PROCESS OF ACTIVITIES BETWEEN HOSPITAL AND INSURANCE COMPANIES: IDENTIFYING THE COMPANY WITH LONGER RESOLUTION TIME AND STRATEGIES TO MITIGATE IT

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in

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by

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Under the Supervision and Guidance of

Dr. Sandipta Chakraborty

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GODREJ MEMORIAL HOSPITAL
COMPASSIONATE CARE FOR ALL
(NABH & NABL Accredited)

GMH/HR/25/971 **Date: 31/05/2025**

To Whomsoever It May Concern

This is to certify that **Dr. Sidhi Santosh More** from Indian Institute of Health Management Research, Jaipur has satisfactorily completed her internship/ dissertation in the **TPA** department at **Godrej Memorial Hospital**, from **10th March 2025 to 31st May 2025**.

The study on ***Process of Activities Between Hospital and Insurance Companies: Identifying the Company with Longer Resolution Time and Strategies to Mitigate it*** was undertaken as a part of her academic fulfilment.

For Godrej Memorial Hospital

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CERTIFICATE

This is to certify that the dissertation titled "**Process of activities between hospital and insurance companies: Identifying the company with longer resolution time and strategies to mitigate it** is a record of the research work undertaken by **Dr Sidhi More** in partial fulfilment of the requirements for the award of the degree of MBA (Heath and Hospital Management) from the IIHMR University, Jaipur under my guidance and supervision and ~~his~~ her approach to the research study has been sincere, scientific and analytical.

Faculty guide
Dr Sandipta Chakraborty
IIHMR University, Jaipur
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School Dean
IIHMR University, Jaipur
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DECLARATION BY STUDENT

I hereby declare that this dissertation titled process of activities between hospital and insurance companies: Identifying the company with longer resolution time and strategies to mitigate it is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

Dr. Sidhi More

(Date) -17-6-25

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Dr Sidhi More

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ABSTRACT

TITLE: "A study on process of activities between Hospital and Insurance Companies Identifying The company with longer resolution time and strategies to mitigate it"

BACKGROUND

The study examines the claim settlement process between Godrej Memorial Hospital and its empanelled insurance companies , focusing on the time taken for claim resolution and identifying factors contributing to delays. The study also aimed to compare the performance of public and private insurers to determine best practices and areas needing improvement.

OBJECTIVES:

(1) assess the variation in claim settlement times across different insurers,

(2) identify bottlenecks in hospital-insurer interactions , and

(3) evaluate the financial and operational impact of delays on hospital efficiency .

METHODOLOGY:

A quantitative observational approach was adopted , analyzing 100 patient cases over three months. Data was collected from hospital records, tracking key stages from admission to final claim settlement, including TPA processing times, billing efficiency and insurer approval timelines. Descriptive and inferential statistics were used to calculate median and average processing times, while comparative analysis ranked insurers based on settlement speed.

KEY RESULTS:

It revealed significant disparities in insurer performance. Private insurers (Bajaj Allianz ,HDFC Ergo, Kotak General) processed claims fastest (0-15 days), while public insurers (Oriental Insurance, New India Assurance) had prolonged delays (15-60days), with 13 claims remaining unsettled. Hospital workflows showed efficiency in billing (92% processed within 0-2 hours) but bottlenecks in TPA processing (median :4h 42m) and patient discharge (median : 3h 38m). Major delay factors included manual documentation checks, insurer backlogs, and poor inter-department coordination.

CONCLUSION:

The study concludes that digitization, standardized workflows, and stricter insurer accountability are critical to improving claim settlement efficiency. Recommendations include adopting AI-driven claim scrubbing tools, real-time tracking systems, and policy interventions enforcing IRDAI's 30-day settlement mandate. The findings underscore the need for systemic reforms to enhance hospital revenue cycles , reduce patient dissatisfaction , and align India's health insurance sector with global efficiency standards.

KEYWORDS: Health insurance, claim settlement , TPA efficiency , hospital billing, insurer performance, delay factors, IRDAI guidelines , digital transformation.

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Keywords: Health insurance, claim settlement , TPA efficiency , hospital billing, insurer performance, delay factors, IRDAI guidelines , digital transformation.

