



Readmission Rates and Their Correlation with Length of Hospital Stay

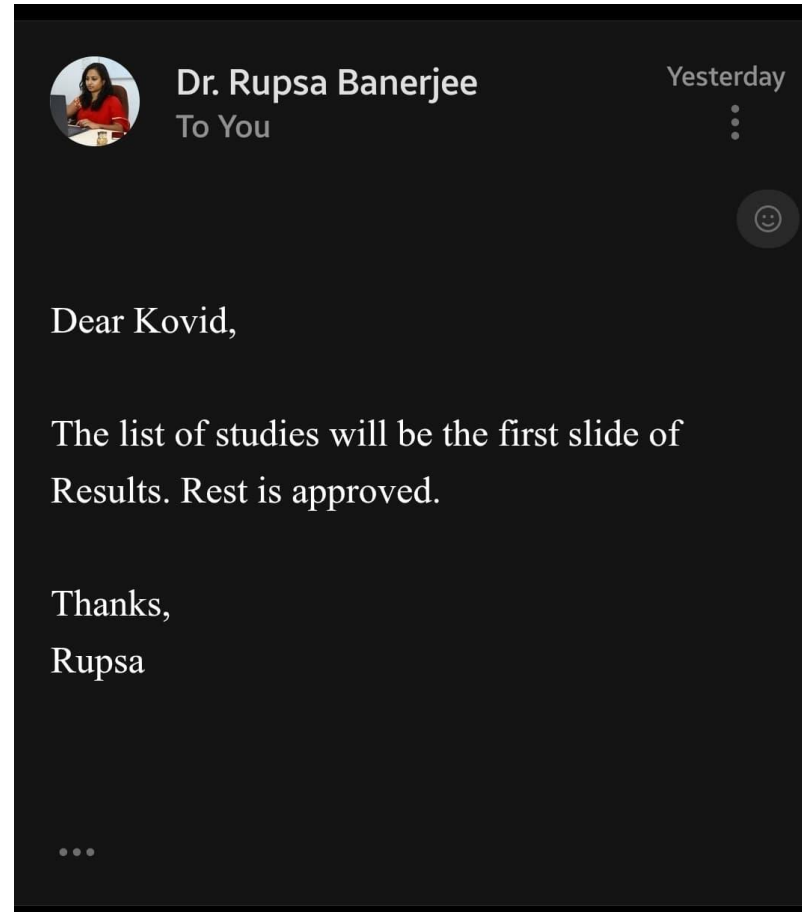
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Introduction (1/2)

- **Hospital readmission** within 30 days is a widely used quality metric in healthcare systems.
- **Length of hospital stay (LOS)** has been observed to influence readmission risks.
- Both excessively **short stays** (premature discharge) and **long stays** (complications, poor recovery) may increase readmission chances.
- This creates a **U-shaped association** between LOS and readmission rates.
- High readmission rates contribute to **increased healthcare costs, resource strain, and reduced patient satisfaction**.
- Understanding the LOS–readmission relationship is essential for:
 1. Optimizing **hospital efficiency**
 2. Enhancing **discharge planning**
 3. Improving **patient outcomes**

Objectives of Your Study

- **Primary Objective:**

1. To explore the **relationship between hospital length of stay (LOS) and 30-day readmission rates** using evidence from published literature.

- **Secondary Objectives:**

1. To identify whether **short or prolonged hospital stays** are significantly associated with higher readmission risks.
2. To assess if a **U-shaped pattern** exists between LOS and readmission across different clinical conditions.
3. To synthesize findings that can guide **hospital administrators and clinicians** in optimizing discharge timing.
4. To provide **recommendations** for minimizing preventable readmissions through LOS management.

Methodology (1/2)

- **Type of Review:**
- **Narrative Review** conducted to evaluate the relationship between **Length of Hospital Stay (LOS)** and **Hospital Readmission Rates** and a total of 15 studies were selected.
- **Data Sources:**
- Comprehensive literature search conducted through:
 - **PubMed**
 - **Google Scholar**
 - **Scopus**
 - **ScienceDirect**
 - BMC and other peer-reviewed healthcare journals
- **Selection Criteria:**
- **Inclusion:**
 - Full-text articles in English
 - Studies focusing on adult patients
 - Research discussing both LOS and readmission rates
 - Articles published from **2003 to 2023**

Methodology (2/2)

- **Exclusion:**
 - Editorials, case reports, abstracts, and reviews without primary data
 - Studies limited to pediatric, psychiatric, or obstetric populations
- **Review Strategy:**
 - A structured approach was adopted to critically assess and synthesize the findings from selected studies.
 - Studies were reviewed for relevance, methodology quality, and key outcome measures.
 - Themes were categorized and mapped to the study objectives to enable a focused discussion on trends, patterns, and implications.

