Original Research Paper

# A Study on Duration of Hospital Study at a Tertiary Care Hospital of Northern India

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**ABSTRACT**:
The length of hospital stay (LOS) is thought to be a vital component of hospital and patient care. Shorter LOS is preferred by hospitals, healthcare providers as well as patients over a longer LOS. The current study was conducted to find interventions meant to lower LOS for a tertiary care hospital that has a large burden of high-risk populations to address the ground-level reality of LOS. A descriptive, retrospective study was designed at SSB Heart and Multispecialty Hospital, Faridabad, Haryana between January 2023 and July 2023. This analysis includes 462 in patients data sets and revealed that 238 (51.52%) females were admitted during the study period, followed by 224 (48.48%) males. The current study found that younger patients (0-20 years of age) stayed in the hospital for an average of 4.49 days, followed by the oldest age group, i.e., >60 years of age. This study concluded that early treatment using standard recommendations and adequate patient surveillance using good sanitary practices are highly efficient in reducing hospital stay length and accelerating patient load clearing. Furthermore, hospital administrators and health policymakers are thought to determine priorities, improve services.

Keywords: *Health Technology Assessment Board (HTAIn), LOS -length of hospital stay Hospital Information System (HIS).*

**INTRODUCTION**:
The period between hospital admission and discharge is referred to as the duration or length of stay (LOS). It is regarded as a critical aspect in hospital and patient management. A critical factor for hospitals. LOS has an impact on hospital administration, care taskers as well as patients. Predicting LOS is crucial to providing the best hospital services to inpatients because each hospital has a limited number of beds, staff, and care services in each ward. The amount of hospital personnel, beds, treatment outcomes, hospitalization fees, and hospital resource management are all affected by LOS (Tanuja et al. 2011; Baek et al. 2018). Shorter LOS is preferred by hospitals and health care providers over longer LOS. Reduced LOS can reduce pharmaceutical side effects, hospital infection risk, and hospitalization expenditures for both patients and hospitals (Rotter et al. 2010; 4. Marfil-Garza et al. 2018). LOS can be used to represent difficult-to-measure study outcomes including mortality and illness severity (Lim et al. 2009; LaFaro et al. 2015). LOS is significant in terms of patient flow. The patient flow diagram depicts how a patient travels through a series of operations (Chaou et al. 2017). Service quality, patient outcomes, and care costs are all affected by LOS reduction and the conviction that each patient receives the proper care at the appropriate time.

LOS reduction has a direct impact on the payment pressures on governments and health institutions (Awad et al. 2017; Eskandari et al. 2022).

All across the world, healthcare personnel and governmental organizations are actively working on the different innovative methods to reduce LOS. The Indian government also executed various projects in this series, including reformimg the Indian health system with the creation of the Health Technology Assessment Board (HTAIn) and the inauguration of the national health insurance scheme "Pradhan Ayushman Bharat The Mantri Jan Arogya Yojana (AB PM-JAY)" has emphasized the crucial need for cost information on health care service delivery (Downey et al. 2017). The availability of cost information from India has increased during the last decade. During this time, research done in several Indian states produced empirical cost data on the provision of health services in both public (primary, secondary, and tertiary) and private sector hospitals (Prinja et al. 2017; Bahuguna et al. 2020). The magnitude of variety in the cost of health care delivery between identical sectors and the same level of health facilities within and across Indian states is a feature shared by all of these researches (Chauhan et al. 2022).

To address the grass route reality of LOS, the present study was performed to identify interventions intended to reduce LOS for a tertiary care hospital in North India which has a high burden of high-risk population.

## METHODS:
A descriptive, retrospective study was designed at SSB Heart and Multispecialty Hospital, Faridabad, Haryana between January 2023 and July 2023. Qualitative and quantitative data were collected using the Hospital Information System (HIS). The study was approved by the Medical Ethics Committee of SSB Heart and Multispecialty Hospital. The need for informed consent was waived by the ethics committee of SSB Heart and Multispecialty Hospital because of the retrospective nature of the study. For data mining, clinical data were analysed by using Microsoft Excel 2021. In this work, underlying variables were the number of hospitalization days varying between 0 and 200 days, the gender of the patients, the age of the patients in a unit of medicine department.

## RESULTS:
### Patient Population:
A total of 462 inpatient data were included in this study. Patients population analysis revealed that a total of 238 (51.52%) females were admitted during the study period followed by the males i.e., 224 (48.48%). On the other hand, the maximum number of patients i.e., 155 (33.5%) were admitted between the age of 21-40 which included 90 females and 65 males (Table 1).

