

NATIONAL ASSESSMENT OF KEY PREHOSPITAL STROKE CARE PRACTICES AND THEIR ASSOCIATION TO PATIENT CHARACTERISTICS

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BACKGROUND

Emergency medical service (EMS) clinicians provide time-sensitive care for patients with suspected stroke.

While model evidence-based guidelines (EBG) exist, there is limited research on national adoption.

OBJECTIVE

Describe nationwide care delivery for suspected stroke patients and measure associations between stroke care and patient characteristics.

METHODS

We performed a retrospective analysis of 2022 ImageTrend Collaborate dataset.

Inclusion Criteria: 9-1-1 EMS incidents, Transported to Emergency Department, ALS level of care, Provider primary impression of stroke, NEMSIS compliant documentation, Agencies with >6 annual strokes

Key Components of Guideline-Compliant Stroke Care¹: Last Known Well / Onset Time, Stroke Assessment, Blood Glucose, 12-Lead ECG, Pre-Alert Notification to Hospital, Scene Time <15 Mins

Multivariable Logistic Regression Model with complete case analysis. Adjusted odds ratios and 95% confidence intervals reported

- **Outcome:** Odds of receiving guideline-compliant care (at least 5 of 6 key components)
- **Variables:** Race/Ethnicity, Gender, Urbanicity²
- **Model Specification:** Model built using purposeful selection

RESULTS

Table 1: Suspected Prehospital Stroke Patient Characteristics, 2022

Total Suspected Prehospital Stroke Patients	43,555
Patient Gender (ePatient.13) – Male	20,724 (47.7%)
Age (ePatient.15) - Median ± IQR	73 (62, 82)
Race/Ethnicity (ePatient.14)	
White	25,615 (70.5%)
Black or African American	5,419 (14.9%)
Hispanic/ Latino	3,148 (8.7%)
Multiple/Other Races	2,147 (5.9%)
Urbanicity	
Metro Area (RUCC 1-3)	27,454 (88.2%)
Non-Metro Area (RUCC 4-7)	4,357 (10.3%)
Rural (RUCC 8-9)	672 (1.6%)

