

## Retrospective Analysis of Hospitalizations for Chest Pain in the CICU: Joseph Imbert Hospital Center, Arles Study Period: December 2022 – December 2023

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## Abstract

## Original Research Article

**Background:** Chest pain is a common and potentially life-threatening reason for emergency department visits, necessitating prompt assessment and management. This study aimed to analyze the epidemiological and clinical characteristics of patients hospitalized for chest pain in the Cardiac Intensive Care Unit (CICU) of Joseph Imbert Hospital Center, Arles, France. **Methods:** We conducted a retrospective study of all patients admitted to the CICU for chest pain between December 2022 and December 2023. Data were collected using the AXIGATE software, with no exclusion criteria applied. **Results:** Out of 670 CICU admissions during the study period, 248 (37%) were for chest pain. The majority of these patients were male (59.7%) and aged between 59 and 78 years. The leading cause of chest pain was non-ST-elevation myocardial infarction (NSTEMI), accounting for 68.6% of cases, followed by pulmonary embolism (22.6%), ST-elevation myocardial infarction (5.7%), and myopericarditis (3.2%). Most patients (85.9%) had hospital stays of 1–10 days, with a mean stay of 5.4 days for NSTEMI and STEMI, and 7.8 days for pulmonary embolism. In-hospital mortality was 1.2%, and total 12-month mortality reached 4.8%, predominantly due to NSTEMI. **Conclusion:** Chest pain remains a leading cause of CICU admissions, with acute coronary syndromes, particularly NSTEMI, representing the primary etiology. The low in-hospital mortality and relatively short length of stay reflect the efficacy of current treatment protocols. These findings underscore the importance of rapid diagnosis and intervention, as well as the need for continued focus on prevention and post-discharge care to improve long-term outcomes.

**Keywords:** Chest pain, Cardiac Intensive Care Unit (CICU), Non-ST-elevation myocardial infarction (NSTEMI), Myocardial infarction, Hospitalization.

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## INTRODUCTION

Chest pain is an unpleasant sensation localized in the thoracic region, with diverse characteristics. It can be acute or chronic, localized or diffuse, and may radiate. The causes of chest pain vary widely, ranging from benign conditions, such as musculoskeletal pain, to serious and potentially life-threatening disorders like myocardial infarction and pulmonary embolism. Due to its subjective nature, establishing a correlation between the intensity of pain and the severity of the condition can be challenging. The first step in management is to rule out life-threatening emergencies such as acute coronary syndromes (ACS), which require immediate attention due to their high morbidity and mortality. A thorough history and physical examination are essential to distinguish between acute and chronic pain and to identify cases requiring hospitalization.

Chest pain is a common reason for emergency department visits [5], accounting for approximately 5% of all admissions. In France, it is responsible for a large number of emergency medical service (SAMU) calls and constitutes a significant portion of emergency consultations. Our study is a retrospective analysis focused on hospitalizations for chest pain in the Cardiac Intensive Care Unit (CICU) of the Joseph Imbert Hospital Center in Arles, France. Through this research, we aim to better understand the epidemiological profile of chest pain in the CICU.

## METHODOLOGY

We analyzed all hospitalizations for chest pain in the CICU at Joseph Imbert Hospital over a 12-month period, from December 2022 to December 2023. No exclusion criteria were applied; all patients admitted to the CICU during this period were included in the study.

Patient data were collected using the AXIGATE software.

administered, and the clinical outcomes associated with these admissions.

### Objective of the Study

The primary objective of this study is to analyze the epidemiological profile of chest pain at Joseph Imbert Hospital in Arles, France. Through this retrospective study, we aim to identify the demographic characteristics of patients admitted for chest pain, as well as the main underlying causes of this symptom. We also seek to evaluate the time to treatment, types of therapies

## RESULTS

In this study, a total of 248 patients were admitted to the CICU for chest pain between December 2022 and December 2023.

These admissions represented 37% of the total 670 hospitalizations in the unit during the study period.

**Tab. 1**

Reason for Hospitalization	Number of Patients	Percentage (%)
Chest Pain	248	37%
Rhythm Disorders	205	31%
Hemodynamic Failure	112	17%
Respiratory Distress	105	16%
<b>Total</b>	<b>670</b>	<b>100%</b>

Regarding the reasons for hospitalization, chest pain was the most frequent, followed by rhythm disturbances

(31%), hemodynamic instability (17%), and respiratory distress (16%).

**Tab. 2**

Gender	Number of Patients
F (Female)	100
M (Male)	148
<b>Total</b>	<b>248</b>

Among the 248 patients admitted for chest pain, 148 were men (59.68%) and 100 were women (40.32%), highlighting a male predominance.

**Tab. 3**

Age Group (years)	Number of Patients
19–38	7
39–58	53
59–78	109
79–98	79
<b>Total</b>	<b>248</b>

The age distribution showed that the majority of patients were between 59 and 78 years old (43.95%), followed by the 79–98 age group (31.85%) and the 39–58 age group (21.37%). Only 2.82% of the patients were between 19 and 38 years old.

acute coronary syndrome (NSTEMI), accounting for 68.55% of cases. Pulmonary embolism [4], was the second most frequent cause (22.58%), followed by ST-elevation myocardial infarction (STEMI) at 5.65%, and myopericarditis at 3.23%.

