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Current State of Emergency Department Boarding: A Call to Reimagine Resources to Meet Patient Needs

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in the department was chosen, with 2 months for baseline data collection, 1 month for data sharing and impact measurement and 1 month to see if activity returned to baseline to assess whether a Hawthorne Effect existed.

Qualitative analysis was done by means of an electronic survey sent to all ED clinicians. This was done with statements expressed on a Likert scale and some free text responses.

Results: Sharing activity data with clinicians increased the average number of patients seen per clinician per shift by 0.65 months between 2 and 3. This was a statistically significant change ($p=0.001$). Month 4 is currently ongoing to see if there is a return to baseline.

Survey results showed negative clinician perceptions on the sharing of activity data with the vast majority stating that it would have a negative impact on staff, with no change to the way or speed by which they work.

Conclusions: Sharing activity data with clinicians increases the number of patients that they see per shift on average. However, this is a modest increase relative to the potential negative impacts upon staff morale and working conditions.

Clinicians were of the perspective that knowledge of the data would not alter their practice, which conflicts with the reality which shows an increase in the number of patients seen on average per shift.

6 Expanding Stroke Screening for EMS Patients with Altered Mental Status: A Predictive Model Analysis

Joslyn Joseph, Gregory Neyman, Simcha Greenberg

Background: Stroke is a time-sensitive emergency in which early recognition and treatment significantly impact outcomes. Emergency Medical Services (EMS) play a vital role in early identification and hospital triage. EMS providers often determine transport destinations based on clinical impressions, protocols, and stroke center capabilities. Altered mental status (AMS) is a common reason EMS providers may miss acute ischemic strokes, but the value of performing stroke scales in all AMS patients remains unclear.

Objectives: This study assesses the utility of stroke screening in EMS patients with AMS by developing a predictive model based on stroke scale assessments and clinical factors.

Methods: We analyzed the 2022 National Emergency Medical Services Information System (NEMSIS) dataset, focusing on cases with AMS (ICD-10 code R41.82) as a primary or secondary symptom. Logistic regression models were applied to runs where a stroke scale was performed, incorporating demographics, vitals, response acuity, protocols, and symptoms. Two models—one for “Positive” and another for “Positive/Non-conclusive” stroke scales—were used to

estimate outcomes for AMS patients not screened.

Results: AMS accounted for 10% of EMS stroke impressions. Among 1,973,095 AMS runs, 407,556 (20.7%) included stroke scale assessments, with 19.1% positive and 21.2% non-conclusive. Strong predictors included hemiplegia (OR 14.67), stroke symptoms (OR 13.26), and speech disturbances (OR 5.58). The model estimated a 13.5% probability of a positive stroke scale in unscreened AMS patients.

Conclusion: Routine stroke scale use in AMS patients may enhance stroke detection and triage. Future studies should incorporate hospital-confirmed outcomes and explore barriers to EMS stroke scale use.

7 Current State of Emergency Department Boarding: A Call to Reimagine Resources to Meet Patient Needs

Christine Chien, Peter Vajda, Howard Klausner, Namita Jayaprakash, Seth Krupp, Mit Patel, Jo Ann Rammal, Victoria Al Karaki, Jennifer Stevenson, Steven Rockoff, Dmitry Davydov, Satheesh Gunaga, Jennifer Stephens-Hoyer, Solomon Knicely, Jason Vieder, Anthony Cruz, Gust Bills, Jacob Sinkoff, Megan Cahill, Heather Cronovich, Anthony Colucci, Brittany Betham

Background: Emergency Departments (EDs) are experiencing an unprecedented increase in boarding patients which is impacting the ability to provide efficient and safe patient care. While this issue is recognized in tertiary care hospitals, it remains less explored in community and freestanding EDs.

Objectives: The objective of this study is to explore the relationship between annual patient visits and patient hours of care provided in EDs. We hypothesize that despite decreasing annual patient visits, more hours of patient care are being provided.

Methods: The electronic health record (EHR) in a Michigan health care system with 9 Emergency Departments were analyzed for 2018 and 2023. These include: 1 tertiary care hospital, 4 community EDs and 4 free standing EDs. Metrics included Total Annual Patient Volume, Daily census, and daily Patient Hours of Care (PHC). A descriptive analysis was used to identify trends and differences when comparing 2023 to 2018, in these different types of EDs.

Results: For community EDs, total annual volumes decreased from 244,753 in 2018 to 228,896 in 2023, while PHC increased from 2,944 to 3,810. Freestanding EDs saw a slight decline in total annual volume, from 129,547 in 2018 to 128,156 in 2023, but daily PHC rose from 845 to 1,041. The tertiary care hospital ED experienced the most pronounced decline in total annual volume, from 101,210 in 2018 to 84,792, yet daily PHC significantly increased from 1,601 to

2,056. While all EDs experienced increased PHC in 2023 compared to 2018, the tertiary ED had the most significant drop in total annual census (16.2%), compared to both free standing (1.1%) and community EDs (6.5%) [Figure 1]

Conclusion: This study demonstrates a paradigm shift in ED utilization in the post COVID-19 era, with decreased patient volumes but increased PHC across health system EDs (tertiary referral, community, and free standing). Freestanding and community EDs saw slight annual volume decreases but significant percentage increases in PHC (23.2% versus 29.4% respectively) [Figure 2]. This PHC increase was slightly less pronounced in the tertiary care setting which also experienced significant reduction in annual volume. These trends highlight evolving patient care needs in Emergency Medicine and stress the importance of resource allocation and workforce adjustments to manage the increase of PHC.

