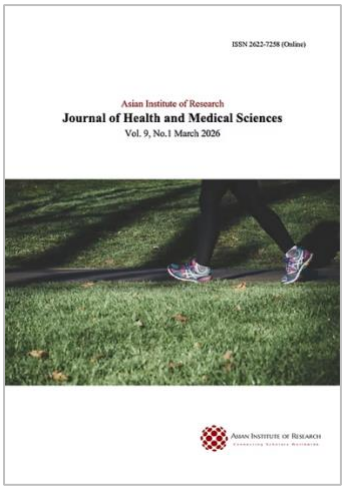

Journal of Health and Medical Sciences

Bahall, M., & Legall, G. (2026). Chest Pain Among Adults Presenting at the A&E Department of a Public Tertiary Health Care Institution During a 2-Year Period. *Journal of Health and Medical Sciences*, 9(1), 1-14.

ISSN 2622-7258

DOI: 10.31014/aior.1994.09.01.250

The online version of this article can be found at:
https://www.asianinstituteofresearch.org/

Published by:
The Asian Institute of Research

The Asian Institute of Research *Journal of Health and Medical Sciences* is a peer-reviewed International Journal. The journal covers scholarly articles in the fields of Medicine and Public Health, including medicine, surgery, ophthalmology, gynecology and obstetrics, psychiatry, anesthesia, pediatrics, orthopedics, microbiology, pathology and laboratory medicine, medical education, research methodology, forensic medicine, medical ethics, community medicine, public health, community health, behavioral health, health policy, health service, health education, health economics, medical ethics, health protection, environmental health, and equity in health. As the journal is Open Access, it ensures high visibility and the increase of citations for all research articles published. The *Journal of Health and Medical Sciences* aims to facilitate scholarly work on recent theoretical and practical aspects of Health and Medical Sciences.

ASIAN INSTITUTE OF RESEARCH
Connecting Scholars Worldwide

The Asian Institute of Research
Journal of Health and Medical Sciences
Vol.9, No.1, 2026: 1-14
ISSN 2622-7258

DOI: 10.31014/aior.1994.09.01.250

Chest Pain Among Adults Presenting at the A&E Department of a Public Tertiary Health Care Institution During a 2-Year Period

Mandreker Bahall[1,2], George Legall[3]

[1] Hon Research Fellow, Caribbean Centre for Health Systems Research and Development Faculty of Medical Sciences, University of the West Indies, Eric Williams Medical Sciences Complex, Mt. Hope, Trinidad, Trinidad and Tobago
[2] Arthur Lok Jack Global School of Business, University of the West Indies, St. Augustine Campus, Trinidad and Tobago
[3] University of the West Indies, St. Augustine Campus, Trinidad and Tobago

Correspondence: Mandreker Bahall, Caribbean Centre for Health Systems Research and Development, Faculty of Medical Sciences, University of the West Indies, Trinidad & Tobago. Telephone: +1 868 763 6608

Abstract
Evaluating chest pain is challenging due to the because of urgency of its management, resource constraints in highly stressful environments, inadequate information, and inexperienced clinical staff. The aim of this study was to examine the emergency diagnosis, presenting symptoms, treatment, and dispatch of adult patients with chest pain at the emergency department of a public healthcare institution in Trinidad and Tobago over a 2-year period. The target population comprised individuals at least 18 years old presenting with chest pain at the emergency department of a public health care institute in Trinidad and Tobago. Data were obtained solely from accident and emergency (A&E) records, including special notes when applicable, and were analyzed with SPSS version 23 (IBM, Armonk, New York, NY, USA) using descriptive and inferential statistics. Patients were primarily mainly female (n = 1058, 51.2%) and Indo-Trinbagonian (n = 1174; 56.8%). The mean age was 53.4 years (standard deviation [SD] =16.76); with more than two-fifths in the 45–64 age group (n =876, 42.3%). Hypertension (n = 941, 45.5%) was the leading comorbidity, followed by diabetes (n = 658, 31.8%) and ischemic heart disease (IHD) (n = 541, 26.3%). Only 13.3% (n=274) smoked, 8.8% (n= 181) used alcohol. Presenting symptoms were due to shortness of breath (n= 875, 42.3%), nausea (n = 417, 20.2%), and palpitations (n = 364, 17.6%). Twenty-two (1.1%) patients presented with atypical chest pain and 103 (5.0%), with classical chest pain. Among the entire sample, medical diagnoses were muscular pain (n = 86, 4.2%), followed by GERD (n = 48, 2.3%), and acute coronary syndrome (ACS) (n = 77, 3.7%). Pulmonary embolism and aortic dissection occurred in 1 and 0 patients, respectively. Most patients (n = 1899, 91.8%) had no documented diagnosis. Among the 228 (11.0%) patients triaged, the mean hours were 20.1 (SD =7.38). Post-triage treatments included aspirin (n = 482, 23.3%), clopidogrel (n = 450, 21.8%) and heparin (n=456, 22%). Most (n=1179, 57%) participants had no dispatch documentation; 24.4% (n = 505) were dispatched to the medical ward and 1.7% (n=35) were dispatched to the cardiac ward. Chest pain due to ACS accounted for 3.7% of cases (n = 77). Approximately one-quarter of patients were treated with one antiplatelet (n = 482, 23.3%). A sizeable proportion of patients was without clear documentation of diagnosis (n = 1899, 91.8%) or dispatch (n = 1179, 57.0%). The implementation of standardized

clinical pathways and templates within a dedicated chest pain evaluation area is essential for optimizing care, ensuring timely treatment, and following noncardiac cases.