When analyzing the underlying causes of chest pain, the most common etiology was non-ST elevation

### Distribution of Reasons for Hospitalization Due to Chest Pain

**Tab. 4**

Reason for Hospitalization	Number of Patients	Percentage (%) (out of 248)
NSTEMI (Non-ST-Elevation Myocardial Infarction)	170	68.55%
Pulmonary Embolism	56	22.58%
STEMI (ST-Elevation Myocardial Infarction)	14	5.65%
Myopericarditis	8	3.23%
<b>Total</b>	<b>248</b>	<b>100%</b>

Regarding the length of stay, the majority of patients (85.91%) were hospitalized for between 1 and

10 days. Only a small number stayed longer, with just one patient hospitalized for more than 30 days. Average

length of stay by etiology was as follows: NSTEMI: 5.4 days, STEMI: 5.4 days, pulmonary embolism [4]: 7.8 days, Myopericarditis: 4.6 days. These findings suggest relatively short hospital stays, likely reflecting the

effectiveness of rapid interventions such as coronary angiography, angioplasty, and anticoagulant therapy.

**Length of Hospital Stay**

**Tab. 5**

Length of Stay (days)	Number of Patients
1–10	213
11–20	26
21–30	8
31–40	1
<b>Total</b>	<b>248</b>

The majority of admitted patients, totaling 213 (85.91%), were hospitalized for a period ranging from 1 to 10 days. This suggests a trend toward shorter hospital stays, indicating rapid recovery and effective treatment in most cases.

**Chest Pain and Length of Stay**

**Tab. 6**

Etiology of Chest Pain	Average Length of Stay (days)
NSTEMI	5.4
STEMI	5.4
Pulmonary Embolism (PE)	7.8
Myopericarditis	4.6

Chest pain etiologies such as acute coronary syndromes (ACS) and pulmonary embolism are associated with relatively short hospital stays—5.4 days for ACS and 7.8 days for PE. This shorter duration is often due to effective interventions like

revascularization, coronary angiography, and angioplasty, which enable prompt management of potentially severe complications.

**Mortality by Gender**

**Tab. 7**

Outcome	Female	Male	Total
Post-discharge Mortality	4	5	9
In-hospital Mortality	2	1	3
<b>Total</b>	<b>6</b>	<b>6</b>	<b>12</b>

Data analysis shows that 3 out of 248 patients (1.21%) died during hospitalization. Among them, 2 were women and 1 was a man.

**Etiology of Chest Pain and Mortality**

**Tab. 8**

Etiology of Chest Pain	In-hospital Mortality	Post-discharge Mortality	12-Month Mortality
NSTEMI (Non-STEMI ACS)	2	7	9
STEMI (ST-Elevation ACS)	0	0	0
Pulmonary Embolism (PE)	1	1	2
Myopericarditis	0	0	0

In terms of mortality, 12 deaths were recorded among the 248 patients (4.84%). Three patients (1.21%) died during hospitalization—two women and one man—while nine deaths occurred after discharge. The distribution of mortality by etiology was as follows: NSTEMI: 2 deaths during hospitalization and 7 after discharge (total of 9 deaths at 12 months), Pulmonary embolism [4]: 1 death during hospitalization and 1 after discharge (2 deaths in total), STEMI and myopericarditis: no deaths were recorded.

**DISCUSSION**

This retrospective analysis of hospitalizations in the Cardiac Intensive Care Unit (CICU) at Joseph Imbert Hospital over a 12-month period provides valuable insights into the reasons for admission, hospital stay duration, mortality rates, and epidemiological characteristics of patients presenting with chest pain. The study demonstrated a male predominance (60%) among patients admitted for chest pain, consistent with previous research showing a higher incidence of cardiovascular disease in men [6]. Female patients were generally older,

which aligns with findings that women tend to develop cardiovascular disease later in life.

Acute coronary syndromes (ACS) were the leading cause of chest pain-related admissions. Among these, NSTEMI was the most frequent [1-3], and it also accounted for the majority of deaths both during hospitalization and after discharge, resulting in a 12-month mortality rate of 5.2%. Pulmonary embolism [4], while less frequent, also showed a significant risk of mortality. In contrast, no deaths were recorded among patients with myopericarditis, suggesting favorable outcomes with appropriate treatment.

The median hospital stay was 5 days, and most patients were discharged within 6 days. Patients with ACS had an average stay of 5.4 days, reflecting effective management through modern cardiac care techniques. Patients with more complex conditions, such as pulmonary embolism, required longer stays. In-hospital mortality among patients with chest pain was relatively low (1.21%). ACS remained the primary cause of mortality, with deaths occurring both during hospitalization and post-discharge. Pulmonary embolism [4], also contributed to mortality risk, whereas myopericarditis had a favorable prognosis. Although this study did not provide specific data on readmissions, close follow-up is essential to prevent complications and improve long-term outcomes. Preventive strategies and patient education should be emphasized to reduce future risk.

## CONCLUSION

This study of chest pain hospitalizations in the CICU of Joseph Imbert Hospital provides valuable insight into the challenges and successes in managing these cases. The male predominance and high frequency of acute coronary syndromes emphasize the need for rapid and effective intervention. Although overall mortality was relatively low, each case underscores the importance of continuous improvement in clinical practice. The generally short duration of hospitalization reflects the advances in treatment, but efforts must

continue to focus on prevention and post-discharge follow-up to reduce readmissions. Ultimately, the data remind us of the human stories behind the statistics and the ongoing commitment to delivering the highest standard of care.

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