be a factor prompting an ED to transfer children.

#### *Research we would like to see*

It would be beneficial for these data to be reanalyzed with hospitals grouped by profit status to determine whether effect is greatest in for-profit hospitals.

associated with decisions to admit locally or transfer a patient to another hospital for admission.<sup>8-10</sup> For example, factors such as a patient's age, sex, race, and insurance status have all been identified as independent factors associated with transfer to another hospital for admission.

Whether such factors are associated with admission decisions among the pediatric population is not well understood. This is particularly important given the fact that pediatric services are more regionalized than adult services.<sup>11</sup> Although there is some published evidence that suggests a child's insurance status could be associated with transfer and admission decisions, these studies have been restricted to single institutions or have been limited to specific conditions.<sup>12,13</sup> Whether transfer decisions among noninjured pediatric patients are related to insurance status has yet to be studied on a national level and across a variety of diagnoses.

### Goals of This Investigation

In this study, we sought to investigate the relationships between patient nonclinical factors, including insurance status, and odds of transfer relative to local admission among noninjury pediatric patients receiving care in the ED. As secondary analyses, we evaluated these associations among

different diagnostic categories. We hypothesized that decisions about admission versus transfer among pediatric patients would be independent of insurance status.

### Study Design and Setting

The population used in this study was obtained from 2012 Nationwide Emergency Department Sample (NEDS),<sup>14</sup> the largest all-payer ED database in the United States. NEDS contains discharge information on more than 31 million ED visits from 950 hospitals located in 30 states and can be used to represent the nearly 134 million ED events estimated to have occurred in the United States in 2012. NEDS is a stratified, single-stage cluster sample constructed with the Healthcare Cost and Utilization Project State Emergency Department Databases<sup>15</sup> with discharge data on ED visits that do not result in an admission and the State Inpatient Databases<sup>16</sup> with information on patients initially treated in the ED and then admitted to the same hospital. Previous research has demonstrated that estimates from the NEDS are similar to those from other national ED databases, such as the National Hospital Ambulatory Medical Care Survey and National Electronic Injury Surveillance System—All Injury Program.<sup>17</sup> Nearly 100 patient- and hospital-related variables are collected in this database.

### Selection of Participants

Patients in this study included those aged 17 years and younger who were admitted ("admitted as an inpatient to this hospital") or transferred ("transferred to another short-term hospital"). ED events from hospitals in which pediatric patients were either all transferred (transfer rate of 100%) or all admitted (admission rate of 100%) were excluded from the analyses to exclude hospitals that had no means of admitting pediatric patients from the ED and hospitals that never transferred pediatric patients to another hospital (eg, a tertiary referral children's hospital).

We categorized insurance status (expected primary payer) into 4 groups: Medicaid, uninsured/self-pay, private (eg, Blue Cross, commercial carriers), and other insurance (eg, worker's compensation, other government programs). Pediatric patients with Medicare insurance were excluded because Medicare insurance is almost exclusively targeted to adults. Clinical Classifications Software<sup>18</sup> was used to classify illnesses and conditions into 18 categories based on individual *International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM)* codes. We excluded pediatric patients with injuries because transfers for children with trauma frequently depend on regional hospital trauma designations. We also decided a priori to

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