Keywords: Chest Pain, Chest Pain Unit/Practice, Emergency, Emergency Screening Tool

1. Introduction

Chest pain is a frequent presentation in emergency departments (EDs) worldwide. In Trinidad, chest pain accounts for 8.5% of emergency admissions (Bahall, 2021). The principal clinical goal is prompt identification or exclusion of potentially life-threatening causes. Clinicians must also identify non-cardiac causes (e.g., musculoskeletal, gastrointestinal, or psychological), which account for 44.7% (Wertli et al., 2019) to 55.1% (Khand et al., 2023) of all chest pain presentations. Many patients are treated and discharged, some are admitted, and the remainder are followed up as outpatients. Life-threatening conditions such as aortic dissection, pericarditis, pulmonary embolism, and myocardial ischemia (Kontos et al., 2010) are critical and must be identified early to prevent morbidity and mortality, treat and prevent complications (Hamm et al., 1997) and increase survival (Beck et al., 2015) However, misdiagnosis continues to occur, with acute myocardial infarction (AMI) missed in up to 2.1% of ED cases (Schull et al., 2006), pulmonary embolism in 7.5% of cases (Kwok et al., 2022) and acute aortic dissection in 14.1% (Zhan et al., 2012) to 33.8% (Lovatt et al., 2022) of cases. Misdiagnosis may result from physician-related factors such as limited experience, inadequate histories, or misinterpretation of ECGs, which further exacerbate these risks (Rusnak et al., 1989). Other contributors to misdiagnosis include atypical symptom presentation, lack of classic clinical features and presence of coexisting conditions (Lovatt et al., 2022). In low- and middle-income countries, suboptimal management is amplified: approximately: 55% of patients with chest pain in a major Pakistani ED underwent ECGs, and fewer than 5% received cardiac enzyme testing in some reported cohorts (Paichadze et al., 2015). In addition, patients with a lower socioeconomic status are reportedly 'disproportionally affected, exhibiting longer wait times, less frequent use of diagnostic tests, and higher rates of revisits and adverse outcomes, even in universal healthcare systems (Herlitz et al., 2023).

Caribbean countries have similar barriers and challenges in ED settings, such as insufficient materials and resources, delayed flow of patients, increased workload, and shortage of staff and skills (De Freitas et al., 2020). Inadequate elicitation and documentation (Kachalia et al., 2007) of medical history and physical examinations can directly contribute to diagnostic errors and death. Other factors that compromise care include incorrect interpretation of diagnostic tests, inadequate handoffs, excessive workloads (Kachalia et al., 2007) and inadequate knowledge/skill/reasoning (Newman-Toker et al., 2022). The necessity for proper evaluation may also prevent "avoidable admissions" without incurring significant costs to the patient or healthcare system (Groarke et al., 2013) or even avoid unnecessary admissions (Bhatti et al., 2019). The study investigated patients who presented to the emergency department with chest pain. The specific objectives were (1) to estimate the prevalence of symptom presentation; (2) to determine sociodemographic characteristics; (3) to determine the diagnosis, treatment, and dispatch of patients; and (4) to determine any associations between symptoms/diagnosis and sociodemographic factors.

2. Material and Methods

This study was retrospective in nature and included all adults presenting with self-diagnosed chest pain at the Accident and Emergency (A&E) Department of the largest public tertiary health care institute in Trinidad and Tobago during a 2-year period from 2015 to 2016. No attempt was made to determine a sample because a sampling frame was unavailable for the random selection of participants.

Before data collection, all staff members (nurses, doctors, clerks, etc.) were briefed on the nature of the study and the importance of identifying and retrieving accurate information. Data were obtained from a sample of patient files accessible from the A&E Department of the hospital. Records of all patients with chest pain—obtained from the registration book, which included patients' names and diagnoses—were reviewed on a daily basis, except on weekends and public holidays. The inclusion criterion was an age of at least 18 years. This study had no exclusion

criteria. Data on sociodemographic variables were collected by using a questionnaire (9) and included age, sex, ethnicity, marital status, employment status, monthly income, height, weight, waist and hip circumference, presenting symptoms and severity of chest pain (26), self-reported medical history (14), admission and time profile (7), ECG findings (1), blood investigations (13), other tests (4), ACS scores (3), A&E diagnosis (9), A&E treatment (9) and A&E dispatch (5).

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) v23 via descriptive and inferential data analysis methods. Descriptive methods included frequency and percentage distribution tables, graphs, charts, and selected summary statistics. Inferential methods included 95% confidence intervals for the mean and proportion, hypothesis testing, including analysis of variance (ANOVA), and nominal and ordinal logistic regressions.

Ethical approval was granted on April 28, 2015, by the Clinical Governance and Ethics Committee of the South-West Regional Health Authority of Trinidad and Tobago.

3. Results

3.1 Demographics

Sex was nearly equally divided between male (n = 1006, 48.6%) and female (n = 1058, 51.2%) and patients ranged in age from 18 years to over 75 years (Table I). In particular. Specifically, the percentage of patients 75 years or older (n = 211; 10.2%) was nearly twice the percentage of patients aged 18–24 years (n = 111; 5.4%). More than one-half of patients were of Indo-Trinbagonian descent (n = 1174; 56.8%; Table 1).

Table 1: Sociodemographic characteristics

Variable	n	%
Sex		
Male	1006	48.6
Female	1058	51.2
Unknown	4	0.2
Age group (y)		
18–24	111	5.4
25–34	242	11.7
35–44	254	12.3
45–54	435	21.0
55–64	441	21.3
65–74	373	18.0
75 or older	211	10.2
Unknown	1	0.1
Ethnicity		
Afro-Trinbagonian	586	28.3
Indo-Trinbagonian	1174	56.8
Mixed	143	6.9
Other	37	1.8
Not stated	128	6.2

The mean age was 53.4 years (SD = 16.76 years), with the exception of individuals aged 75 years and older. The number of persons presenting increased with increasing age category. The ANOVA showed no difference between the mean ages of male and female participants (p = 0.304) or among any of the four ethnic groups (p = 0.991).

3.2 Medical History

3.2.1 Comorbidities of Chest Pain

Hypertension (n = 941, 45.5%), previous heart attack (n = 694, 33.6%), diabetes (n = 658, 31.8%), and ischemic heart disease (IHD) (n = 541, 26.3%) were the most comorbid conditions (Table 2).