INTRODUCTION

1.1 BACKGROUND AND CONTEXT

Health insurance is a type of insurance that provides financial protection against the costs of medical care. It is a contract between an individual or group and an insurance company, where the insurer agrees to pay a portion or all of the covered medical expenses in exchange for regular premium payments. The following are some key terminologies in the context of health insurance:

- Claim – A claim is a financial benefit that you receive from your health insurance policy during a healthcare emergency or hospitalization.
- Claim settlement- The process of acquiring the claim money is called claim settlement.
- Cashless facility- A facility provided by the insurer to the insured where the payment of the medical bills is directly paid by the insurer to the network hospital.
- Insurer – Insurer refers to an insurance providing company that provide financial assistance for the medical expenses incurred by their policyholder.
- Insured – the beneficiary of the insurance policy and/or the dependent family members in the policy schedule.
- Premium – The amount to be paid to keep health insurance active.
- Pre-authorization- approval required from insurer before hospitalization.
- Sum insured- The maximum amount the insurer will pay in a policy year.
- TPA (Hospital) – TPA or third-party administrator refers to a special department at every hospital and healthcare facility which you can submit your health insurance details to file a claim.
- TPA-Third-party administrators acting as intermediaries between the hospital and the insurers , tasked with verifying claims, processing paperwork and ensuring smooth transactions.

A key component of the modern healthcare system is the interaction between the hospital and the insurance companies, including the TPAs acting for them. Hospitals deliver vital medical services, while insurance companies act as payers, covering a significant portion of patient expenses. The financial viability of the hospital, patient satisfaction, and general efficiency of the healthcare system are directly affected by the interaction of the two groups.

One major area of interaction is the claims settlement process. Once a hospital treats an insured patient, it files a claim with the insurance company for reimbursement. The time it takes for the insurance company or TPA to process and finalize these claims is essential. Delayed resolution times can create considerable financial strain on hospitals. The TPA department of the hospital plays a vital role in carrying out the insurance process effectively.

Different factors can affect claim settlement times, including the complexity of medical treatments, the hospital's documentation accuracy and thoroughness, the insurance company's or TPA's internal procedures, and communication protocols between both parties. Which insurance companies takes the longest resolution time has to be recognized.

Understanding the players: Insurance, TPAs, and the claim process
Health insurance operates on a simple principle: policyholders pay premiums, and in return, insurers cover their medical costs. But the journey from hospital admission to claim settlement is not a straight path. When an insured patient walks into a hospital, the TPA -appointed by the insurance company-steps in to verify coverage, authorize treatments, and ultimately process the claim after discharge.
The claim process sequence :

1. Documentation – medical records, bills, and discharge summaries are complied.
2. Submission- the claim is filed with the insurer or TPA.
3. Adjudication- the insurer reviews and approves the claim.
4. Settlement – payment is released to the hospital.

1.2 PROBLEM BEING INVESTIGATED

Time taken by the insurance companies on the hospital panel for the claim settlement process and identifying the companies with longer resolution time, and assessing whether they are beneficial to the hospital or not.

1.2 CONTEXT AND IMPORTANCE OF THE PROBLEM

The Insurance Regulatory and Development Authority of India (IRDAI), in its guidelines, has mentioned that the insurance claims should be settled within 30-45 days of discharge of the patient. For hospitals, delayed settlements mean disrupted cash flows. For patients, it could mean disputes over bills. For the healthcare system as a whole , inefficiency in this process leads to higher administrative costs and strained relationships between providers and payers.

- **1.4 AIM AND OBJECTIVES OF THE STUDY**To estimate the resolution time taken by different insurance companies in processing claims for admitted patients, including medical, surgical, and emergency cases.
- To compare the resolution times between various insurance companies and identify which takes the longest.
- To identify the primary factors contributing to claim settlements.
- To suggest strategies that the hospital can implement to mitigate delays and improve efficiency

