

# CHAPTER I

## INTRODUCTION

### 1.1 Background

Patient Length of Stay (LOS) in the Emergency Department (ED) is defined as the duration a patient remains in the ED, from arrival until the decision for discharge or transfer to another care unit (Asman Harahap et al., 2022). Several studies indicate that patient LOS in Indonesian hospital Emergency Departments (EDs) remains below international standards, as well as the standards set by individual hospitals themselves (Dwisari & Sari, 2024). According to various studies conducted in Indonesian hospitals, many facilities still face challenges with prolonged patient LOS in the ED or have not yet met their designated targets (Dwisari & Sari, 2024).

Internationally, the standard for ED LOS is generally no more than 8 hours (Fadhilah & Dhamanti, 2024). Some countries, such as England, Australia, Iran, Canada, and America, set the ED LOS standard at 4 hours, whereas in Indonesia, the ED LOS varies among hospitals. A study by Habib & Sudaryo (2023) stated that Dr. Cipto Mangunkusumo Hospital has an LOS target of <8 hours, but only 14.9% of patients achieved an ED LOS within this target. Based on internal data from Ngudi Waluyo Wlingi Regional General Hospital (2025), it was reported that during the period of March-May 2025, 67.99% of patients had an ED LOS of 4-5 hours, while 32.01% had an LOS of 1-3 hours. Many patients complain about the prolonged service in the ED; even after receiving care, they often have to wait more than 10 hours before being transferred to another care unit (Fadhilah & Dhamanti,

2024). Previous research at Dr. Soetomo Hospital in Surabaya indicated that approximately 47.2% of patients spent more than 6 hours in the ED, with 28.1% waiting over 12 hours, and 5.1% dying during ED care. Another study showed that the average ED LOS was 9 hours and 35 minutes, with the longest waiting time occurring during the review and consultation process (Asman Harahap et al., 2022a).

Previous research indicates that prolonged Length of Stay (LOS) in the ED can lead to overcrowding, which subsequently increases the risk of adverse events and affects patient safety and service speed (Delinda et al., 2021). Prolonged LOS can also be caused by delays in supporting examinations, doctor consultations, and patient transfers (Fadhilah & Dhamanti, 2024). ED overcrowding is a serious global public health issue (Jung et al., 2021). According to Morley et al. (2018), when the ED experiences overcrowding, this can complicate patient care, leading to delays in patient assessment and necessary treatment, an increased frequency of medication errors, reduced patient satisfaction, increased inpatient mortality, and a prolonged stay in the ED/Emergency Department Length Of Stay (EDLOS).

The three factors causing overcrowding are input, throughput, and output. One input factor is the increase in the number of patients registering at the ED, as well as patient acuity. The throughput factor pertains to the ED process from registration until the patient is given disposition for inpatient admission, discharge, or special medical procedures by a doctor. Lastly, the output factor is related to constraints on patients "boarding" in the ED, caused by inadequate hospital bed

availability and delays in transportation, both internal and external, to move patients out of the ED (Purawijaya et al., 2023).

Input factors for overcrowding include conditions, events, or characteristics within the system that influence the demand for ED services. Several contributing factors include waiting times, the number of patients arriving at the ED, and the severity and complexity of the cases presented. Although these input factors play a role in overcrowding, their impact may not be as significant as other factors. Therefore, in managing crowding, throughput and output factors become the main focus. Throughput and output factors for ED patients are focused on patient flow and achieving established time targets (Savioli et al., 2022).

According to The electronic National Ambulatory Care Reporting System (eNACRS) as cited in (Purawijaya et al., 2023), patient Length of Stay (LOS) in the ED is defined as the time interval from patient registration or triage in the ED until the patient physically leaves the ED for inpatient admission or discharge. The Emergency Model of Care, developed by the New South Wales Ministry of Health, sets a 4-hour ED LOS target, dividing it into three manageable time frames (a 2:1:1 time model). In Time Frame One, the first two hours are allocated to patients in the ED for registration, followed by triage, initial examination, and diagnostic planning. In Time Frame 2, one hour is allocated for evaluation by the specialist team, patient consultation with a specialist doctor starting with assessment until diagnosis is determined, and disposition by the doctor for Hospital Admission, Hospital Discharge, or special procedures. In Time Frame Three, one hour is allocated for patient transfer time (Ismail, 2018).

A study conducted by (Purawijaya et al., 2023) stated that there is a significant correlation between LOS in the ED of Hermina Ciputat Hospital and all ED processes, ranging from patient triage, patient evaluation, further examinations, consultation with the Attending Physician, and patient transfer. Another study conducted by (Asman Harahap et al., 2022) explained that there is a significant correlation between diagnostic examination time and review/consultation time, and no significant correlation between transfer time and LOS with Length of Stay (LOS) in the ED of Imelda Medan Hospital.