Table 2: Comorbidities and Selected Lifestyle Habits

Comorbidity/Lifestyle	Atypical & &Classical	Not classified	All
	n = 1025	(n = 1042)	(n = 2067)
Hypertension	39 (3.0)	902 (86.6)	941 (45.5)
Previous heart attack **	52 5.1)	642 (61.5)	694 (33.6)
Diabetes	22 (2.2)	636 (61.0)	658 (31.8)
IHD	19(1.9)	522 (50.1)	541 (26.3)
Renal Insufficiency	1 (0.1)	62 (6.0)	63 (3.1)
Family History of heart disease	1 (0.1)	19 (1.8)	20 (1.0)
Hypercholesterolemia **	1 (0.1)	16 (1.5)	17 (0.8)
Abdominal obesity	0 (0.0)	9 (0.9)	9 (0.4)
Smoking	9 0.9)	265 (25.4)	274 (13.3)
Alcohol consumption	7 (0.7)	174 (16.7)	181 (8.8)
Other	7 (0.7)	0 (0.0)	7 (0.3)

NA: not applicable

**Self-reported history of heart attack may be inaccurate as some individuals equate a previous hospital admission for chest pain with having had a myocardial infarction, despite the absence of a confirmed diagnosis. Some patients may similarly believe that they have hypercholesterolemia simply because they are prescribed cholesterol-lowering therapy.

3.2.2 Lifestyle and Exercise Habits

Smoking (n = 274; 13.3%) was the leading self-reported lifestyle-related risk factor, followed by alcohol consumption (n = 181, 8.8%) and abdominal obesity (n = 9, 0.4%). More than four-fifths of patients (n = 1737; 56.1%) reported not consuming fruit and vegetables daily; the remaining 331 patients did not respond.

3.3 Presenting Symptoms

Most patients (n= 875, 42.3%) presented with shortness of breath, followed by nausea (n = 417, 20.2%), palpitations (n = 364, 17.6%), light-headedness (n = 245, 11.9%), and vomiting (n = 207, 10.0%). Nearly one-third of patients (n = 694 ;33.6%) reported having experienced at least one previous heart attack (Table 3).

Table 3: Symptoms on Presentation at a Hospital A&E Department

	Status		
Presenting Symptom	Classified n = 125	Not classified (n =1942)	All
Palpitations	20 (16.0)	344 (17.5)	364 (17.6)
Breathlessness	0 (0.0)	3 (0.2)	3 (0.2)

Nausea	17 (13.6)	400 (20.6)	417 (20.2)
Light-headedness	15 (12.0)	230 (11.8)	245 (11.9)
Sweating	8 (6.4)	105 (5.4)	113(5.5)
Fever	5 (4.0)	114(5.9)	119 (5.8)
Shortness of breath	43 (34.4)	832 (42.8)	875(42.3)
Vomiting	7 (5.6)	200 (10.3)	207 (10.0)
Near faint	0 (0.0)	4 (0.2)	4 (0.2)
Syncope	5(3.2)	26 (1.3)	31 (1.5)
Blackout	0 (0.0)	1 (0.1)	1(< 0.1)
Anxiety	0 (0.0)	6 (0.3)	6 (0.3)
Pleuritic pain	2 (1.6)	21 (1.1)	23(1.1)
Coughing	9 (7.2)	178 (9.2)	187 (9.1)

3.4 Associations Between Sociodemographic Characteristics and Health Conditions

Chi-square tests revealed the following significant associations (Table 4):

1. Sex and palpitations ($p = 0.011$)
2. Age group and nausea ($p \leq 0.001$)
3. Age group and fever ($p = 0.002$)
4. Sex and fatigue ($p = 0.048$)
5. Age group and sweating ($p = 0.032$)
6. Age group and pleuritic pain ($p = 0.026$)
7. Age group and coughing ($p = 0.015$)
8. Age and shortness of breath ($p = 0.001$)

Table 4 shows that age was associated with six symptoms, including nausea, fever, and sweating, whereas sex was associated with palpitations and fatigue only.

Table 4: The p-values for tests of Association

Health condition	Age	Sex
Palpitations	0.5273	0.011*
Nausea	≤0.001*	0.051
Vomiting	0.677	0.524
Fever	0.002*	0.113
Fatigue	0.395	0.048*
Sudden onset of chest pain	0.710	0.399
Syncope	0.266	0.717
Sweating	0.032*	0.081
Pleuritic pain	0.026*	0.976
Coughing	0.015*	0.375
Near faint	0.682	0.993
Blackout	0.308	0.630
Shortness of breath	0.001*	0.869

Breathlessness	0.825	0.871
Anxiety	0.36990360	0.918
Light-headedness	0.909	0.187
Wheezing	0.174	0.106

3.5 Predictors of Presenting Conditions

Chi-square analysis and subsequent logistic regression identified the predictors of presentation at the A&E with at least one symptom: palpitations, fever, or cough (Table 5).

Table 5: Predictors of Palpitations, Fever, and Coughing

					95% CI for OR	
Symptom	Associated with	A Predictor of	OR	p-value	Lower	Upper
Palpitations	sex	Yes				
		Male	0.601	0.001	0.446	0.81
		Female	1		.	
Fever	Age group	Yes				
		18-24	1.972	0.017	1.131	3.438
		25-34	1.874	0.008	1.745	2.992
		35-44	1.800	0.013	1.131	2.866
		45-54	1.809	0.007	1.179	2.779
		55-64	1.037	0.874	0.662	1.624
		65-74	1.537	0.157	0.987	2.394
	8	75+	1			
Coughing	Age group	Yes				
		18-24	1.694	0.048	1.006	2.852
		25-34	1.859	0.004	1.213	2.849
		35-44	1.461	0.086	0.948	2.25
		45-54	1.499	0.065	0.977	2.151
		55-64	1.054	0.755	0.74	1.579
		65-74	1.354	0.144	0.902	2.032
		75+	1			
SOB	Age group	Yes				
		18-24	1.429	0.34	0.687	2.974
		25-34	1.616	0.110	0.897	2.915
		35-44	1.406	0.252	0.785	2.519
		45-54	1.788	0.030	1.057	3.025
		55-64	1.151	0.598	0.681	1.984
	8	65-74	1.669	0.063	0.972	2.863
		75+	1			