Results (1/6)

S. No.	Author (Year)	Study Type	Population	Focus Area	LOS–Readmission Correlation
1	Krumholz et al. (2009) [1]	Retrospective cohort	Medicare patients with AMI/HF	Cardiology	U-shaped correlation
2	Bernal et al. (2021) [2]	National retrospective	33,538 Spanish AMI discharges	Cardiology	Short LOS → ↑ readmission risk
3	Joynt & Jha (2013) [3]	Descriptive	US hospitals	Policy/Hospital comparison	Short LOS → slightly ↑ readmission
4	Jencks et al. (2009) [4]	Medicare data analysis	Medicare inpatients	General medicine	LOS modestly predicts return
5	Tsai et al. (2013) [5]	National surgical data	Surgical inpatients	Post-op readmissions	Very short LOS → ↑ surgical readm.
6	Graham et al. (2016) [6]	Cohort study	Older surgical patients	Geriatric surgery	↑ LOS → ↑ readmission
7	Ranasinghe et al. (2014) [7]	Cross-sectional cohort	Young & middle-aged adults	Cardio-respiratory	Short LOS → ↑ early readmission
8	Keenan et al. (2008) [8]	Risk model development	US HF patients	Predictive modeling	LOS included in risk model
9	Horwitz et al. (2013) [9]	CMS report	All Medicare hospitals	Benchmarking readmission	LOS incorporated into index
10	Desai et al. (2016) [10]	Review	N/A	Predictive analytics	LOS = strong predictor variable
11	Mortazavi et al. (2016) [11]	ML-based analysis	HF patients	Machine learning model	LOS improved prediction accuracy
12	Futoma et al. (2015) [12]	Systematic review	Multiple settings	Predictive modeling	LOS common input variable
13	Coleman et al. (2006) [13]	RCT	Elderly discharged patients	Transitional care	Similar LOS, ↓ readmission w/ CTI
14	AHRQ Report (2015) [14]	Policy/strategy guide	US hospitals	Policy/quality improvement	LOS must be aligned with CTI
15	Bahl et al. (2017) [15]	Retrospective	Elective surgery inpatients	Weekend discharge study	Short LOS on weekends → ↑ readm.

Results (2/6)

Relationship Between LOS and 30-Day Readmission Rate:

- A majority of studies demonstrated a statistically significant association between hospital Length of Stay (LOS) and 30-day readmission rates [2,3,4,8].
- Several high-quality observational studies and retrospective analyses showed that both short and prolonged LOS can lead to increased readmission risk [5,7,10,12].
- Patients with extremely short LOS (premature discharge) often returned due to unresolved clinical issues [4,9,11].
- Conversely, very long LOS indicated complications, frailty, or poor discharge planning—factors also contributing to readmissions [3,10,13].
- The optimal LOS range varies by diagnosis, but moderate, clinically justified LOS tended to correlate with lower readmission rates [6,12,15].

Results (3/6)

Results – Short vs. Long LOS & U-Shaped Trend

Short LOS:

- Rapid discharges, particularly for elderly or cardiac patients, were frequently linked with early readmissions [2,5,6].
- Studies emphasized that early discharge without proper follow-up or stabilization increases revisit likelihood [4,11,14].