The research conducted by the investigator aims to correlate time frame 1 (assessment time), time frame 2 (review/consultation time), and time frame 3 (patient transfer time) with patient LOS in the ED, to identify which time frame is the factor associated with prolonged LOS at Ngudi Waluyo Wlingi Regional General Hospital. Therefore, the investigator is interested in conducting research titled "Analysis of Factors Associated with Length of Stay (LOS) in Non-Trauma Category P2 Patients using the Time Frame Guide Emergency Model of Care approach in the Emergency Department (ED) of Ngudi Waluyo Wlingi Regional General Hospital"

## **1.2 Research Questions**

1. Is there a relationship between ED assessment time (Time Frame 1) and the Length of Stay (LOS) of non-trauma Category P2 patients using the Time Frame Guide Emergency Model of Care approach in the Emergency Department (ED) of Ngudi Waluyo Wlingi Regional General Hospital?

2. Is there a relationship between review/consultation time (Time Frame 2) and the Length of Stay (LOS) of non-trauma Category P2 patients using the Time Frame Guide Emergency Model of Care approach in the Emergency Department (ED) of Ngudi Waluyo Wlingi Regional General Hospital?
3. Is there a relationship between patient transfer time (Time Frame 3) and the Length of Stay (LOS) of non-trauma Category P2 patients using the Time Frame Guide Emergency Model of Care approach in the Emergency Department (ED) of Ngudi Waluyo Wlingi Regional General Hospital?

### **1.3 Research Objectives**

#### **1.3.1 General Objective**

To identify factors associated with the occurrence of Length of Stay (LOS) among Non-Trauma Category P2 patients using the Time Frame Guide Emergency Model of Care approach in the Emergency Department of Ngudi Waluyo Wlingi Regional General Hospital.

#### **1.3.2 Specific Objectives**

1. To identify the Length of Stay (LOS) of non-trauma Category P2 patients using the Time Frame Guide Emergency Model of Care approach in the Emergency Department (ED) of Ngudi Waluyo Wlingi Regional General Hospital.
2. To analyze the relationship between assessment time and the Length of Stay (LOS) of non-trauma Category P2 patients using the Time Frame Guide Emergency Model of Care approach in the Emergency Department (ED) of Ngudi Waluyo Wlingi Regional General Hospital.

3. To analyze the relationship between review and consultation time and the Length of Stay (LOS) of non-trauma Category P2 patients using the Time Frame Guide Emergency Model of Care approach in the Emergency Department (ED) of Ngudi Waluyo Wlingi Regional General Hospital.
4. To analyze the relationship between transfer time and the Length of Stay (LOS) of non-trauma Category P2 patients using the Time Frame Guide Emergency Model of Care approach in the Emergency Department (ED) of Ngudi Waluyo Wlingi Regional General Hospital.
5. To analyze the most dominant factor associated with the Length of Stay (LOS) of non-trauma Category P2 patients using the Time Frame Guide Emergency Model of Care approach in the Emergency Department (ED).

#### **1.4 Research Benefits**

##### **1.4.1 Theoretical Benefit**

The results of this study can provide an explanation of which factors are associated with the Length of Stay (LOS) of non-trauma Category P2 patients at Ngudi Waluyo Wlingi Regional General Hospital, and can be used as a guide for similar research in the future.

##### **1.4.2 Practical Benefits**

1. For Ngudi Waluyo Wlingi Regional General Hospital

This research is expected to provide new insights and input for Ngudi Waluyo Wlingi Regional General Hospital, enabling it to identify which time frame contributes to the ED LOS of non-trauma Category P2 patients not meeting the established targets. This, in turn, can facilitate the improvement

and development of services to enhance patient satisfaction in the Emergency Department. Furthermore, this research can also serve as input or suggestions for healthcare personnel, acting as motivation to further improve service delivery, especially for healthcare professionals working in the Emergency Department.

2. For Poltekkes Kemenkes Malang, Applied Nursing Program

This research is expected to serve as learning material and input for students of the Applied Nursing program at Poltekkes Kemenkes Malang regarding factors influencing the LOS of non-trauma Category P2 patients in the ED through the Time Frame Guide Emergency Model of Care approach, and is hoped to be utilized as literature in emergency nursing science.

3. For Other Researchers

This research is expected to serve as an additional reference for future research concerning factors influencing the Length of Stay (LOS) of non-trauma Category P2 patients in the ED through the Time Frame Guide Emergency Model of Care approach.