The following were revealed through corresponding odds ratios (ORs):

Sex was a predictor of palpitations (p =0.001). In particular, women were almost twice as likely to present with this condition than men.
Age group was predictor of presenting with fever:
Among patients in the 18- to 24-year-old and 25- to 34-year-old age groups, compared with patients 75 years or older, the odds of presenting with fever decreased with increasing age.
Age group was predictor of presenting with coughing.
In particular, among patients 18–24 and 25–34 years old. compared to patients aged 75 years or older, the odds presenting with coughing decreased with increasing age.
Age group was predictor of presenting at the A&E with shortness of breath.
The odds of shortness of breath among patients 45–54 years of age were significantly higher than those of patients 75 years of age or older

3.6 A & E Diagnoses

The diagnostic status was not documented in 1899 (91.8%) of persons who presented at A&E with chest pain. Table VI. Muscular pain (n = 86, 4.2%) was the leading diagnosis, followed by gastroesophageal reflux disease (GERD) (n = 48, 2.3%) and Unstable Angina (n = 43, 2.1%). Pulmonary Embolism (n =1, 0.1%) was the least prevalent. None of these patients had AD (Table 6).

Table 6: Emergency Diagnosis

Diagnosis	n	%
STEMI	16	0.8
Non-STEMI	18	0.9
Unstable angina	43	2.1
Atypical chest pain	22	1.1
Muscular pain	86	4.2
Pulmonary embolism	1	0.1
GERD	48	2.3
Undocumented*	1899	91.8

NB. Persons may have ≥1 diagnosis; therefore the total may be >2068 and >100%.
*May include patients with atypical chest pain.

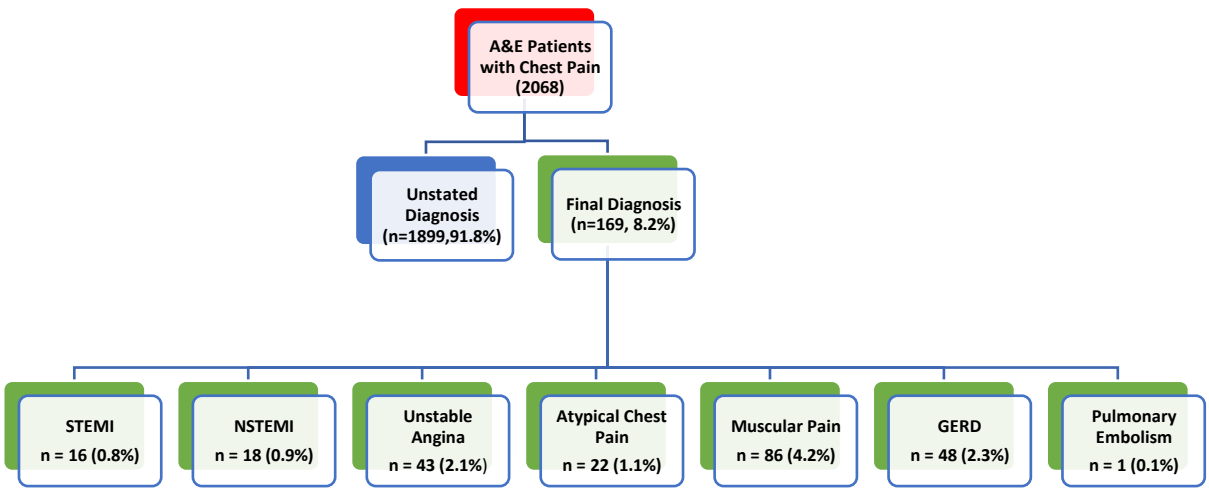

Figure 1: Emergency medical diagnosis

A&E, accident and emergency; STEMI, ST-elevation myocardial infarction; NSTEMI, non-ST-elevation myocardial infarction; GERD, gastroesophageal reflux disease

3.7 Treatment/Triage Time

Table 7 shows the length of time (in hours) from arrival at A&E to the start of triage for the 228 patients for whom both figures were recorded by age group, male sex, female sex, and the combined sex.

Table 7: Time (Hours) from A&E Arrival to Triage, based on triage patient age and sex

Sex	Age	n	Minimum	Median	Maximum	Mean (SD)
Male	18–24	2	23.7	23.7	23.7	23.7 (0.01)
	25–34	16	0.1	23.5	23.9	18.9 (8.65)
	35–44	11	0.0	23.8	24.0	21.6 (7.17)
	45–54	22	0.1	23.6	24.0	19.0 (8.65)
	55–64	35	0.0	23.5	23.9	21.0 (6.35)
	65+	20	0.1	23.1	23.9	19.3 (8.37)
	Not stated	12	11.9	23.6	23.9	22.2 (3.53)
	All ages	118	0.0	23.6	24.0	20.3 (7.30)
Female	18–24	7	0	23.6	23.9	16.5 (9.74)
	25–34	16	1.1	23.6	24.0	21.2 (6.00)
	35–44	16	0.1	23.8	24.0	20.1(8.22)
	45–54	15	0	23.6	24.3	17.7(10.10)
	55–64	20	0.1	23.7	24.0	21.1(6.22)
	65+	22	6.9	23.4	23.9	20.7(5.33)
	Not stated	14	0.2	22.4	23.9	18.4(8.63)
	All ages	110	0	23.6	24.0	19.8(7.48)
Ethnicity	Afro-	58	0.0	23.7	24.0	20.3(7.63)
	Indo	145	0.0	23.6	24.0	19.7(7.56)
	Mixed	15	8.5	23.7	24.0	22.1(4.01)
	Other	1	16.5	16.5	16.5	16.5(9.15)
	Not stated	9	0.02	23.3	23.9	20.3(7.73)
	All	228	0.0	23.6	24.0	20.1(7.38)

ANOVA showed no statistically significant differences between or among the mean times to triage of male and female patients ($p = 0.692$), among the seven age groups ($p = 0.704$,); or among the four ethnic groups ($p = 0.704$).