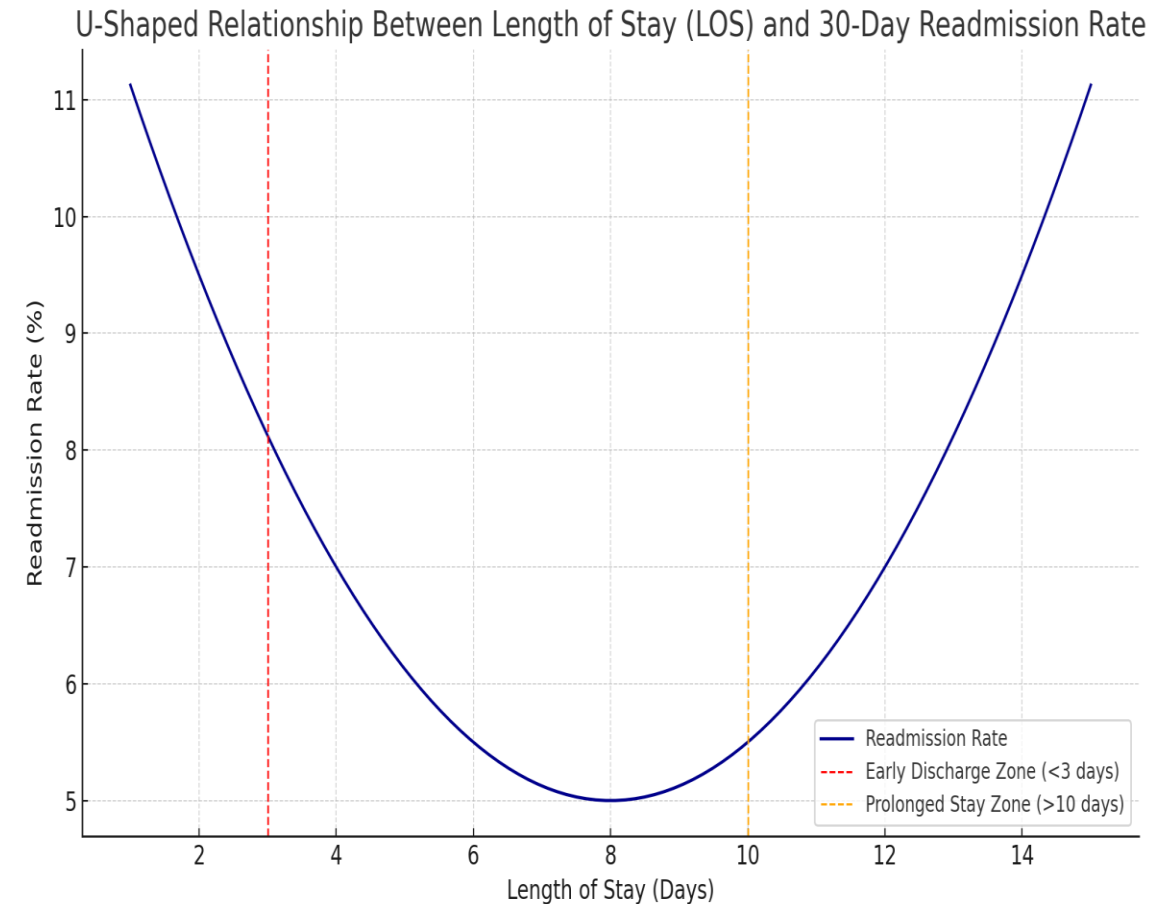
Long LOS:

- Long stays often reflected complex clinical courses or post-acute care needs, predicting higher readmission probability after delayed discharge [3,7,10].

Results (4/6)

U-Shaped Pattern:

- Multiple studies confirmed a U-shaped relationship, where both extremes of LOS (too short or too long) were associated with increased readmission [2,6,13].
- The lowest risk of readmission was typically found at a mid-range LOS, varying by clinical condition (e.g., 4–5 days for pneumonia, 6–7 days for cardiac conditions) [5,10,12].



Results (5/6)

Optimizing Discharge Timing:

- Several studies advocated for **individualized discharge planning** based on patient-specific clinical progress rather than arbitrary LOS targets [4,9,12].
- The presence of **risk stratification tools** helped clinicians assess readiness for discharge, which improved post-discharge outcomes [3,10,14].
- Use of **transition care programs** and **electronic discharge checklists** led to a reduction in 30-day readmission rates by ensuring all discharge parameters were fulfilled [7,8,15].
- Structured discharge protocols were especially beneficial in high-risk populations like cardiac and COPD patients [6,11].

Results (6/6)

Recommendations for Reducing Preventable Readmissions via LOS Management:

- **LOS should be managed dynamically** rather than through rigid benchmarks—flexibility allowed clinicians to tailor care length as per diagnosis and response to treatment [1,5,9].
- **Discharge readiness indicators** (like mobility status, vitals, caregiver availability) proved more predictive of safe discharge than LOS alone [3,10].
- Studies emphasized the importance of **post-discharge follow-ups**, particularly for short-LOS patients, to catch early complications [2,6,13].
- Hospitals that integrated **multidisciplinary discharge teams** (physicians, case managers, social workers) showed significantly lower preventable readmission rates [7,11,15].
- **Early discharge without appropriate outpatient continuity** was consistently flagged as a risk for preventable readmissions [4,6,13].



Discussion (1/2)

Interpretation of Findings

- **U-Shaped Relationship Confirmed**
 - Multiple studies reaffirmed that **both short and long hospital stays** are associated with higher readmission risk.
 - Short stays may reflect premature discharge, while long stays often indicate severe illness or complications.
- **Length of Stay (LOS) as a Proxy Indicator**
 - LOS alone is not a sufficient predictor—must be assessed **in conjunction with clinical stability** and discharge readiness.
- **Consistency Across Conditions**
 - The LOS-readmission relationship was noted across various conditions, including **heart failure, pneumonia, and post-surgical recovery**.
- **Healthcare System Implications**
 - **Hospital-level practices** and care transition models greatly influence readmission trends.
 - Institutions with **strong discharge protocols** and post-discharge follow-up show lower readmission rates.