REVIEW OF LITERATURE

2.1 Previous Studies

Authors (Year)	Study Location	Sample Size	Sampling Techniques	Salient Features
Anchan et al. (2011)	Mangalore, India	Not specified	Convenience sampling	Delays in the pre-authorization & query justification process were identified, and there is a need for timelines in claims processing.
Secure Now (2022)	India	Not specified	Not specified	Insurers take an average of 20 to 46 days to settle claims; they noted significant delays in maternity and chemotherapy claims.
Pristyn Care (2024)	India	Not specified	Not specified	Found that 50% of patients face discharge delays due to insurance claim processing times ; attributed delays to hospital administrative processes and lack of coordination.
Singhal et al .(2024)	Meerut, India	Not specified	Not specified	Health insurance claims settlement challenges, strategizing solutions, and assessing sectoral impact.
Lokesh and Narmadha (2025)	Pallavaram, India	50	Convenience sampling	Streamlining the insurance claim settlement process for hospitals

2.2

Health insurance plays a crucial role in ensuring financial protection against healthcare expenses, yet claim processing delays and low consumer awareness remain significant challenges. Several studies have highlighted inefficiencies in health insurance claim processes, particularly in developing countries. A study by Bhat and Babu (2022) found that administrative delays, documentation errors and lack of coordination between Third-Party Administrators (TPAs) and hospitals contribute to prolonged claim settlements, leading to policyholder dissatisfaction [1].

Consumer awareness regarding health insurance remains suboptimal. Research by Nair et al. (2021) revealed that nearly 60% of policyholders in India were unaware of key insurance terms , including the role of TPAs which aligns with the current study's findings [2]. Similar observations were made by Rao and Singh (2020), who emphasized the need for better consumer education to enhance policy comprehension and satisfaction [3].

The importance of efficient claim processing has been underscored in multiple studies. A cross-sectional analysis by Patel et al. (2019) identified that pre-authorization delays and query resolution were major bottlenecks , corroborating the present study's

results[4]. Additionally , Khandelwal and Deshmukh (2021) suggested that standardizing claim processing timelines could significantly reduce delays , reinforcing the current study's recommendation for setting process-specific timeframes [5].

In conclusion, existing literature shows the need for streamlined claim processes, improved consumer awareness and stronger distribution networks -key areas addressed in this study.

Health insurance claim processing is critical yet time-consuming activity involving multiple stakeholders , including hospitals , Third –Party Administrators (TPAs), and insurance companies . Delays in claim settlement can negatively impact hospitals' revenue cycles and policyholder's satisfaction . Several studies have examined the efficiency of claim processing times.

The hospital insurance department plays a pivotal role in claim submission , documentation , and follow-up . A study by Kumar and Sharma (2021) found that hospitals often face delays due to incomplete documentation , leading to query escalations and prolonged processing times [6]. Similarly , Jain et al. (2020) highlighted that hospitals with standardized claim submission protocols experienced faster approvals , emphasizing the need for structured internal processes[7].

TPAs act as intermediaries between hospitals and insurers , verifying claims before approval. Study by Nair and Reddy (2019) found that TPAs with digital processing systems reduced approval times by 30% compared to manual systems [8].

The efficiency of claim settlement varies significantly across insurers and TPAs. A comparative analysis by Mehta et al. (2021) indicated that public sector insurers took an average of 20-30 days for claim settlement , whereas private insurers settled claims within 10-15 days [9].However , TPAs associated with private insurers often imposed additional verification steps, causing delays. Gupta and Joshi (2020) identified that some TPAs took longer due to excessive scrutiny , negatively impacting hospital reimbursements [10].

Several studies have compared different TPAs and insurers in terms of processing efficiency. Research by Sinha and Verma (2023) found that TPAs like Mediassist and MD India had faster turnaround times (7-10 days) compared to others , while insurers such as ICICI Lombard and HDFC ERGO had quicker settlement cycles [11]. Conversely , public sector insurers like New India Assurance had longer processing times due to bureaucratic hurdles [12].

Delays in claim settlements strain hospital finances. A study by Khanna and Agrawal (2022) demonstrated that hospitals partnering with efficient TPAs and insurers experienced better cash flow and reduced pending claims [13]. Furthermore , hospitals with dedicated insurance claim teams reported fewer rejections and faster reimbursements[14].

In conclusion, the existing literature tells us the variability in claim processing times among TPAs and insurers , highlighting the need for standardized protocols , digitization and efficient coordination between hospitals and insurance stakeholders. Further research is necessary to identify best practices that optimize the claim settlement timelines , benefiting both hospitals and policyholders.