3.7.1 Treatments

Post-triage treatments administered at A&E included the three leading treatments: aspirin (n=482, 23.3%), clopidogrel (n=450, 21.8%), and heparin (n= 456, 22%; Table 8).

Table 8: Treatments

Treatment	n	%
Aspirin	482	23.3

Clopidogrel	450	21.8
Warfarin	103	5.0
Simvastatin	1	<1.0
Heparin	456	22.0
Beta blocker	11	0.5
Thrombolysis	4	0.2
Other	673	32.5

3.8 A&E Dispatch

Dispatch information was unavailable for 1179 (57.0%) patients presenting to the A&E department with chest pain (Fig.2). Most. 24.4% (n = 505%) patients were dispatched to the medical ward, 11.3% (n =234) were discharged fully, and less than 1% each were sent home with review and with instructions to attend the clinic, respectively.

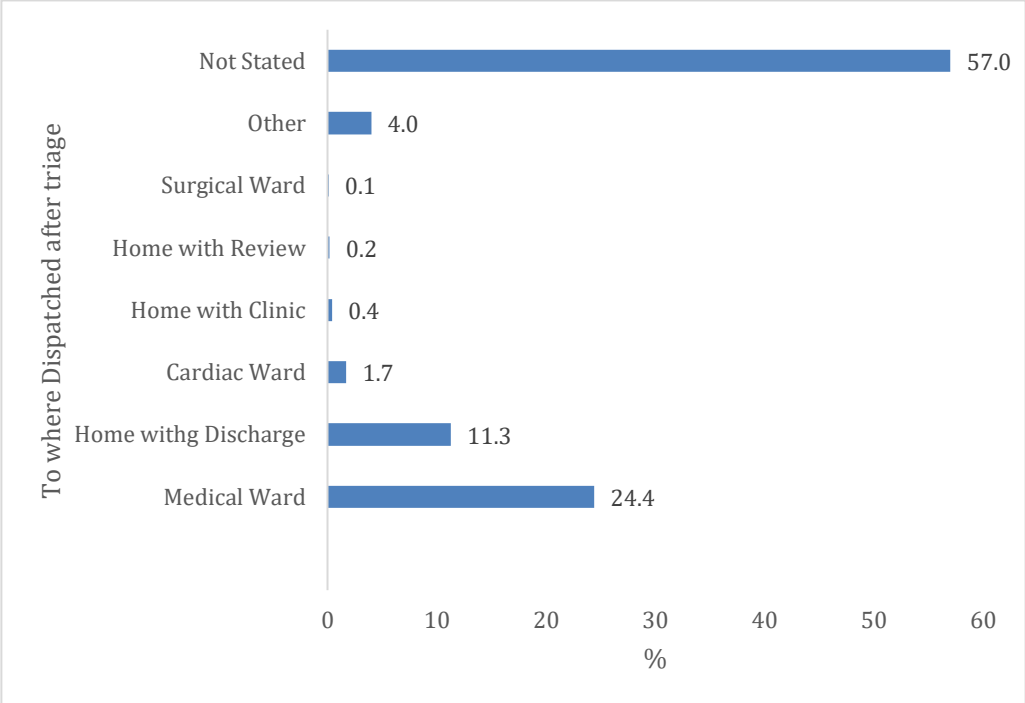

Figure 2: Patient Triage Dispatch

4. Discussion

The study participants were primarily female (n = 1058, 51.2%), between 45 and 64 years (n = 876, 42.3%), and Indo-Trinbagonian (n=1174, 56.8%). These demographics were similar to other studies conducted in Pakistan which showed that most patients were male (60%), and the mean age was 42 years (Paichadze et al., 2015). Another study reported a male-to-female ratio of 2:1 (Fouda et al., 2023). The overall mean age of the participants was 53.4 (SD = 16.76), which was similar to the findings of previous studies which reported mean ages of 53.2 years (Chanda et al., 2023) and 56.7 years (Jayasekera et al., 2024).

Patients were primarily hypertensive (n = 941, 45.5%), diabetic (n = 658, 31.8%), and had a history of ischemic heart disease (IHD) (n = 541, 26.3%). Chanda et al. (2003) similarly found the prevalence of hypertension, diabetes and coronary artery disease was 35.5%, 30.5%, and 19.5, respectively. Mateen et al. (2024) found the prevalence of hypertension, diabetes and family history of IHD among patients with cardiac chest pain was 67%, 40%, and

46%, respectively. Approximately one-third of the participants (n = 694, 33.6%) in our study reported experiencing at least one previous heart attack. However, such self-reported history may be inaccurate as some individuals equate previous hospital admission for chest pain with having had a myocardial infarction. The Caribbean region has the highest prevalence of elevated blood pressure in the Americas, with estimates ranging from 20.9% to 27.1% (Caribbean Public Health Agency, 2021). In particular, studies conducted in Trinidad and Tobago, report hypertension rates exceeding the regional average (Alvarado, 2023) and diabetes mellitus in approximately 14.5% of the population (Office of the President of the Republic of Trinidad and Tobago, 2019). Lifestyle factors include abdominal obesity (n = 9; 0.4%), smoking (n = 274; 13.3%), and alcohol consumption (n = 181; 8.8%). Compared with our study, a similar investigation of the clinico-epidemiological profile of patients presenting with acute chest discomfort at the ED in India reported a higher smoking prevalence (48.5%) but a lower rate of alcohol consumption (3.5%) (Chanda et al., 2023). None of the participants reported daily consumption of fruits and vegetables, 1733 (83.8%) participants reported that they did not do so daily, and; the remaining 334 (16.2%) patients did not respond.