Discussion (2/2)

Broader Insights and Limitations

- **Integration of Multidimensional Factors**
 - Readmissions are multifactorial—**clinical severity, patient behavior, social support, and provider communication** all play key roles.
- **Policy-Level Impact**
 - Results support global trends like the **Hospital Readmissions Reduction Program (HRRP)** aimed at financial incentives and quality benchmarks.
- **Gaps in Indian Context**
 - Limited data from Indian tertiary hospitals; more localized research needed to **develop context-specific strategies**.
- **Study Limitations**
 - Heterogeneity in study designs and populations.
 - Variations in **readmission definitions (7-day, 30-day)** and data reporting affect comparability.
 - Most data drawn from secondary sources with **limited patient-level clinical granularity**.

Conclusion (1/2)

- The systematic review confirms a **U-shaped association** between Length of Stay (LOS) and hospital readmission risk, suggesting that both **premature discharges** and **prolonged hospitalizations** carry inherent risks.
- Short LOS** often correlates with insufficient clinical recovery or incomplete treatment, leading to **early complications post-discharge**.
- Long LOS**, on the other hand, may reflect higher disease severity, poor prognosis, or in-hospital complications, predisposing patients to **recurrent admissions**.
- Predicting readmissions requires more than monitoring LOS**—factors like comorbidities, social support, discharge readiness, care continuity, and system-level practices play a significant role.

Conclusion (2/2)

- Healthcare systems that implemented **structured discharge processes, risk stratification tools, and follow-up mechanisms** reported improved outcomes and fewer readmissions.
- For **Indian tertiary care settings**, the findings highlight a strong need to:
 - Strengthen electronic medical records for real-time tracking.
 - Customize discharge protocols.
 - Implement **evidence-based risk prediction models**.
- This Literature Review underscores the importance of **quality improvement strategies**, focusing not just on when to discharge, but on **how** the transition of care is managed.

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INVOLVEMENT IN COMMUNITY OUTREACH PROGRAMME (COP) ACTIVITIES

- Total no. of visits done by the Student: 10
- Day-wise activities done by the student:
 1. Mapping and listing of the area.
 2. Interaction with the community and frontline healthcare workers.
 3. Conducted IDI with the ASHA on High risk pregnant women (Group project).

KEY LEARNING FROM COP ACTIVITIES

1. Mapping and Listing of the Area

- Understanding Community Layout: Developed a detailed understanding of the geographical distribution of households, health facilities, and key resources

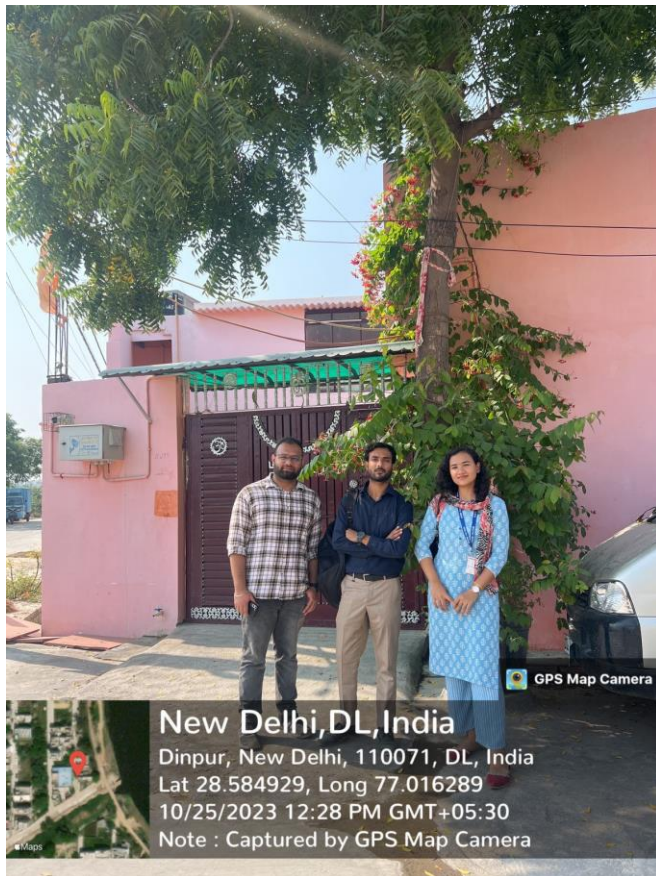
2. Interaction with Community & FLHWs

- Observed field-level challenges (resource gaps, cultural barriers).
- Gained clarity on roles of ASHA, ANM, and AWW.
- Learned community engagement and trust-building skills.

3. IDI with ASHA on High-Risk Pregnancies

- Understood criteria for identifying high-risk pregnancies.
- Learned about referral and coordination systems.
- Noted ASHA's challenges and coping mechanisms.

COP FIELD ACTIVITIES PHOTOGRAPHS



Pictorial Journey (1/2)



Pictorial Journey (2/2)





Thank You

Any Questions