

EARLY UNSCHEDULED 72-HOUR EMERGENCY DEPARTMENT REVISIT REQUIRING ADMISSION: CLINICAL PROFILE, RISK FACTORS, AND OUTCOMES IN A TERTIARY-CARE CENTER

G. Atharsh¹, Dhilipan K²

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Corresponding Author:
Dr. G.Atharsh,
Email: atharsh3737@gmail.com

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¹Final year Postgraduate Resident, Department of Emergency Medicine, Kovai Medical Center and Hospital, Tamilnadu, India.

²Associate professor, Department of Emergency Medicine, KMCH institute of health sciences and research, Coimbatore, Tamilnadu, India.

ABSTRACT

Background: Unscheduled return to the emergency department (ED) shortly after discharge represents a critical indicator of patient safety and care quality. Patients who revisit within 72 hours and subsequently require admission form a particularly high-risk subgroup. This study evaluated demographic characteristics, clinical risk factors, physiological changes, and outcomes among such patients in a tertiary-care hospital. **Materials and Methods:** An ambispective observational study was conducted in the ED of a tertiary hospital over one year. Adult patients returning within 72 hours of discharge with complaints related to the initial visit and requiring admission were included (n=72). Data on demographics, comorbidities, presenting complaints, vital signs, investigations, and outcomes were collected using a structured proforma. Statistical analysis was performed using SPSS version 27, with significance set at $p < 0.05$. **Results:** Mean age was 60.53 ± 11.46 years; 63.9% were ≥ 60 years and 58.3% were male. Comorbidities were present in 91.7%, most commonly hypertension (72.2%) and diabetes (69.4%). Illness-related causes accounted for 87.5% of revisits. Respiratory distress (41.7%) and fever (38.9%) were predominant complaints. Significant deterioration occurred between visits, including increased heart rate and respiratory rate and decreased oxygen saturation ($p < 0.001$). Nearly all patients required admission, with 48.6% needing intensive care. **Conclusion:** Early ED revisit requiring admission identifies a distinct high-risk population characterized by older age, multimorbidity, and rapid clinical deterioration. Structured risk stratification and enhanced discharge planning may improve outcomes and reduce critical-care burden.

INTRODUCTION

Emergency departments (EDs) represent the most immediate point of contact between the public and hospital-based acute care. Over the past decade, EDs across the world have witnessed a steady rise in patient attendance. This growth has been attributed to multiple factors, including population aging, increasing prevalence of chronic diseases, and barriers to accessing timely primary care. Within this complex environment, one persistent concern has drawn particular attention—patients who return soon after discharge. These unscheduled revisits not only burden already stretched systems but also raise concerns about whether the initial assessment, treatment, or discharge planning was adequate.^[1] When a patient revisits shortly after leaving the ED, the implications extend beyond operational

inconvenience. Such returns may reflect unresolved symptoms, disease progression, treatment complications, or gaps in follow-up arrangements. From the patient's perspective, these experiences can erode trust in healthcare services and contribute to anxiety and dissatisfaction. For healthcare providers, repeated visits disrupt workflow, prolong waiting times, and increase the risk of delays in managing other critically ill patients.^[2]

Unscheduled return visits are commonly defined as a patient's re-presentation to the ED within a limited time interval after discharge, most often within 72 hours, with complaints related to the original episode of care. In clinical practice, such cases highlight vulnerabilities in the transition from emergency care to outpatient management, particularly when a patient's condition evolves after leaving the hospital. High-risk unscheduled return visits (HRURVs)

therefore serve as a valuable marker of care quality, prompting institutions to review clinical decision-making and discharge processes.^[3]

Certain patient characteristics have repeatedly been associated with increased likelihood of ED revisits. Age plays a complex role. Younger adults, particularly those in the late teenage and early adult years, may return because of persistent symptoms such as pain, infection, or injury-related complications. In contrast, older adults—especially those above 70 years—often revisit due to frailty and multiple comorbidities.^[4]

An exacerbation of heart failure, uncontrolled blood glucose levels, or acute respiratory distress in asthma may initially stabilize with emergency treatment but recur soon after discharge. When these patients return, their presenting complaints often resemble the original problem, suggesting that the emergency intervention addressed the immediate crisis without fully controlling the underlying disease process.^[5]

Beyond medical illness, psychosocial factors also contribute significantly to repeat visits. A substantial proportion of frequent ED users have a history of mental health conditions, which may complicate symptom interpretation or reduce adherence to treatment plans. Low health literacy further increases vulnerability; many patients struggle to understand medication schedules, warning signs, or follow-up instructions provided at discharge.^[6]