4.1 Presenting Symptoms

Of the cohort of patients who presented with chest pain, atypical and classical chest pain presentations were documented in 1.1% (n = 22) and 5.0% (n = 103) respectively. Other studies reveal prevalences of 39.5% and 60.4% for atypical and classical/typical chest pain, respectively (Tuyyab et al., 2017). Clinicians may not have assigned a specific diagnosis because they lacked sufficient clinical information or were reluctant to commit to a diagnosis without certainty. Undocumented cases may include many of these cases as well. Similar findings such as a lack of adequate information or simply did not wishing to commit to a diagnosis have been reported in several studies (Carlton et al., 2015; Sagristà-Sauleda & Barrabés, 2020; Swap & Nagurney, 2005).

A large proportion of patients presented with shortness of breath (n= 875, 42.3%) followed by nausea (n = 417, 20.2%) and palpitations (n = 364, 17.6%). Strangely certain symptoms are associated with sex and age. Sex was associated with palpitations ($p = 0.011$) and fatigue ($p = 0.048$). Similar findings have been reported were (Milner et al., 1999; O'Donnell et al., 2012). Age was associated with nausea ($p < 0.001$), fever ($p = 0.002$), sweating ($p = 0.032$), pleuritic pain ($p = 0.026$), cough ($p = 0.015$), and shortness of breath ($p = 0.001$). However, these associations have not been previously reported.

4.2 A&E Diagnosis/Dispatch

In our study, the prevalence of ACS was 3.7% (n=773)%, and that of STEMI, NSTEMI, and unstable angina was 0.8% (n =16), 0.9% (n = 18), and 2.1% (n = 43),) respectively, among patients presenting with chest pain in the ED which was much lower than that of other similar studies: 13% (n=26) (Fouda et al., 2023) and 49.7% (n= 566) (Asma et al., 2018). Muscular pain (n = 86; 4.2%) was the leading cause of chest pain, followed by GERD (n = 48; 2.3%). This finding contrasts a study by Khan et al. (2023), which reported higher prevalence of musculoskeletal and gastrointestinal chest pain as 22.9% and 15.7%, respectively. These low figures may have resulted from the large number (n = 1899, 91.8%) of patients who were undocumented. One patient presented with pulmonary embolism. This number is quite small when compared to other similar studies which reported life-threatening diagnoses such as APE (0.61%), aortic dissection (0.18%), and pericarditis/tamponade (1.23%) (Asma et al., 2018).

Dispatch information was unavailable for 1179 patients (57.0%) presenting to the A&E department with chest pain. In the absence of these records, it was assumed that the patients were discharged. Among individuals for whom data were recorded, 24.4% (n = 505) and 1.7% (n = 35) were dispatched to the medical ward and cardiac ward, respectively, and 11.3% (n = 234) were allowed to return home without further follow-up. Less than 1% were sent home with a follow-up review and instructions to attend the clinic. Leite et al. (2015) found that in a cohort of emergency department chest pain presentations, 81.1% of patients (n = 189) were discharged home, while 18.9% (n = 44) were admitted to the hospital for further management. Chanda et al. (2023) similarly found that 49.7% were warded and 40.2% were discharged from the ED.

4.3 Treatment/Timings

Emergency triage time (i.e., time between arrival and the initiation of triage) was completed in only 228 patients (11.0%). The patient's triage time ranged from almost immediately upon presentation at the A&E (i.e. time to triage = 0 h) to 24 h. This time contrasts with the expected standard of care (Byrne et al., 2023). Srivatsa et al. (2025) found that 43.4% of patients with acute chest pain met the <10 min ECG goal. Based on the European Society of Cardiology (ESC) guidelines, chest pain requires require prompt and early assessment, focused medical history, physical examination, vital sign monitoring, ECG, blood investigations, and necessary medication (Byrne et al., 2023).

Our study revealed that 23.3% (n = 482) of patients received aspirin, 21.8% (n = 450) received clopidogrel, and 22% (n = 456) received heparin. These data strongly suggested that a substantial proportion of patients, approximately 23%, were managed as though they had acute coronary syndrome (i.e., STEMI, NSTEMI, or unstable angina), despite the absence of explicit documentation or formal documentation. These figures are lower than that found in other studies which revealed that aspirin use was 41.9% and heparin was 32.9% in patients with suspected ACS (Khursheed at al., 2015).

4.4 Documentation

Our study revealed lack of documentation regarding triage timing (n = 1840, 89%), medical diagnosis (n = 1899, 91.8%), and dispatch (n = 1179, 57%). This finding is similar to that of other studies that showed suboptimal data quality, with data completeness being only 57.3% in emergency medical records (Paichadze et al., 2015); incomplete documentation contributed significantly to missing or insufficient clinical information.

4.5 Design/Study Limitations

The limitations include the use of nonrandom sampling, lack of proper documentation, and failure to document provisional emergency diagnoses.

4.6 Conclusion and Recommendation

A major problem is documenting of diagnosis, treatment, and dispatch. The most commonly documented diagnoses were muscular pain and ACS, with antiplatelets being the most commonly prescribed drug. Proper guidelines, preferably in areas dedicated to chest pain, are mandatory to optimize patient care and prevent complications. Data collection templates and improved surveillance and data management techniques, including continuous training and quality control, are needed.

Author Contributions: - "Conceptualization, M.B.; Methodology, M.B; Software, G.L; Validation, M.B; Formal Analysis, G.L; Investigation, M.B; Resources, MB; Data Curation, G.L; Writing – Original Draft Preparation, M.B; Writing – Review & Editing, M.B, G.L; Visualization, M.B; Supervision, M.B; Project Administration M.B."

Funding: Not applicable.

Competing interests: The authors declare that they have no competing interests.

Informed Consent Statement/Ethics approval: This study was approved by the Ethics Committee of the South-West Regional Health Authority and University of the West Indies. The requirement for informed consent was waived.

Data Availability Statement: The data supporting the findings of this study are available from the corresponding author upon request.

Acknowledgements: We would like to thank premedical students Rajiv and Brittany, who assisted in data collection, and Dr Ashmanie Ramjit, who assisted in the preparation of the manuscript.

Declaration of Generative AI and AI-assisted Technologies: This study has not used any generative AI tools or technologies in the preparation of this manuscript.