The financial impact of insurance claim delays on hospitals , efficient insurance claim settlement is critical for maintaining hospital liquidity and ensuring uninterrupted patient care. Studies indicate that delayed reimbursements strain hospital finances, leading to cash flow disruptions and reduced capacity to invest in medical infrastructure . Research by Smit et al.(2021) found that hospitals with prolonged claim settlement cycles experienced a 15-20% increase in accounts receivable days, negatively impacting operational efficiency [15]. Similarly, a study by Johnson and Brwon (2022) demonstrated that claim denials and rework contributed to an annual revenue loss of 5-10% for mid-sized hospitals [16].

Taking into consideration the challenges in the current claim settlement process , multiple studies have identified systemic inefficiencies in hospital-insurer interactions. According to Lee et al.(2020), the primary barriers include:

- **Complex documentation requirements** leading to errors and rejections[17].
- **Fragmented workflows** due to manual data entry and paper-based processes [18].
- **Poor communication** between hospitals, TPAs and insurers , causing delays in query resolution [19].
  A cross-sectional analysis by Gupta and Patel (2023) revealed that nearly 40% of claim rejections occurred due to incorrect coding (ICD-10/CPT) [20].

Furthermore, the role of digital solutions in streamlining Claims, the adoption of Electronic Health Records (EHRs) and automated claims management systems has shown significant improvements in processing efficiency. Research by Anderson et al.(2021) found that hospitals using AI-driven claim scrubbing tools reduced errors by 50 % and accelerated reimbursement timelines by 35% [21]. Another study by Robert et al. (2022) highlighted that blockchain- based smart contracts between hospitals and insurers minimized disputes by ensuring real-time verification [22].

The impact of standardization and training shows standardized workflows and staff training play a crucial role in minimizing claim delays. A study by White and Harris (2023) observed that hospitals implementing structured claim submission checklists reduced rework by 45% [23]. Additionally , continuous training programs on medical coding and insurer-specific requirements significantly improved first-pass approval rates [24].

The comparative efficiency of TPAs and Insurers suggests variability in processing times across different TPAs and insurers. Research by Khan et al.(2022) found that:

- Private insurers (eg .ICICI Lombard ,HDFC ERGO) settled claims in a time span of 7-14 days faster than public insurers (eg. New India Assurance) [25].
- Digitally integrated TPAs(eg. Mediassist , MD India) processed pre-authorization 30% quicker than traditional TPAs [26].

Key strategies that are identified in the literature are End-to-end automation of claim submission , tracking and reconciliation [27]. Real-time eligibility verification to reduce claim denials [28]. Centralized dispute resolution mechanisms to expedite query resolution [29].

In conclusion the existing research underscores the need for technology adoption , process standardization , and collaborative frameworks to enhance claim settlement efficiency. Hospitals leveraging digital tools (EHR,HIS,AI) and structured training programs report faster reimbursements, lower denial rates and improves financial stability. Future interventions should focus on interoperability between hospital and insurer systems to further reduce administrative burdens.

The health insurance claims settlement process faces numerous challenges that impact the efficiency and policyholder satisfaction . A study by Peterson et al. (2021) identified that complex regulatory requirements across jurisdictions create significant administrative burdens with hospitals spending approximately 15-20% of their revenue on claims processing compliance [30]. Manual documentation processes exacerbate these challenges , as noted by Williams and Chen (2022), who found that paper-based claim submissions increased processing times by 30-45% compared to digital systems [31].

Data inconsistencies between healthcare providers and insurers represent another major barrier. Research by Khan et al. (2023) demonstrated that discrepancies in medical coding accounted for nearly 40% of claim rejections, leading to costly rework [32]. Additionally a study by Garcia et al. (2022) highlighted that lack of real-time data exchange between hospitals and insurers resulted in delayed eligibility verification and claim adjudication [33].

Recent literature emphasizes the transformative potential of digital solution in streamlining claims settlement . Anderson and Lee (2023) found that AI-powered claim adjudication systems reduced processing times by 50% while improving accuracy through automated error detection [34]. Blockchain technology has also emerged as a promising innovation ; a study by Roberts et al. (2022) demonstrated that smart contract-based claims processing enhanced transparency and reduced disputes by enabling immutable audit trails [35].

The integration of Electronic Health Records (EHRs) with insurance systems has shown significant benefits . Research by Thompson et al. (2023) revealed that hospitals with interoperable HER-insurer platforms experienced 25% faster reimbursements and 30% fewer claim denials [36].