The causes of ED revisits are therefore multifactorial and can be broadly categorized into illness-related, physician-related, and patient-related factors. Illness-related causes account for a significant share, particularly when symptoms persist or worsen after discharge. Physician-related factors include diagnostic errors, incomplete evaluation, or inadequate treatment plans, which may occur in busy and time-limited settings. Patient-related contributors involve misunderstanding instructions, delayed follow-up, or leaving against medical advice.^[7,8]

Notably, patients observed for brief periods or discharged after short stays appear particularly vulnerable, possibly because evolving diagnoses are not yet fully apparent. Non-specific initial assessments have also been linked to higher revisit rates and increased mortality, especially in circulatory disorders. As healthcare systems adapt to changing demands, strategies such as risk prediction models and patient education programs are being explored to reduce unnecessary returns and improve outcomes.^[9,10]

Given the clinical, operational, and economic implications of early ED revisits, understanding the patient profile and contributory risk factors becomes essential. Identifying these determinants may enable clinicians to recognize vulnerable patients at the time of initial presentation, strengthen discharge planning, and ultimately enhance continuity of care. The present study was therefore undertaken to evaluate the characteristics and risk factors associated with patients who revisited the emergency department and

required admission within 72 hours of their initial visit.

MATERIALS AND METHODS

Study Design: This study was conducted using an ambispective observational design that incorporated both retrospective record review and prospective enrolment of patients. The retrospective component analysed previously documented emergency department encounters and identify patterns related to early revisit admissions. The prospective component allowed real-time data collection with improved completeness and accuracy, particularly for variables not routinely documented in charts. The study was carried out over a one-year period from January 2025 to January 2026. The study was undertaken in the Department of Emergency Medicine at Kovai Medical Center and Hospital, Coimbatore.

Study Population: The study population consisted of adult patients presenting with an unscheduled return to the emergency department within 72 hours after discharge from a prior visit and subsequently requiring admission. These patients represented individuals whose clinical course worsened or remained unresolved after initial emergency management.

Participants were included if they were aged 18 years or older, returned within 72 hours of discharge, had complaints clinically related to the original presentation, and required formal admission to a hospital ward or intensive care unit. Patients were excluded if the revisit was due to a completely unrelated medical problem, if they had left against medical advice during the initial visit, or if consent could not be obtained from the patient or legally authorized representative. The criteria ensured that only clinically relevant revisits reflecting progression or inadequate resolution of the initial condition were analysed.

Sample Size and Sampling Technique: Sample size estimation was performed using a single-proportion precision-based formula: $Z_{21-\alpha} PQ/L^2$. An expected proportion of 57.2% was derived from earlier evidence showing that many early emergency revisits do not lead to admission. Using a 95% confidence level and allowable relative error of 20% (equivalent to 10% absolute precision), the calculated sample size was 71.8, rounded up to 72 participants. A consecutive sampling technique was employed. Every eligible patient presenting during the study period was included until the minimum sample size was achieved.

Data Collection Tool: Data were recorded using a structured proforma specifically developed for the study. The tool was designed to capture information from both the initial visit and the revisit encounter in a systematic manner. The proforma included demographic details such as age and sex, arrival time and triage category, vital signs at presentation,

presenting complaints, clinical diagnosis, and documented comorbidities. Laboratory and radiological investigations performed during both visits were recorded, along with treatments administered, medications prescribed, and discharge instructions provided during the first visit.

Operational Definition: For the purpose of this study, an emergency department revisit was defined as any unscheduled return occurring within 72 hours of discharge from a prior emergency visit, in which the presenting complaint was clinically related to the original condition and resulted in hospital admission.

Ethical Considerations

The study protocol was approved by the Institutional Ethics Committee prior to commencement. Participation was voluntary, and patients were informed that refusal or withdrawal would not affect their treatment in any manner. Consent forms were provided in both English and Tamil to ensure comprehension. Since the study involved only observation and review of routine clinical data, no additional investigations or costs were imposed on participants.

Statistical Analysis

Data was analysed using IBM SPSS Statistics version 27.0. Continuous variables such as age and physiological parameters were summarized as mean

with standard deviation, whereas categorical variables including gender, comorbidities, diagnoses, and outcomes were presented as frequencies and percentages. Comparisons between the initial visit and revisit characteristics were performed using independent sample t-tests for continuous variables and Pearson's chi-square tests for categorical variables. Associations between clinical characteristics and risk factors for admission were evaluated. Statistical significance was defined as a two-tailed p-value less than 0.05.