References

Alvarado, G. Trinidad and Tobago among countries with the most cases of hypertension. Trinidad and Tobago Newsday, 2023. Available from: https://newsday.co.tt/2023/05/11/tt-among-the-countries-with-the-most-cases-of-hypertension/

Asma, B.S.; Beltaief, K.; Msolli, M.A.; Bouida, W.; Abroug, H.; Ben Fredj, M.; et al. Management of acute coronary syndrome in emergency departments: a cross sectional multicenter study (Tunisia). BMC Emerg Med., 18(1):50., 2018. https://doi.org/10.1186/s12873-018-0201-6

Bahall, M. Chest Pain Disposition Practice in a Developing Country: Comparison of a Conservative Method to the HEART Score Method. Cardiol. Cases Syst. Rev., 3(1):31-41, 2021. https://wrightacademia.org/articles/ccsr/ccsr-3-010.php?jid=ccsr

Beck, C.C.A.; Hagemeijer, A.; Tortolani, B.; Byrd, B.A.; Parekh, A.; Datillo, P.; et al. Comparing an Unstructured Risk Stratification to Published Guidelines in Acute Coronary Syndromes. Western J Emerg Med., 16(5):683-689. 2015.2015. http://www.medscape.com/viewarticle/855203?src=emailthis

Bhatti, Y.; Stevenson, A.; Weerasuriya, S.; Khan, S. Reducing avoidable chest pain admissions and implementing high-sensitivity troponin testing. BMJ Open Qual., 8(4):e000629, 2019. https://doi.org/10.1136/bmjoq-2019-000629

Byrne, R.A.; Rossello, X.; Coughlan, J.J.; Barbato, E.; Berry, C.; Chieffo, A.; et al. 2023 ESC Guidelines for the management of acute coronary syndromes: Developed by the task force on the management of acute coronary syndromes of the European Society of Cardiology (ESC). Eur. Heart J., 44(38):3720–3826, 2023. https://doi.org/10.1093/eurheartj/ehad191

Caribbean Public Health Agency. The Caribbean's Blood Pressure Rates Rank Highest in the Americas. Press release, 2021. Available from: https://carpha.org/More/Media/Articles/ArticleID/467/The-Caribbeans-Blood-Pressure-Rates-Rank-Highest-in-the-Americas

Carlton, E.W.; Than, M.; Cullen, L.; Khattab, A.; Greaves, K. 'Chest pain typicality' in suspected acute coronary syndromes and the impact of clinical experience. Am. J. Med., 128(10):1109–1116.e2, 2015. https://doi.org/10.1016/j.amjmed.2015.04.012

Chanda, A.; Kaeley, N.; Kumar, B.; Khapre, M. Clinico-epidemiological profile of patients presenting with acute chest discomfort in emergency medicine department of a tertiary care hospital in Uttarakhand, India: A Prospective Observational Study. Cureus., 15(9):e44681, 2023. https://doi.org/10.7759/cureus.44681

De Freitas, L.; Goodacre, S.; O'Hara, R.; Thokala, P.; Hariharan, S. Qualitative exploration of patient flow in a Caribbean emergency department. BMJ Open., 10(12):e041422, 2020. https://doi.org/10.1136/bmjopen-2020-041422

Fouda, G.; Vallabh, K.; Elbahrawi, M. Description of chest pain patients in the Emergency Department of a central hospital in Ajman. 2023. https://doi.org/10.21203/rs.3.rs-2991307/v3

Groarke, J.; O'Brien, J.; Go, G.; Susanto, M.; Owens, P.; Maree, A.O. Cost burden of non-specific chest pain admissions. *Teikyo Med. J.,*46*(6)*:7989-7995, 2013. http://scholar.google.com/scholar?q=cost+burden+of+non+specific+chest+pain&btnG=&hl=en&as_sdt=0%2C5.

Hamm, C.W.; Goldmann, B.U.; Heeschen, C.; Kreymann, G.; Berger, J.; Meinertz, T. Emergency room triage of patients with acute chest pain by means of rapid testing for cardiac troponin T or troponin I. N. Engl. J. Med., 337*(23)*:1648-1653, 1997. http://www.nejm.org/doi/full/10.1056/NEJM199712043372302#t=article

Herlitz, S.; Ohm, J.; Häbel, H.; Ekelund, U.; Hofmann, R.; Svensson, P. Socioeconomic status is associated with process times in the emergency department for patients with chest pain. J. Am. Coll. Emerg. Physicians Open., 4(4):e13005, 2023. https://doi.org/10.1002/emp2.13005

Jayasekera, M.M.P.T.; Nawarathna, T.N.D.; Wanniarachchi, W.K.M.N.U.; Navarathne, M.B.; Bopitiya, A.K.; Edirisinghe, E.M.D.T.; et al. Thirty-day outcome of patients who present with chest pain to the emergency department of a tertiary care hospital of Sri Lanka. SLJ Med. Sci., 1(1):34-39, 2024. https://doi.org/10.4038/sljms1.v1i1.5

Kachalia, A.; Gandhi, T.K.; Puopolo, A.L.; Yoon, C.; Thomas, E.J.; Griffey, R.; et al. Missed and delayed diagnoses in the emergency department: a study of closed malpractice claims from 4 liability insurers. Ann. Emerg. Med., 49(2):196-205, 2007. https://doi.org/10.1016/j.annemergmed.2006.06.035

Khan, M.A.; Sheikh, A.R.; Tariq, S.B.; Ijlal, M.; Qazi, S.; Siddiqui, L. A study on most common causes of chest pain in emergency department presAentations. J. Health Wellness Community Res., 3(*10*), 2023. https://doi.org/10.61919/vet75t11

Khand, A.; Brankin-Frisby, T.; Gornall, M.; Hatherley; J., Raj, R.; Campbell, M.; et al. Independent Predictors of Repeat Emergency Room Presentations: Insights from a Cohort of 1066 Consecutive Patients with Non-Cardiac Chest Pain Generating 4770 Repeat Presentations. J. Clin. Med., 12(16):5290, 2023. https://doi.org/10.3390/jcm12165290

