Disparities in Emergency Medical Services Assessment of Unhoused Patients with Altered Mental Status

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INTRODUCTION

Altered mental status (AMS) is a high-risk reason for emergency medical services (EMS) activation, requiring thorough assessment to identify life-threatening but reversible causes. Whether these evaluations are delivered equitably across patient populations remains unclear. Prior studies suggest disparities in EMS care for people experiencing homelessness (PEH), but little is known about assessment in this context. The objective was to evaluate whether PEH with AMS received comparable prehospital assessments to housed patients.

METHODS

- A retrospective observational study using the 2024 ImageTrend Collaborate dataset.
- Included EMS activations from agencies that documented patient housing status in ≥50% of encounters and further selected cases with a primary impression of AMS.
- Evaluated documentation of four critical assessments: respiratory rate, systolic blood pressure, blood glucose, and pulse oximetry.
- Used a combined dichotomous variable representing completion of all four assessments.
- Calculated descriptive statistics (%, median) to examine patient demographics and multivariable logistic regression (Odds Ratio, 95% confidence interval) to examine the impact of housing status on assessment delivery, using Stata 18 MP for all analyses

Figure 1. Flow chart of agency and activation criteria for analysis.

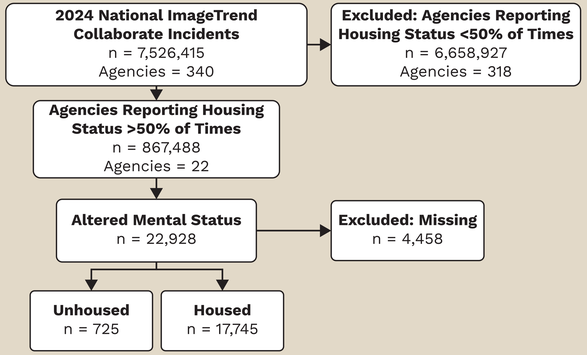


Table 1. Demographic characteristics of our included sample, stratified by housing status.

Characteristic	Overall %	Housed %	Unhoused %
	(n = 18,470)	(n = 17,745)	(n = 725)
Median Age (IQR)	67 years (53, 77)	68 years (55, 78)	45 years (35, 59)
Gender			
Female	47.59% (8790)	48.22% (8556)	32.28% (234)
Transwomen	0.03% (6)	0.03% (6)	0% (0)
Male	*52.12% (9627)*	*51.50% (9138)*	*67.45% (489)*
Transmen	0.02% (3)	0.02% (3)	0% (0)
Nonbinary	0.01% (2)	0.01% (2)	0% (0)
Missing/Unknown	0.23% (42)	0.16% (29)	0.28% (2)
Race and Ethnicity			
White	67.35% (10145)	67.71% (9939)	53.51% (206)
Black or African American	*17.71% (2667)*	*17.59% (2582)*	*22.08% (85)*
Asian	1.08% (163)	1.09% (160)	0.78% (3)
American Indian / Alaska Native	0.35% (53)	0.32% (47)	1.56% (6)
Hispanic/Latino	9.35% (1408)	9.29% (1363)	11.69% (45)
Middle Eastern / North African	1.26% (190)	1.29% (190)	0% (0)
Native Hawaiian / Pacific Islander	0.25% (37)	0.24% (35)	0.52% (2)
Other Race	2.38% (359)	2.21% (324)	9.09% (35)
Multi-Race	0.27% (41)	0.26% (38)	0.78% (3)
Missing/Unknown	18.45% (3407)	17.28% (3067)	46.90% (340)

RESULTS

- We included 867,488 patient encounters from 22 agencies. With 22,928 of these identified as AMS encounters, 725 (3%) were PEH, 17,745 (77%) were housed, and 4,458 (20%) were missing housing status.
- PEH, compared to housed, had a younger median age (45 vs 68), increased proportion of males (67% vs 52%), and an increased proportion of both Black (22% vs 18%) and Hispanic/Latino (12% vs 9%) patients.
- Compared to housed, PEH had lower documentation rates for systolic blood pressure (93% vs 97%), respiratory rate (80% vs 86%), blood glucose (80% vs 86%), and pulse oximetry (92% vs 95%).
- PEH had 41% (0.59 [0.47, 0.75]) lower odds of receiving all 4 assessments, controlling for patient age, gender, and race/ethnicity (Referent:Housed).

ImageTrend

Figure 2. Prevalence of assessments completion, stratified by housing status.

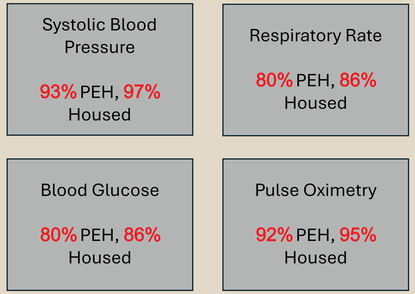
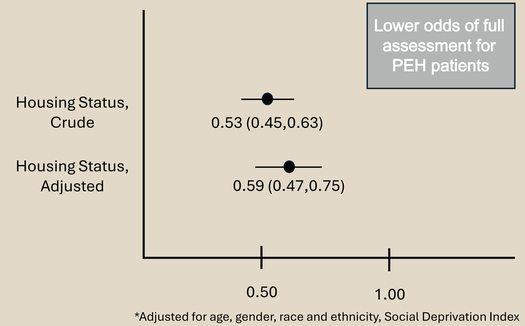


Figure 3. Forest plot representing association of housing status of odds of receiving full assessment.



*Adjusted for age, gender, race and ethnicity, Social Deprivation Index

CONCLUSION

Unhoused patients presenting with AMS were less likely to receive complete prehospital assessments, even after adjusting for demographic factors. While study limitations exist, these findings raise concerns about systemic bias in EMS and underscore the need for both targeted and systemic interventions to ensure equitable prehospital care.