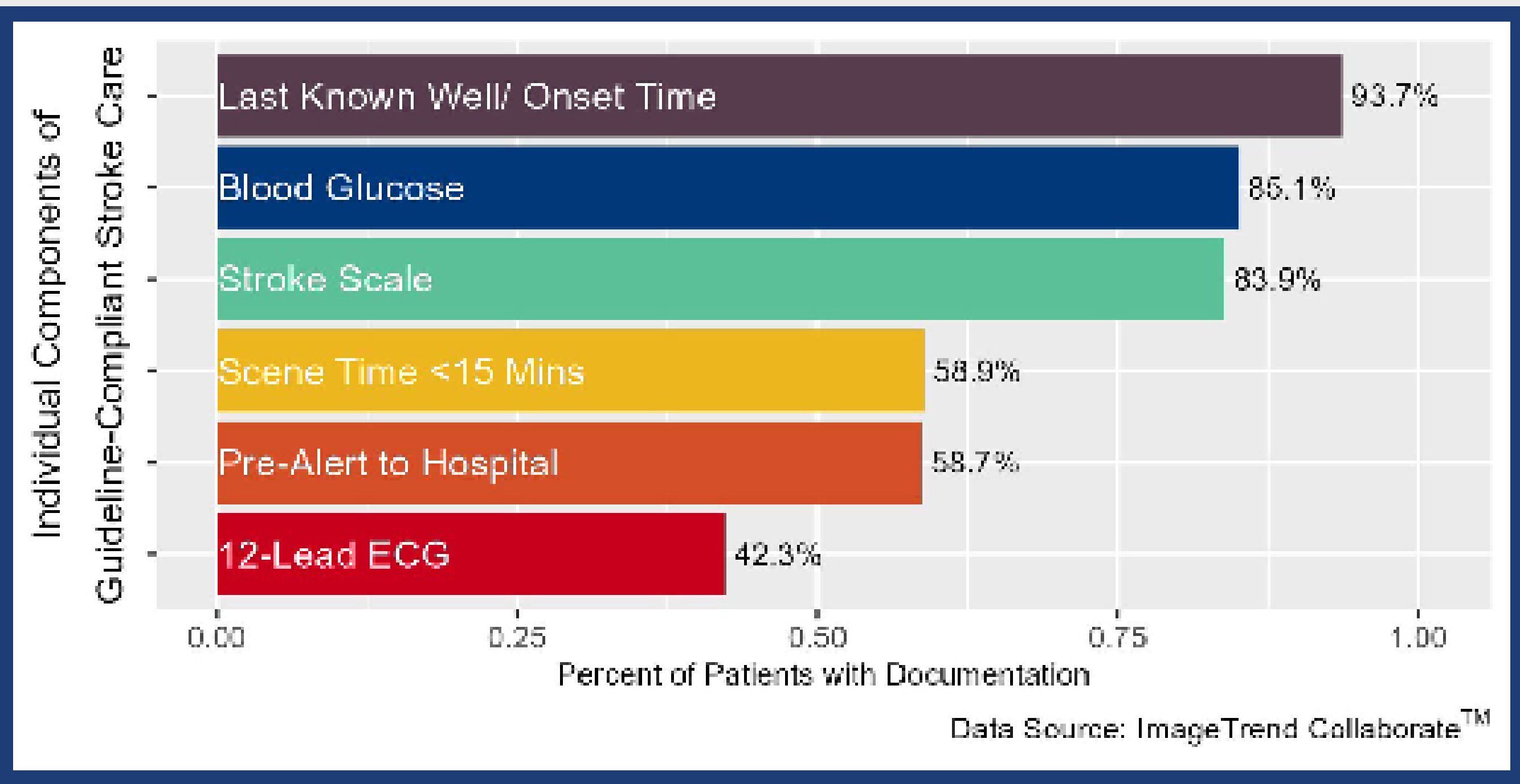


Fig. 1 (above): Documentation of Individual Components of Guideline-Compliant Stroke Care
Percent performance of individual components reported.

Fig. 2 (right): Documentation of Guideline-Compliant Stroke Care
Number of key components documented per patient.

