SYNOPSIS

"Root-Cause Analysis and Cost of Delayed Discharges and Strategies for Optimization"

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Introduction

Delayed discharges from healthcare facilities have become a significant challenge in recent years, leading to increased costs and reduced efficiency in patient care. This issue has been exacerbated by the COVID-19 pandemic, which has placed additional strain on healthcare systems worldwide. Delayed discharges not only impact the healthcare system, but also negatively affect patients, leading to increased exposure to hospital-acquired infections and decreased patient satisfaction. The root causes of delayed discharges are multifaceted and complex, involving various factors, such as patient characteristics, medical conditions, and healthcare system factors. For instance, older patients and those with multiple medical conditions are more likely to experience delayed discharges due to complexity of their care needs. Additionally, inadequate discharge planning and poor communication between healthcare providers can also contribute to delayed discharges.

The cost of delayed discharges is substantial. These costs are primarily due to increased hospital stays, which lead to higher healthcare utilization and resource consumption. The main reasons for delay are lack of proper coordination between medical staff, delay in insurance clearance, delay in billing settlement, and lack of assessment and discharge planning. Moreover, delayed discharges can also result in lost productivity and reduced economic activity, further exacerbating the financial impact of this issue. Hence, understanding the root causes and cost of delayed discharges is essential for developing effective strategies to address this challenge and improve patient care. This study investigates the complex factors contributing to these delays and estimates their financial impact through a mixed-methods approach and will delve into the factors influencing delayed discharges, and aims to provide insights and recommendations for healthcare providers, policymakers, and stakeholders to improve patient care and reduce healthcare costs.

Literature Review

S. No.	AUTHOR	YEAR	TITLE	FINDINGS
1	Cadel L, Guilcher SJT, Kokorelias KM	2021	Initiatives for improving delayed discharge from a hospital setting: a scoping review	This qualitative study concluded that the majority of initiatives were implemented by multidisciplinary teams and resulted in improved outcomes, such as reduced length of stay and discharge delays. However, the

				experiences of patients and families were rarely reported. Included initiatives also lacked important contextual information, which is essential for replicating best practices and scaling up.
2	Micallef A, Buttigieg SC, Tomaselli G, Garg L	2020	Defining Delayed Discharges of Inpatients and Their Impact in Acute Hospital Care: A Scoping Review	This study found that the main causes of delayed discharges were faulty organizational management, inadequate discharge planning, transfer of care problems, and age. The main effects were bed-blocking, A&E overcrowding, and financial implications. The main interventions included 'discharge before noon' initiative, 'discharge facilitation tools,' 'discharge delay tracking' mechanisms, and the role of general practitioners and social care staff.
3	S Divya, S Aarthi	2020	A study on causes of delay in discharge process in one of the prominent hospitals in Tamil Nadu	This study concluded that the first cause of discharge delay is discharge planning by the consultant that is done on the day of discharge which delays further process. The consultant may be asked to take rounds for likely discharge patients first and then to others or preplan the discharge on the previous day. It also found that almost 74% of patients discharge time takes about more than 4hrs which is not according to prescribed NABH standards. All ward secretaries should be provided with guidelines in discharge procedures to reduce the delay in time taken for discharge process. Staffs should also be trained in proper communication skills to carry out the process. Another area of delay is pharmacy clearance which takes about 2-3hrs due to lack of manpower to carry out the process.
4	Mundodan JM, Sarala KS, Narendranath V	2019	A study to assess the factors contributing to delay in discharge process in a teaching hospital	The mean time for discharge process was 5 hours 41 minutes. The mean time between advice of discharge and physically leaving the ward varied from 6.62 hours in urology to 3.01 hours in ear, nose and throat (ENT). Only 13 patients (18.8%) were discharged

				within the National Accreditation Board for Hospitals and Healthcare Providers (NABH) prescribed time limit of 180 minutes. The maximum delay occurred during time taken for discharge summary completion.
5	Bai AD, Dai C, Gill SS	2019	Risk factors, costs and complications of delayed hospital discharge from internal medicine wards at a Canadian academic medical centre: retrospective cohort study	In this study, the results showed that the patients awaiting discharge process completion had longer median length of stay, higher median hospital costs, and more complications in hospital, especially nosocomial infections. It also concluded that delayed discharge is associated with higher hospital costs and complication rates especially nosocomial infections. A clinical prediction rule can identify patients at risk for delayed discharge.
6	Hamid S, Jan FA, Rashid H	2018	Study of discharge process of patients admitted in inpatient department of a tertiary care hospital of north India with a special focus on reducing the waiting time	The results show that the average time taken for discharge process was 240 minutes for those who had a planned discharge and had to pay out of pocket (Self- Payment). . The results also show that among all discharged patient's relatives observed, majority (54%) felt that their discharges were delayed due to non - availability of resident doctor for preparing the summaries.
7	Boyd S	2017	Hospital Administrators' Strategies for Reducing Delayed Hospital Discharges and Improving Profitability	This qualitative study explains that the major reasons for delay in discharge are: inadequate communication between discharge teams, lack of standardization in discharge timing and procedures, etc. These can be solved by facilitating effective leadership, focusing on improvements to the discharge process, etc.
8	Gaughan J, Gravelle H, Siciliani L	2017	Delayed Discharges and Hospital Type: Evidence from the English NHS	This study investigated differences in delays by type of hospital. It found that Mental Health Trusts have more delayed discharges due to non-NHS factors, including social care. This may indicate unmet social care needs for mental health patients, requiring more sophisticated care