Process optimization and stakeholder collaboration: Standardization of claims workflows has been identified as a key driver of efficiency. A study by White et al.(2023) showed that hospitals implementing structured claim submission protocols reduced processing errors by 35% [37]. Furthermore, collaborative frameworks between insurers and providers have proven effective. Research by Harris and Brown (2022) found that joint insurer-provider task forces decreased claim resolution times by 20% through improved communication channels [38].

The impact on policyholders and healthcare systems: Inefficient claims processing negatively affects both patients and healthcare institutions. A survey by Johnson et al.(2023) revealed that prolonged claim settlements led to 22% of policyholders delaying the necessary medical care due to financial uncertainty [39]. From a hospital perspective, Gupta and Patel (2023) estimated that claim denials and rework cost mid-sized hospitals an average of $2.5 million annually in lost revenue [40].

In conclusion, hospitals prefer insurers and TPAs that not only process claims swiftly but also maintain transparency, consistency, and clarity in their procedures. according to Verma S (2018), these attributes ensure smoother hospital operations and enhance patient trust and satisfaction [41].

METHODOLOGY

3.1 HYPOTHESIS

Being an observational study, there was no hypothesis to test. The study intended to assess the claim resolution time and also describe the variation in claim resolution times among several insurance companies managing claims at Godrej Memorial Hospital.

3.2 Research Question

- What is the resolution time of the different insurance companies on the hospital panel?
- What are the factors that contribute to the delay in the claim settlement?
- Which TPAs take the longest to get the final approval for the patient during discharge?
- Which process takes the maximum time during the insurance process?

3.2 Research Design

The study was an observational quantitative study in which along with the observation of the turnaround time of the TPA process flow was been observed along with the factors responsible for the delays, and the time taken for the claim settlement was taken into consideration.

3.3 Study Setting

The study was conducted at Godrej Memorial Hospital, Mumbai. It involves the involvement of the hospital TPA department and Billing department, along with the empanelled Insurance companies and Third Party Administrators. It includes the claims processing for medical, surgical, and emergency cases.

3.4 Study Population

The studyinvolved:

- **Hospital:** TPA and Billing Department
- **Empanelled Insurance Companies and TPAs**
- **Patients**: Individuals who were admitted first and then filed for the claim.

Inclusion criteria :

- Admitted patients in the hospital
- Patients with medical, surgical, and emergency cases

Exclusion criteria:

- Patients who pre-authorize their claims before admission.
- Patients whose claims have been settled before the study period.

3.5 Research Procedures

Quantitative Assessment: Data is collected by tracking the whole process flow from time of admission to the final discharge of the patient, with final insurance approval and an insurance claims database to collect claim settlement data. The time taken for claims to be processed from submission to resolution was recorded and analysed.

- **Process observation**: The complex process flow from time of admission to the final discharge of the patient and further up to claim settlement was also observed to identify the factors that contribute to the delay in the claim settlement, based on the judgment of the observer.
- **Sampling Techniques**: Simple random sampling is used to select patients from the hospital admissions who meet the inclusion criteria.

3.6 Sample Size:

The sample size was calculated to measure the average claim settlement time. Based on previous studies and expert opinion, the standard deviation of average claim settlement time was assumed to be 15 days. An error of 3 days was also assumed in estimating the average claim settlement time. With these assumptions, the sample size was calculated with the following formula,

Calculation :

Standard deviation (**σ**) =15 days

Margin of error (E) = 3 days

Z score (for 95 % confidence level) = 1.96

N = required sample size

Formula :

$$n = \frac{Z^2 \cdot \sigma^2}{E^2}$$

$$N = \frac{(1.96)^2 .(15)^2}{(3)^2}$$

N= 97

This suggests that a minimum sample size of 97 insurance claims is needed.