RESULTS

A total of 72 patients who returned to the emergency department within 72 hours and subsequently required admission were analysed. The study population was predominantly older, with a mean age of 60.53 ± 11.46 years. The largest proportion of patients fell within the 60–69-year age group (43.1%), followed by 50–59 years (23.6%), while individuals aged ≥ 70 years constituted 20.8%. Only a small minority were between 40–49 years (12.5%). Overall, nearly two-thirds of patients were aged 60 years or older. [Table 1]

Table 1: Demographic characteristics of study participants (N = 72)

Variable	Category	n	%
Age group	40–49	9	12.5
	50–59	17	23.6
	60–69	31	43.1
	≥ 70	15	20.8
Mean $\pm$ SD (years)		60.53 ± 11.46	
Gender	Male	42	58.3
	Female	30	41.7

[Table 2] demonstrates a high burden of comorbidity among participants, with 91.7% having at least one chronic illness and 61.1% living with multiple comorbidities. Hypertension (72.2%) and diabetes mellitus (69.4%) were the most prevalent conditions, followed by ischaemic heart disease (30.6%), chronic

respiratory disease (19.4%), chronic kidney disease (15.3%), and peripheral vascular disease (6.9%). Nearly half the cohort (43.1%) were aged ≥ 65 years. Importantly, abnormal vital signs at the initial visit were documented in 69.4% of patients, and 72.2% had two or more major risk factors.

Table 2: Comorbidities and baseline risk factors (N = 72)

Variable	n	%
Comorbidities		
Hypertension	52	72.2
Diabetes mellitus	50	69.4
Ischaemic heart disease	22	30.6
COPD/bronchial asthma	14	19.4
Chronic kidney disease	11	15.3
Peripheral vascular disease	5	6.9
≥ 2 comorbidities	44	61.1
Risk factors		
Age ≥ 65 years	31	43.1
Any comorbidity	66	91.7
Abnormal initial vital signs	50	69.4
≥ 2 risk factors	52	72.2

The vast majority of revisits were attributable to illness-related causes (87.5%), whereas patient-related factors such as non-adherence accounted for only 12.5%. The most frequent presenting complaint

on return was worsening dyspnea or respiratory distress (41.7%), followed closely by persistent fever with or without chills (38.9%). Local infection progression manifested as increasing pain, swelling,

or redness in 22.2% of cases. Cardiac-type symptoms such as recurrent chest pain occurred in 9.7%, while gastrointestinal complaints including severe

abdominal pain (8.3%) and dehydration from persistent vomiting (6.9%) were less common. [Table 3]

Table 3: Causes of revisit and presenting complaints (N = 72)

Variable	n	%
Cause of revisit		
Illness-related	63	87.5
Patient-related	9	12.5
Presenting complaints		
Worsening dyspnea/respiratory distress	30	41.7
Persistent fever $\pm$ chills	28	38.9
Increased pain/swelling/redness	16	22.2
Recurrent/worsening chest pain	7	9.7
Severe abdominal pain $\pm$ vomiting	6	8.3
Persistent vomiting/dehydration	5	6.9

[Table 4] shows that infections and cardiopulmonary illnesses dominated the initial diagnoses. Cellulitis (22.2%) and COPD/asthma exacerbation (19.4%) were the most common conditions, followed by community-acquired pneumonia (12.5%), congestive heart failure exacerbation (11.1%), acute coronary syndrome (9.7%), urinary tract

infection/pyelonephritis (9.7%), acute pancreatitis (8.3%), and acute gastroenteritis (6.9%). Reflecting these conditions, intravenous antibiotics were administered in 62.5% of patients, and bronchodilator therapy in 30.6%, while smaller proportions required fluid resuscitation, cardiac support therapy, analgesia, or corticosteroids.

Table 4: Initial diagnosis, management, and ED outcome (N = 72)

Variable	n	%
Initial diagnosis		
Cellulitis	16	22.2
COPD/asthma exacerbation	14	19.4
Community-acquired pneumonia	9	12.5
CHF exacerbation	8	11.1
Acute coronary syndrome	7	9.7
Pyelonephritis/UTI	7	9.7
Acute pancreatitis	6	8.3
Acute gastroenteritis	5	6.9
Initial management		
IV antibiotics	45	62.5
Nebulization/bronchodilators	22	30.6
IV fluids $\pm$ antiemetics	13	18.1
Diuretics $\pm$ inotropes	8	11.1
IV analgesics	6	8.3
Steroids $\pm$ MgSO ₄	6	8.3
Outcome on revisit		
Ward admission	36	50.0
ICU admission	35	48.6
Death in ED	1	1.4

[Table 5] illustrates significant physiological worsening between the initial visit and the revisit. Heart rate increased markedly from 109.24 ± 17.52 bpm to 125.38 ± 18.76 bpm ($p < 0.001$), and respiratory rate rose from 22.18 ± 3.12 to 28.46 ± 4.28 breaths per minute ($p < 0.001$). Oxygen saturation declined substantially from $93.82 \pm 2.64\%$

to $88.14 \pm 4.51\%$ ($p < 0.001$), while temperature increased from $37.46 \pm 0.78^\circ\text{C}$ to $38.46 \pm 0.56^\circ\text{C}$ ($p < 0.001$), indicating progression of infection or inflammation. A smaller but statistically significant rise in systolic blood pressure was also observed ($p = 0.042$).

