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Original Contributions

RACIAL DIFFERENCES IN PEDIATRIC EMERGENCY DEPARTMENT TRIAGE SCORES

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☐ **Abstract—Background: Racial disparities are frequently reported in emergency department (ED) care. Objectives: To examine racial differences in triage scores of pediatric ED patients. We hypothesized that racial differences existed but could be explained after adjusting for sociodemographic and clinical factors. Methods: We examined all visits to two urban, pediatric EDs between August 2009 and March 2010. Demographic and clinical data were electronically extracted from the medical record. We used logistic regression to analyze racial differences in triage scores, controlling for possible covariates. Results: There were 54,505 ED visits during the study period, with 7216 (13.2%) resulting in hospital admission. White patients accounted for 36.4% of visits, African Americans 28.5%, Hispanics 18.0%, Asians 4.1%, and American Indians 1.8%. After adjusting for potential confounders, African American (adjusted odds ratio [aOR] 1.89, 95% confidence interval [CI] 1.69–2.12), Hispanic (aOR 1.77, 95% CI 1.55–2.02), and American Indian (aOR 2.57, 95% CI 1.80–3.66) patients received lower-acuity triage scores than Whites. In three out of four subgroup analyses based on presenting complaints (breathing difficulty, abdominal pain, fever), African Americans and Hispanics had higher odds of receiving low-acuity triage scores. No racial differences were detected for patients with presenting complaints of laceration/head injury/arm injury. However, among patients admitted to the hospital, African Americans (aOR 1.47, 95% CI 1.13–1.90) and Hispanics (aOR 1.71, CI 1.22–2.39) received lower-acuity triage scores than Whites. Conclusion: After adjusting for available sociodemographic and clinical covariates, African American, Hispanic, and American Indian patients received lower-acuity triage scores than Whites.** © 2016 Elsevier Inc.

☐ **Keywords—triage; health disparities; race; pediatrics**

INTRODUCTION

Racial disparities have been frequently reported in emergency department (ED) care (1–14). African Americans and Hispanics have been reported to experience 12–25% longer ED wait times to see a physician compared to Whites, to be about 40% less likely to receive opioid analgesia prescriptions at discharge from the ED after long bone fracture, to have 34% lower odds of receiving an opioid prescription during pain-related visits, and to have 24% lower odds of radiological testing during their ED visit (3–5,9,10). Additionally, the odds of pediatric African American patients leaving the ED prior to complete evaluation and treatment may be as much as 60% higher than the odds for White patients (6). These findings suggest a wide range of racial disparities in ED care.

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The size of disparity depends on the accuracy of risk adjustment. If the risk adjusters, such as triage score, are differentially assigned by race, disparities in ED care might be larger than previously estimated. The ED triage score is often used to adjust analyses of disparities (1–3,5,6,8,11). Although triage scores should estimate illness severity and anticipated resource utilization, and are assumed to be assigned without systematic bias, they do contain a measure of subjectivity. Previous studies have reported an association between minority race and lower-acuity ED triage scores for adults and in a single study of pediatric patients (12–14). However, studies of triage scores have often utilized national databases, which do not permit adjustment for sociodemographic determinants that influence ED utilization, such as income level and distance from the patient's residence to the ED (15).

Differences in triage scores might reflect patients' varying racial and cultural attitudes toward ED utilization and not represent a true disparity in care. This could give the appearance of bias, but actually reflect ED visits by minority populations secondary to poor access to primary care (16–18).

We wanted to determine if sociodemographic or clinical factors could explain racial differences in triage scores among pediatric ED patients. We hypothesized that racial differences in triage scores existed but could be accounted for by sociodemographic, clinical, or ED utilization factors. Our null hypothesis was that racial differences in triage scores did not exist.

MATERIALS AND METHODS

Study Design and Sample

To study the relationship of race and triage scores in the ED, we used a cross-sectional design encompassing all visits to either of two pediatric EDs from August 1, 2009 to March 31, 2010. The August 1, 2009 start date was chosen because a new five-level triage system, the Emergency Severity Index, version 4 (ESI), was introduced on July 1, 2009 (19–23). Both EDs serve primarily an urban, multicultural population. We excluded visits of patients who eloped, died, or had missing data (Figure 1). Due to the potential influence of factors such as lack of primary care access, poverty, and proximity to the hospital on ED utilization, we included a variable to represent distance from the patient's residence to the ED (15,24–26). Our clinical experience has been that patients who live close to the ED are more likely to visit the ED than a primary care provider for a variety of clinical complaints (25). We utilized inpatient admission as an independent marker for illness severity.

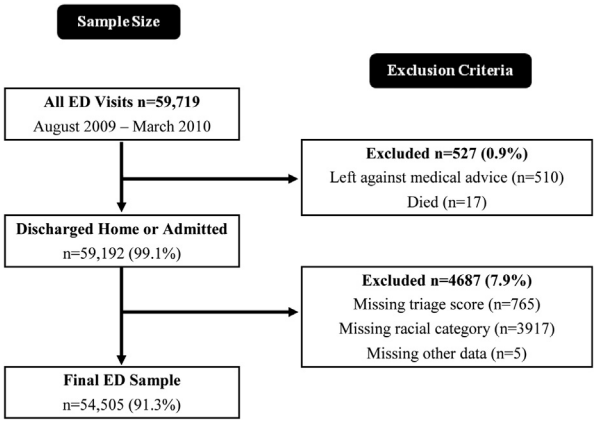

Figure 1. Flow diagram of study sample. Percentages are out of the original sample of 59,719 emergency department (ED) visits.

Subgroups were also analyzed based on the patient's presenting complaint. Subgroups included visits with presenting complaints of: 1) "breathing difficulty," "wheezing," "asthma," or "cough" (n = 8594, 15.8% of visits); 2) "abdominal pain" or "stomach pain" (n = 1868, 3.4% of visits); 3) "fever" (n = 9516, 17.5% of visits); and 4) "laceration," "head injury" (with or without loss of consciousness), or "arm injury" (n = 4170, 7.7% of visits). In addition, we separately analyzed a subgroup of patients who were later admitted to the hospital (n = 7216, 13.2% of visits). This study was approved by the hospitals' Institutional Review Board (#1003-026).

Outcome Measurements and Independent Variables

The primary outcome measure was triage level. Triage was performed by an ED nurse who documented the patient's chief complaint, obtained a short history, recorded vital signs, and performed a brief examination, as needed. The nurse then assigned a triage score ranging from level 1 (most acute) to level 5 (least acute) using the ESI system (19). We dichotomized the ESI levels into levels 1–3 vs. levels 4–5 for analysis.

All demographic, insurance, and clinical data were extracted from the electronic medical record. At registration, caregivers were asked to report their child's race, primary language, age, sex, and address. Registrars also recorded their mode of transportation to the ED, which we categorized as "private" (private vehicle, public transport, walked, or other) or "urgent" (ambulance, helicopter, plane, or police). Distance between the patient's residence and the ED was determined using ArcGIS software (Environmental Systems Research Institute, Inc., Redlands, CA) and calculated from the center of the patient's ZIP code to the ED at which