Khursheed, M.; Fayyaz, J.; Feroze, A.; Shakeel, N.; Bhatti, J.A. Time to treatment in patients of suspected acute coronary syndrome in Pakistan: a clinical audit. Heart Lung., 44(1):63-67, 2015. https://doi.org/10.1016/j.hrtlng.2014.08.007

Kontos, M.C.; Diercks, D.B.; Kirk, J.D. Emergency Department and Office-Based Evaluation of Patients with Chest Pain. Mayo Clin. Proc., 85(3):284-299, 2010. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2843115

Kwok, C.S.; Wong, C.W.; Lovatt, S.; Myint, P.K.; Loke, Y.K. Misdiagnosis of pulmonary embolism and missed pulmonary embolism: A systematic review of the literature. Health Sci. Rev., 3:100022, 2022. https://doi.org/10.1016/j.hsr.2022.100022

Leite, L.; Baptista, R.; Leitão, J.; Cochicho, J.; Breda, F.; Elvas, L.; et al. Chest pain in the emergency department: risk stratification with Manchester triage system and HEART score. BMC Cardiovasc. Disord., 15*(1)*::48, 2015. https://doi.org/10.1186/s12872-015-0049-6

Lovatt, S.; Wong, C.W.; Schwarz, K.; Borovac, J.A.; Lo, T.; Gunning, M.; et al. Misdiagnosis of aortic dissection: A systematic review of the literature. Am. J. Emerg. Med., 53:16-22, 2022. https://doi.org/10.1016/j.ajem.2021.11.047

Mateen, S.; Masakputra, V.; Siddiqi, Z.; Fatima, J. Incidence, pattern, causes, and outcome of acute chest pain among patients presenting in the emergency department of a tertiary care hospital in North India. Cureus., 16(3):e56115, 2024. https://doi.org/10.7759/cureus.56115

Milner, K.A.; Funk, M.; Richards, S.; Wilmes, R.M.; Vaccarino, V.; Krumholz, H.M. (1999) Gender differences in symptom presentation associated with coronary heart disease, Am. J.of Cardiol, 84(4), pp. 396-399. doi: https://doi.org/10.1016/S0002-9149(99)00322-7.

Newman-Toker, D.E.; Peterson, S.M.; Badihian, S.; Hassoon, A.; Nassery, N.; Parizadeh, D.; et al. Diagnostic Errors in the Emergency Department: A Systematic Review. Rockville (MD): Agency for Healthcare Research and Quality (US); Report No.: 22(23)-EHC043, 2022. https://www.ncbi.nlm.nih.gov/pubmed/36574484

O'Donnell, S.; McKee, G.; O'Brien, F.; Mooney, M.; Moser, D.K. (2012) Gendered symptom presentation in acute coronary syndrome: a cross-sectional analysis, Int. J. Nurs. Stud., 49(11), pp. 1325-1332. doi: https://doi.org/10.1016/j.ijnurstu.2012.06.002

Office of the President of the Republic of Trinidad and Tobago. Message on World Diabetes Day 2019. 2019. Available from: https://otp.tt/message-on-world-diabetes-day-2019/

Paichadze, N.; Afzal, B.; Zia, N.; Mujeeb, R.; Khan, M.; Razzak, J.A. Characteristics of chest pain and its acute management in a low-middle income country: analysis of emergency department surveillance data from Pakistan. BMC Emerg. Med., 15(Suppl 2):S13, 2015. https://doi.org/10.1186/1471-227X-15-S2-S13

Rusnak, R.A.; Stair, T.O.; Hansen, K.; Fastow, J.S. Litigation against the emergency physician: common features in cases of missed myocardial infarction. Ann. Emerg. Med., 18(10):1029-1034, 1989. https://doi.org/10.1016/s0196-0644(89)80924-2

Sagristà-Sauleda, J.; Barrabés, J.A. Typical angina, atypical angina, and atypical chest pain: is it time to change this terminology? Rev. Esp. Cardiol. (Engl. Ed.), 2020. https://doi.org/10.1016/j.rec.2020.10.006

Schull, M.J.; Vermeulen, M.J.; Stukel, T.A. The risk of missed diagnosis of acute myocardial infarction associated with emergency department volume. Ann. Emerg. Med., 48(6):647-655, 2006, https://doi.org/10.1016/j.annemergmed.2006.03.025

Srivatsa, S.; Ozen, Z.; English, T.; Delapaz, R.; Murphy, L.; Davenport, K. Reducing door-to-ECG time in the emergency department: a quality improvement report. BMJ Open Qual., 14(4):e003492, 2025. https://doi.org/10.1136/bmjoq-2025-003492

Swap, C.J.; Nagurney, J.T. Value and Limitations of Chest Pain History in the Evaluation of Patients With Suspected Acute Coronary Syndromes. JAMA., 294(20):2623-2629, 2005. https://doi.org/10.1001/jama.294.20.2623

Tuyyab, F.; Khadim, R.; Makhdoom, K.; Abbas, S. Clinical characteristics of patients presenting with typical and atypical chest pain in emergency department: a clinical audit. Pak. Armed Forces Med. J., 2017; 67(Suppl-2):S174-178, 2017.

Wertli, M.M.; Dangma, T.D.; Müller, S.E.; Gort, L.M.; Klauser, B.S.; Melzer, L.; et al. Non-cardiac chest pain patients in the emergency department: Do physicians have a plan how to diagnose and treat them? A retrospective study. PLoS One., 14(2):e0211615, 2019. https://doi.org/10.1371/journal.pone.0211615

Zhan, S.; Hong, S.; Shan-Shan, L.; Chen-Ling, Y.; Lai, W.; Dong-Wei, S.; et al. Misdiagnosis of aortic dissection: experience of 361 patients. J. Clin. Hypertens. (Greenwich)., 14(4):256-260, 2012. https://doi.org/10.1111/j.1751-7176.2012.00590.x