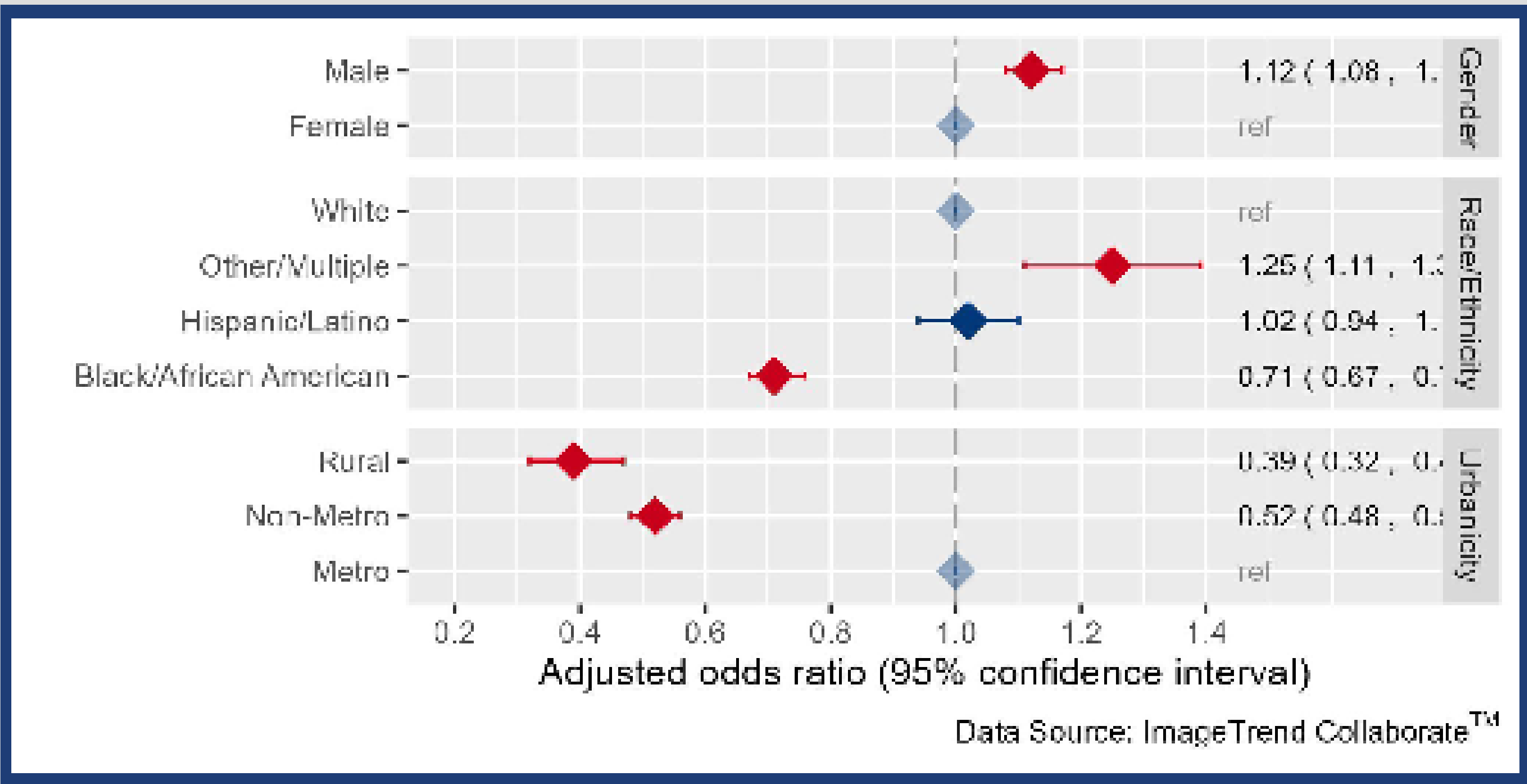
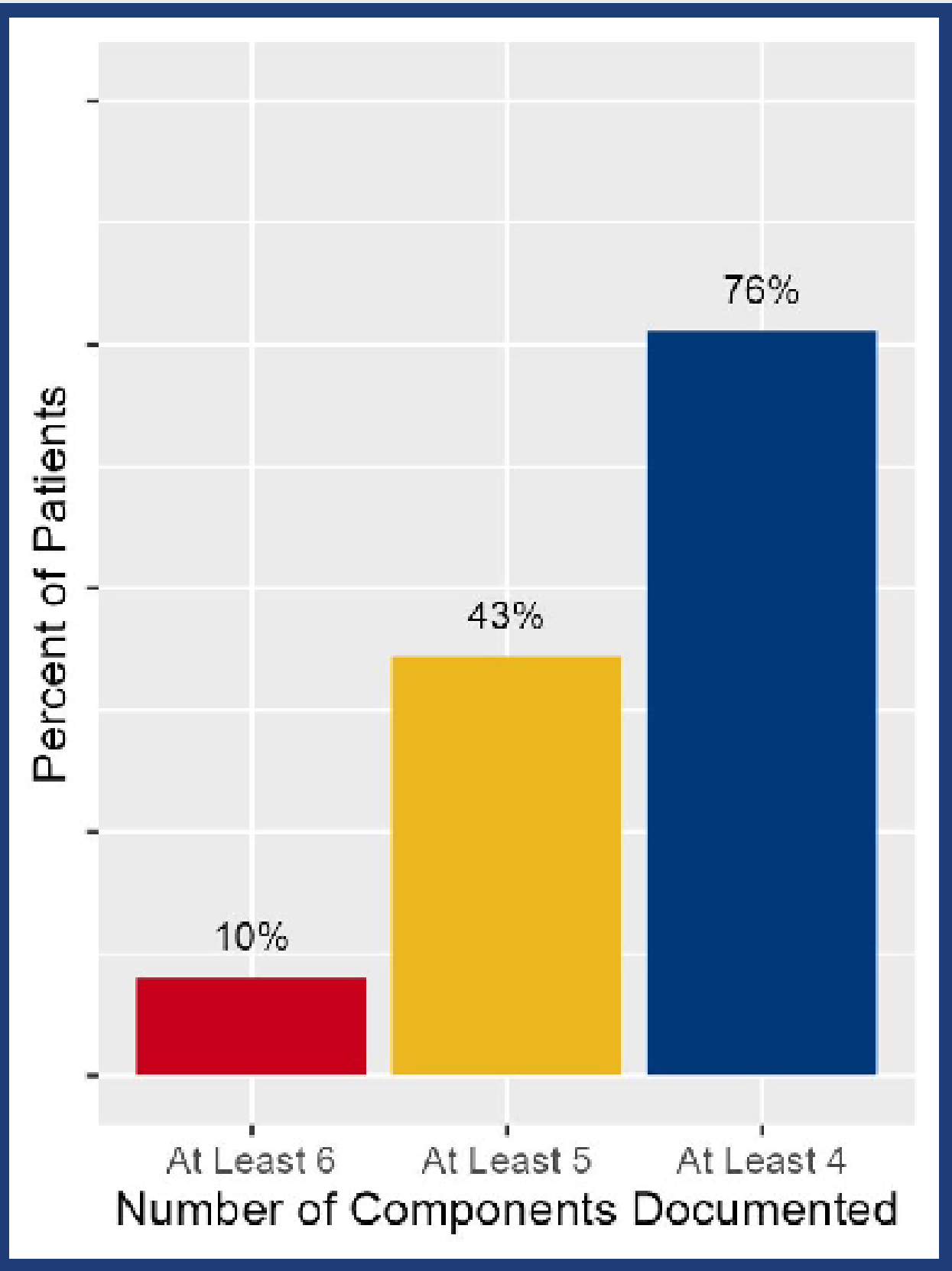


Fig. 3: Adjusted Odds of Guideline-Compliant Stroke Care by gender, race/ethnicity, and urbanicity. Adjusted odds ratios and 95% confidence intervals reported. Significant results noted in red.

LIMITATIONS

Our results may be limited by reporting bias in the medical record, particularly documentation in fields outside of national elements, such as the narrative.

Missing data were excluded, possibly biasing results.

Data is extracted as a convenience sample of pre-hospital stroke patients in the United States.

CONCLUSION

Prehospital stroke care delivery in the United States varies widely even with EBG’s providing a standardized approach to patient care.

90% of patients did not have guideline-compliant stroke care documented.

Variations in documented care are associated with gender, race, and urbanicity.

¹From the NASEMSO Model EMS Clinical Guidelines v3.0 (Stroke, pg 49), by National Association of EMS Officials, 2022, National-Model-EMS-Clinical-Guidelines_2022.pdf (nasemso.org)

²United States Department of Agriculture. 2020. Rural-Urban Continuum Codes. [Accessed 6/10/2023]. <https://www.ers.usda.gov/data-products/rural-urban-continuum-codes.aspx>



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