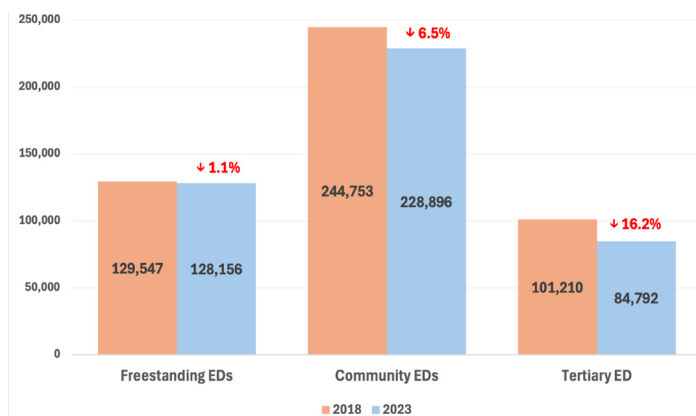


Figure 1. Comparison of ED daily PHC between site and year.

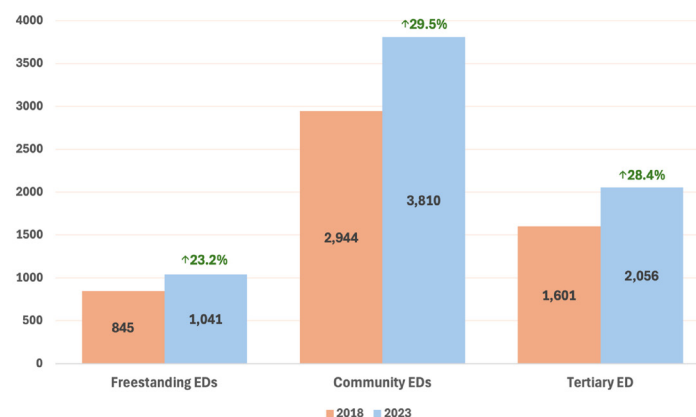


Figure 2. Comparison of ED total annual patient volume between site and year.

8 EMS Administration of Aspirin to Chest Pain and AMI/STEMI Patients: Disparities in Care?

Francis Mencl, Daniel Johnson, Kyle Fratta

Objectives: To determine and compare disparities in aspirin (ASA) administration to chest pain and presumed acute myocardial infarction (AMI) patients treated by EMS.

Background: AMI is a significant cause of morbidity and mortality worldwide. There are concerns about potential disparities in the treatment of patients based on gender and race. ASA is an essential prehospital treatment for cardiac patients. We examined its use by EMS for chest pain and AMI/STEMI patients using 2021 NEMSIS data.

Methods: This IRB-exempt retrospective study used the 2021 NEMSIS database, which contains over 48 million de-identified EMS calls across the USA. Impressions of chest pain (other and unspecified), myocardial infarction, or ST-elevation myocardial infarction (STEMI) were included. Those under 18 years old, or not transported, were excluded. The rate of ASA use was compared by age, sex, race, and ethnicity. Chi-square and odds ratios with confidence intervals were calculated.

Results: A total of 838,898 patients met the inclusion criteria. The mean and median age were 59 and 60, with 49% female. The majority were White (55%), followed by Black (18%), Hispanic (6%), and Asian (1%). Most (95%) were “chest pain”, with 42,085 (5.0%) in the “AMI” group. Overall, in instances of chest pain and AMI, males receive ASA more often than females. (41% vs 36.7%) in chest pain and (57.1% vs 55.8%) in AMI ($p < 0.0001$). However, the absolute difference in administration between genders is less in AMI. White male patients with chest pain are significantly more likely to receive ASA (42.7%) than any other chest pain group (28.3%-38.7%), $p < 0.0001$. In AMI, however, Black and Hispanic male patients get ASA (60.6% and 56.9%) more often than White males (56.7%). White females with AMI receive ASA (56.6%) as often as White males (56.7%). Hispanic females receive ASA at nearly the same rate as White women (56.1% vs. 56.6%), and Hawaiian/Pacific Islander women are somewhat more likely to receive ASA (58.7%) than White females (56.6%) or White males (56.6%). Hawaiian/Pacific Islander women and American Indian/Eskimo women are more likely to receive ASA than their male counterparts: 58.7% vs. 57.3% and 52.3% vs. 50.4%, respectively.

Conclusion: EMS is more likely to administer ASA when they suspect AMI. Differences in the prehospital administration of ASA seen in chest pain patients are minimized when EMS diagnoses an AMI, with some minorities and women actually getting ASA more often than White males.