Table 1: Age-wise admission of patients in the Internal Medicine Ward

| Age groups | Male | Female | Total | % of total patients |
|---|---|---|---|---|
| 0-20 | 72 | 45 | 117 | 25.3 |
| 21-40 | 65 | 90 | 155 | 33.5 |
| 41-60 | 69 | 60 | 129 | 27.9 |
| >60 | 18 | 43 | 61 | 13.2 |
| % of total patients | 224 (48.48%) | 238 (51.52%) | 462 | 100.0 |

## Length of Stay:
The findings of the present study revealed that younger patients (0-20 age group) stayed in the hospital for a longer period with an average of 4.49 days followed by the eldest age group i.e., >60 years of age (Fig. 1).

However, participants had a wide range of ages discharged on the first day of hospitalization. Around 10.60% of patients were discharged after spending one night in the hospital.
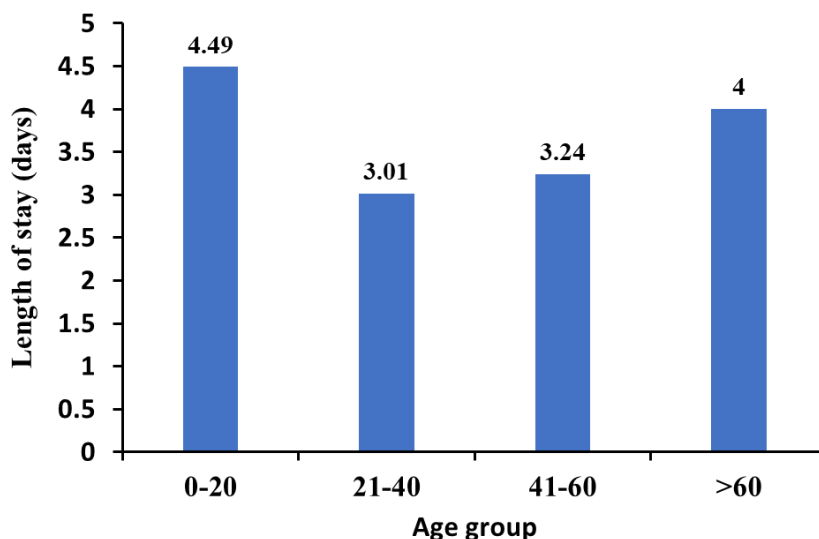


Figure 2: Total length of hospital stay

## DISCUSSION:
Major performance indicators in hospitals, such as LOS, bed occupancy rate, bed turnover, bed turnover interval, and death rates, should be defined and evaluated regularly (Ayyoubzadeh et al. 2020). In the study population, the average LOS was roughly 2 days. The findings also revealed that approximately 10.60% of patients were discharged after one night of

hospitalization. It revealed short LOS when compared to previous studies conducted all over the world, such as Iran having an average LOS of 3.6 days (Mosadeghrad et al. 2019), and the 2019 statistics report also revealed that the mean LOS in hospitals of Economic Cooperation and Development (OECD) member countries varies between 4.1 days in Turkey and 16 days in Japan (OECD 2023). Age, race, place of birth, type of disease and primary diagnosis, hospital size, hospital location, the day of hospital admission, hospitalization ward, complications, hospital infections, diagnostic and therapeutic procedures for patients and their frequency, delayed tests, imaging, and surgery, the admitting physician's specialty, and comorbidities may all contribute to LOS (Ayyoubzadeh et al. 2020; Eskandari et al. 2022). Regarding age, the present study revealed that patients with extreme age groups ie <20 years and >60 years had longer LOS as compared to the other age groups which might be due to various demographic as well as health factors. Previous research has identified factors associated with length of stay for admitted neonates and pediatrics, including ventilator-dependent patients (O'Brien et al. 2013), general medical co-morbidities and severe morbidity, birth weight (Altman et al. 2009), age, illness severity, obesity, winter and weekend admissions (Shanley et al. 2015), sex (Bender et al. 2013; Shanley et al. 2015), admission reason (Manktelow et al. 2010), preoperative factors such as higher hemoglobin and lower oxygen saturation, surgical duration longer than 30 minutes, and surgery (Sahiledengle et al. 2020). This was also seen in our study with patients having multiple co-morbidities, weekend admissions, ICU admissions had longer LOS

## CONCLUSION:

This study concluded that early treatment with standard guidelines and proper patient observation with good hygienic methods are highly effective in shortening the length of hospital stay and faster patient load clearance. In addition, it is believed that for hospital administrators and health policymakers to set priorities, enhance services, and allocate resources more effectively, a regular and ongoing examination of the LOS is essential.

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