Table 5: Physiological and laboratory parameters at revisit (N = 72)

Parameter	Initial Visit Mean $\pm$ SD	Revisit Mean $\pm$ SD	p value
Heart rate (bpm)	109.24 ± 17.52	125.38 ± 18.76	<0.001
SBP (mmHg)	130.42 ± 25.18	135.28 ± 32.46	0.042
Respiratory rate (/min)	22.18 ± 3.12	28.46 ± 4.28	<0.001
SpO ₂ (%)	93.82 ± 2.64	88.14 ± 4.51	<0.001
Temperature ($^\circ\text{C}$)	37.46 ± 0.78	38.46 ± 0.56	<0.001

DISCUSSION

This study examined a particularly vulnerable subset of emergency department (ED) users — patients who returned within 72 hours and required hospitalisation. Older adults constituted the majority of cases, with nearly two-thirds aged 60 years or more. This reinforces the well-established association between advancing age and early ED return. Similar trends have been reported in both Western and South-Asian settings, where returners were substantially older than non-returners.^[11,12]

A modest male predominance was noted, comparable to prior studies showing a slight excess of men among early revisits.^[13,14] One of the most striking observations was the near-universal presence of chronic disease. More than 90% of patients had at least one comorbidity and over 60% had multiple illnesses. Hypertension and diabetes were particularly prevalent, far exceeding many Western cohorts, reflecting the regional metabolic epidemic. Previous meta-analyses have demonstrated dramatically elevated odds of early return among patients with multiple comorbidities.^[15]

Illness-related factors accounted for 87.5% of revisits, whereas patient- and doctor-related causes were uncommon. This pattern closely mirrors international literature in which the majority of early returns are unavoidable disease progression.^[14] Importantly, illness-related returns were associated with the highest severity, including most ICU admissions and the single mortality. Prior work has similarly shown greater resource utilisation and worse outcomes among unavoidable returns.^[15]

Respiratory distress and fever were the most frequent presenting complaints on return, consistent with global datasets identifying dyspnea and infection as leading drivers of early revisits.^[16] These findings highlight a key limitation of single-time-point assessment in emergency care. Many patients initially appear stable yet deteriorate rapidly as inflammatory cascades evolve. Therefore, early discharge after transient clinical improvement may not accurately reflect the trajectory of illness in high-risk individuals.

Objective vital-sign comparison demonstrated significant worsening in heart rate, respiratory rate, oxygen saturation, and temperature. The magnitude of change confirms genuine clinical decline rather than unnecessary revisit behaviour. The findings indicate that some patients were likely in early sepsis or impending organ failure at the index visit but had not yet manifested overt instability.^[14]

Laboratory parameters during the second visit revealed systemic inflammation, renal dysfunction, anaemia, and poor glycaemic control. Comparable studies have reported leukocytosis and rising creatinine as predictors of adverse outcomes after ED discharge.^[17,18] These findings suggest that many patients were transitioning into sepsis-like syndromes or acute-on-chronic organ failure.

The high random blood glucose values are particularly relevant in the Indian context, where uncontrolled diabetes is common. Hyperglycaemia worsens infection outcomes and may accelerate deterioration. This highlights the importance of disease-specific discharge planning, especially for metabolic conditions.

Nearly all returners required admission, and almost half needed intensive care. The ICU requirement was higher than several previous reports,^[19] highlighting the severity of this subgroup. Early return with admission therefore represents a clinically meaningful adverse outcome rather than merely an administrative metric.

From a health-system perspective, these cases impose a disproportionate burden on critical-care resources. Preventing even a fraction of such deteriorations would significantly improve bed availability and patient flow. Therefore, early revisit requiring admission should be considered a key performance indicator in emergency medicine quality assessment.^[20]

The study provides several actionable insights. Reliance on clinical intuition alone appears insufficient for discharge decisions. Incorporating structured risk-stratification tools based on age, comorbidity burden, and vital-sign deviations may help identify patients requiring prolonged observation. The predominance of illness progression supports the establishment of short-stay observation units, which international experience shows can reduce early return admissions substantially. Patients should receive detailed written instructions describing warning symptoms requiring immediate return. Scheduled follow-up within 48–72 hours may detect deterioration earlier and reduce severity at presentation. Disease-specific pathways are necessary. Diabetes management, heart failure optimisation, COPD action plans, and cellulitis monitoring protocols could mitigate progression.

CONCLUSION

The findings of this study indicate that patients who return within 72 hours and require admission represent a distinct, high-risk clinical phenotype characterised by older age, multimorbidity, subtle initial instability, and rapid physiological decline. Recognition of this group at first contact, combined with structured observation and targeted follow-up strategies, has the potential to improve patient safety while simultaneously reducing critical-care burden.

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