

UAMS Journal Club Summary
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Are there racial disparities in triage scoring?

Critical Bottom Line

These two cross sectional studies analyzed data from the National Hospital Ambulatory Medical Care Survey (NHAMCS) and found that non-white patients are statistically more likely to receive a lower acuity ESI score (Emergency Severity Index). The 2021 paper published in Pediatric Emergency Care looked at pediatric patients, aged 0-18 who presented to the ED for sole reason for visit of fever. They compared independent variables included race/ethnicity, age, sex, insurance type, region, hospital type, and temperature. They found that in patients aged 0 and 1 year, fever was the sole predictor of ESI score but among patients aged 2 to 18 years, non-Hispanic black patients exhibited approximately 22% greater risk of receiving a less urgent triage score for fever than their NH white counterparts. Clinicians should consider biases based on ethnicity in race when evaluating and treating patients in the ER.

PICO

P – Patients who present to an emergency department

I – Race/Ethnicity

C – not necessarily a control group as both studies are retrospectively analyzing data based off of dependent variables such ethnicity and race

O – Assigned ESI score

Background

Previous evidence has showed longer emergency department wait times for black and Hispanic patients compared to non-hispanic white patients, black and Hispanic pediatric patients are less likely to receive medications for abdominal pain and appendicitis than white patients, and that white and private insurance pediatric patients had a higher odds of receiving testing for chest pain.

Study 1. Dennis JA. Racial/Ethnic Disparities in Triage Scores Among Pediatric Emergency Department Fever Patients. *Pediatr Emerg Care*. 2021 Dec 1;37(12):e1457-e1461. doi: 10.1097/PEC.0000000000002072. PMID: 32150002.

PubMed Link: <https://pubmed.ncbi.nlm.nih.gov/32150002/>

Validity Rating: Low-Moderate quality evidence (cross-sectional study based on data obtained from NHAMCS)

The Basics:

This cross-sectional study analyzes data from the National Hospital Ambulatory Medical Care Survey (NHAMCS) from 2009-2015 and found that non-white patients are statistically more likely to receive a lower acuity ESI score (Emergency Severity Index). The 2021 paper

published in Pediatric Emergency Care looked at pediatric patients, aged 0-18 who presented to the ED for sole reason for visit of fever. They compared independent variables included race/ethnicity, age, sex, insurance type, region, hospital type, and temperature.

Inclusion Criteria:

Pediatric patients aged 0-18 who presented to the ED with fever as their sole reason for visit. Data on these patients was taken from NHAMCS from years 2009-2015. The NHAMCS is sponsored by the Centers for Disease Control and Prevention's (CDCs) National Center for Health Statistics (NCHS) and is administered by the U.S. Census Bureau. Each year, approximately 450 nationally representative hospitals are randomly selected to provide data on a sample of patient visits to their emergency service areas. Sampled data are collected over a designated 4-week reporting period. Response to the NHAMCS is completely voluntary.

Exclusion Criteria:

Any patient over the age of 18 or who has an additional reason for visit to the ED other than fever.

Primary Outcomes:

ESI score (Emergency Severity Index)

Secondary Outcomes:

Not applicable

Results:

They found that controlling for available factors in all pediatric cases, the sole predictive factor was temperature, with each increased degree of temperature decreasing the risk of a less urgent score (RR, 0.94; 95% confidence interval [CI], 0.91–0.98). In split models, temperature remained the sole statistically significant predictor of a more urgent triage score for those aged 0 and 1 year. Among pediatric ED patients aged 2 to 18 years, non-hispanic black patients exhibited approximately 22% greater risk of receiving a less urgent triage score for fever than their NH white counterparts (RR, 1.22; 95% CI, 1.03–1.43). Clinicians should consider biases based on ethnicity in race.

Limitations/Bias:

The NHAMCS data provide broad nationally representative information, but lack some details that may be of interest, including whether fever-reducing medications were given prior to arrival in the ED or details about the parents or triage nurses that might provide insight. ESI is based on both objective and subjective information.

Study 2:

Zhang X, Carabello M, Hill T, Bell SA, Stephenson R and Mahajan P (2020) Trends of Racial/Ethnic Differences in Emergency Department Care Outcomes Among Adults in the United States From 2005 to 2016. *Front. Med.* 7:300. doi: 10.3389/fmed.2020.00300

Pub Med link: <https://pubmed.ncbi.nlm.nih.gov/32671081/>

The Basics:

This was a cross-sectional study of emergency department data from 2005 to 2016, in the National Hospital Ambulatory Medical Survey (NHAMCS), amongst US adults. Their objective was to describe trends and differences in health outcomes and resource utilization among racial/ethnic groups over this time period. Patients were stratified by race/ethnicity and covariates were weighed using logistic regression models. With a final pool of 247,989 patients, study authors concluded that race had a significant association when it came to differences in ED treatment and admission rates. Some associations included black patients being less likely to receive an urgent Emergent Severity Index (ESI) score than their white counterparts, yet 1.26 times more likely to die in the hospital or ED.

Inclusion Criteria:

Patients 19 and older, with one documented race/ethnicity, in the NHAMCS ED Subfile which is from ~300 US hospitals, spanning ~1900 geographic areas in all 50 states.

Exclusion Criteria:

Patients younger than 19, considered pediatric visits. Patients under unknown race or multiple races.

Primary Outcome:

ESI level, hospital admission, ICU admission, death in the ED/hospital, medical resources utilization, waiting time, length of visit for ED encounter.

Secondary Outcomes:

Not applicable

Results:

Using logistic regression and stratifying by race/ethnicity, the authors found that black patients were 10% less likely to receive emergent or immediate ESI scores versus semi- or non-urgent scores (aOR 0.93, 95% CI 0.90–0.97). Black and Hispanic patients were 10% less likely than white patients to be admitted after ED visits (aOR 0.90, CI 0.87-0.93). Asian patients were 1.21 times more likely to be admitted than white patients (aOR 1.21, 95% CI 1.12-1.31). When compared to white patients, black patients were 16% (aOR 0.84, 95% CI 0.82-0.86) less likely to receive imaging and 4% (aOR 0.96%, 95% CI 1.14-1.31) less likely than white patients to receive labs. When compared to white patients, black patients were 1.26 times more likely to die if admitted (aOR 1.26, 95% CI 1.06-1.49). Hispanic patients were 1.12 times more likely to die (aOR 1.10, 95% CI 0.88-1.42) and Asian patients were 1.64 times (aOR1.64, 95% CI 1.17-2.31) more likely to die, also when compared to white patients. The authors compared many other outcomes but based on the large pool of data, there is an association amongst outcomes and utilization of resources, with race/ethnicity.

Limitations/Biases:

The NHAMCS provides a large pool of data but given the authors' decision to exclude multi-racial patient populations, there is slight limitation in representing outcomes for this patient population. The database also spans across many different health systems and an inherent limitation is heterogeneity in the data provided by these systems, as they do not all operate on a universal medical record or have universal protocols for documentation. Therefore, even though

there seem to be larger associations with race/ethnicity, these might not all apply to the same degree, to every geographical region included in the sample.