Identifying the Impact of Arrival Mode and Referral Status on Triage Decisions and Patient Outcomes for Patients with Chest Pain

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1. INTRODUCTION

Patients frequently visit the emergency department (ED) due to pain in the chest area.[1] However, chest pain can be attributed to a variety of different causes. Therefore, it requires multiple assessments to identify the proper diagnosis. Unfortunately, this makes it difficult to identify the correct cause of the chest pain in smaller clinics where healthcare teams have access to limited resources.[1]

Triage is an important process in emergency services since it determines the order at which patients are prioritized to receive care.[2] Smaller clinics heavily rely on clinical history, physical exams, and electrocardiogram readings, which check the normalcy of the electronic signals of the heart, to triage patients.[1,3] Therefore, optimizing triage is crucial for patients to be treated most effectively and for hospitals to maximize their resources.[1]

Patients with chest pain arrive at the ED through three different ways.[1] The first way is when they self decide to go to the ED.[1] The second is being brought by Emergency Medical Services (EMS).[1] The third is being referred to ED from another medical professional.[1] These factors are crucial to consider because both variables are present when a patient arrives at the ED. However, there is little research that indicates how the mode of arrival and referral status affects triage decisions and therefore patient outcomes. The authors conducted a historic cohort study to identify an association between mode of arrival and referral status with triage decisions and patient outcomes.[1]

2. PRIMARY FINDINGS

The study included 13,029 patients aged 18+ who presented at the ED between January 1, 2022 and June 30, 2024.[1] Patient data was acquired from their medical charts.[1] The patients were divided into 3 groups based on their method of arrival. The primary outcome studied was whether or not the patient was admitted into the hospital.[1] Secondary outcomes included mortality, readmission, prolonged stays, admission into cardiology, and heart-related diagnoses.[1]

The study determined that patients who self-arrived with a referral had the lowest rate of admission into the hospital (17.1%).[1] In contrast, patients who were self-arrived and self-referred had a higher rate of admission (21.0%).[1] Even further patients would arrived through EMS had the highest rate of admission (29.9%).[1] These patients who were brought by EMS also experienced higher rates of 30-day mortality, prolonged length of stay, and readmission back into the ED compared to the previous two groups.[1]

3. HOW THIS IMPACTS PATIENT CARE

The study identified that patients who arrive through EMS require the highest rate of admission as well as mortality, length of stay, and readmission. As a result, they are the highest priority in the ED.[1] Therefore expanding technology and resources to diagnose chest pain to community clinics may reduce the self-arrivals and referrals to the ED which would in turn reduce the burden on the ED and optimize care for dire patients. This would create better patient care at clinics and reduce the burnout at hospitals.

REFERENCES

1. Gefen, S., Feigin, E., & Ziv-Baran, T. (2026). The association between mode of arrival, presence of medical referral, and outcomes in patients presenting to the emergency department with chest pain: A historical cohort study. International Emergency Nursing, 85. https://doi.org/10.1016/j.ienj.2026.101753
2. Triage | Emergency Care, Urgent Care & Trauma Care. (n.d.). Britannica. Retrieved February 9, 2026, from https://www.britannica.com/science/triage
3. Electrocardiogram (ECG or EKG). (2024, April 2). Mayo Clinic. Retrieved February 12, 2026, from https://www.mayoclinic.org/tests-procedures/ekg/about/pac-20384983

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Manvitha is an undergraduate student studying Public Health with a minor in Sustainability at the University of Maryland, College Park. She is especially passionate about reducing local healthcare injustices and spreading environmental awareness. She joined RAP-EMCC to explore clinical research and contribute to improving hospital experiences for patients. In her free time, she enjoys cooking, traveling, and being outdoors!