				packages, which take longer to organize. Foundation Trusts had fewer delays, therefore, can be used as exemplars of good practice in managing delays.
9	Kochar R	2016	Role of discharge summary in delayed discharge process	In the results of this study, it was found that in the surgery department, time taken for maximum number of patients of summary finalization was between 1 to 3 hours. The maximum time, i.e., between 5-7 hours has been taken between discharge intimation and discharge summary finalization.
10	Hendy P, Patel JH, Kordbacheh T	2012	In-depth analysis of delays to patient discharge: a metropolitan teaching hospital experience	In this study, a total 54 of the 83 patients (65.1%) experienced a delay while waiting for a service. 40 of the 83 (48.2%) patients experienced a delay that extended their discharge date. There was a trend towards an increased number of patients experiencing longer delays with increasing patient age. Nine of the 10 patients whose discharge was delayed by more than five days were over the age of 75 years

Aim

This study aims to investigate the root causes of delayed discharges in a hospital setting and analyse the associated costs with the goal of enhancing patient flow efficiency and reducing financial burdens on the hospital.

Research question

What are the root-causes and the cost of delay in discharges of inpatients at Medanta, the Medicity, Gurugram?

Objectives

- To identify and analyze the primary factors contributing to delayed discharges within hospital systems, including but not limited to administrative bottlenecks, through comprehensive root cause analysis methodologies.
- To quantify and evaluate the financial impact of delayed discharges on the hospital, encompassing direct costs such as extended hospital stay, increased staffing requirements, and indirect costs such as reduced bed availability and patient flow disruptions, to provide actionable insights for cost-effective interventions and process improvements.

Material and methods

1. Study design: The study design is a prospective observational study. A mixed methods approach is utilized for data collection, including quantitative data on discharge delays, patient demographics, and clinical variables from Electronic Medical Records, and other databases of the hospital, as well as qualitative data through interviews and observations to capture perspectives and contexts. Qualitative data collection will involve in-depth interviews with healthcare staff, including physicians, nurses, and social workers, to understand their perspectives on the root causes of delayed discharges. Quantitative data collection will involve a retrospective review of patient records, including demographic information, medical history, and discharge details.

2. Setting: The study is conducted at Medanta, the Medicity, Gurugram, Haryana, India

3. Study tools: A discharge process map will be developed to understand the patient flow. Root-cause analysis methodologies such as '5 whys', and fishbone diagrams will be applied to systematically identify and analyze the underlying causes of delayed discharges. The study will also apply the Pareto principle to prioritize problems and identify key areas for improvement in the discharge process. The cost analysis will use a micro-costing approach, which involves identifying and quantifying the individual resources used in the care of delayed discharges.

4. Duration of study: The duration of the study is three months, i.e., from 1st April to 1st July, 2024.

5. Study population: The study population for this study are patients, who experience delayed discharges from the hospital. These patients will be selected based on the definition of delayed discharge proposed by Bryan et al., which considers patients who are medically well enough for discharge but unable to leave due to arrangements for continuing care.

6. Sample size: 50 to 100 eligible patients, who undergo discharge process at Medanta Hospital, Gurugram.

7. Sampling technique: A purposive sampling technique is employed to select participants who have direct involvement or experience with the discharge process at the hospital. This includes healthcare providers, administrative staff, and patients who undergo the discharge process. Such a sampling is appropriate to gather comprehensive data from various stakeholders involved in the discharge process.

8. Data collection methods: Methods of data collection are: Retrospective analysis of hospital records, prospective determination of frequency, causes, and potential cost implications, analysis of administrative databases, analysis of patient electronic medical records, etc.

9. Inclusion criteria:
    - Patients admitted to Medanta, the Medicity, Gurugram
    - The patients who experience delayed effective discharge from hospital for non-medical reasons, or delayed discharges due to issues with insurance, pharmacy, etc.
    - Studies published in scientific journals that provide qualitative data on delayed effective discharge for non-medical reasons, along with insights into the characteristics, outcomes, and potential cost implications.

10. Exclusion criteria
    - Patients who are discharged against medical advice, or left against medical advice
    - Patients with certain medical conditions or comorbidities that confound the result or make it difficult to determine the root cause of delayed discharge
    - Patients who are discharged on Sundays
    - Patients who died during the hospital stay, or were transferred to another facility.

Ethical considerations

- Safeguarding the confidentiality of patient information and ensuring that data are anonymized to protect individuals' privacy.
- Advocating for patient autonomy by involving patients in decision-making processes, and respecting their values and priorities.
- Ensuring fair and equitable treatment of patients and healthcare professionals involved in the study.
- Ensuring that patients' and healthcare professionals' data are handled ethically and with informed consent.
- Ensuring the reporting the results of individual studies in the researchers' own words and citing appropriately to give credit to the original sources.

Conclusion

The study aims to provide an in-depth analysis of root causes and financial impact of delayed discharges in a hospital setting, specifically at Medanta, the Medicity, Gurugram, Haryana. By employing a mixed-methods approach, the study aims to identify and analyze the primary factors contributing to delayed discharges, including administrative bottlenecks, and also to quantify the financial implications, such as extended hospital stays, increased staffing requirements, and reduced bed availability. The findings of the study may have significant implications for enhancing patient flow efficiency, and reducing financial burdens on hospitals. By addressing the root causes of delayed discharges, healthcare professionals, administrators, and policymakers can implement targeted interventions to elevate acre delivery and resource utilization.

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