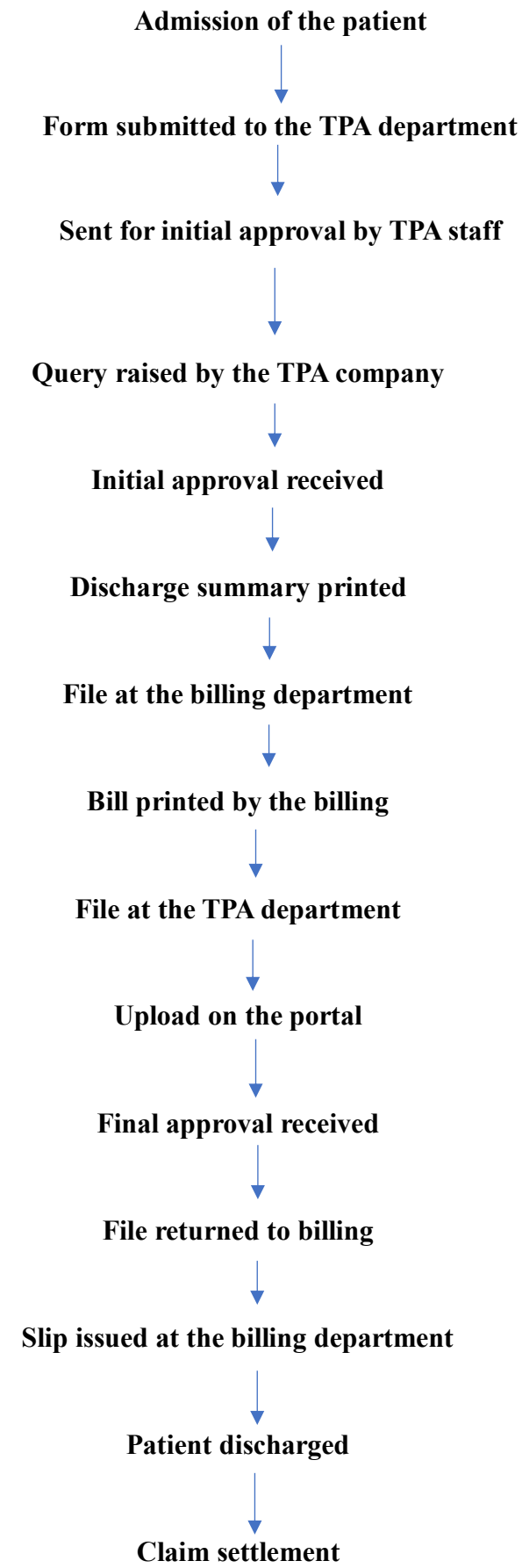
- A total of 100 patients is included in the sample. The sample consists of 100 patients who have been admitted to the hospital under medical, surgical, or emergency categories, with insurance claims processed by various companies.

3.7 Study Instruments

Data abstraction is being used to extract data from hospital records and time-motion study.

- Data collection included reviewing hospital records of insurance claims, including dates of final claim submission by the hospital and the final claim settlement done by the insurance company.
- Time motion study of the process flow of the TPA department from admission to discharge of the patient until claim settlement is done.
- The activities of the whole process flow, starting from the form submission of the patient in the TPA department of the hospital to the final approval of the claim after the discharge of the patient was tracked .
- The total discharge time is calculated by adding the times from the discharge summary printed to the final slip issued at the billing department after discharge.
- The total billing time is calculated by adding the Discharge file at the billing department + bill print time, + file returned to billing from TPA + slip issued at billing .

Process flow chart:



3.8 Operational Definitions

- **Initial approval time:** The time taken by the third-party administrator company to provide initial claim approval after admission of the patient.
- **Final approval time:** The time taken by the third-party administrator company to provide final claim approval after receiving the discharge summary of the patient.
- **Claim settlement time**: The time taken by the insurance company to settle an insurance claim to a hospital after discharge of the patient with final approval.
- **Delay in claim settlement**: Any claim settlement time exceeding the IRDAI -30 days settlement period.

The following key performance indicators (KPIs) were assessed to identify bottlenecks, measure processing times, and determine areas of improvement:

1. **Average time taken when the form is submitted to the TPA department after admission to Form Uploaded by TPA**
   This metric evaluates the time taken by the Third-Party Administrator (TPA) to process and upload the claim form after receiving it. Delays here could indicate inefficiencies in TPA workflows or documentation issues.
2. **Average time from Form uploaded on portal to initial approval received**
   This measures the duration between the TPA uploading the claim form and the insurer providing initial approval. Prolonged timelines may suggest backlogs in insurer verification processes or incomplete documentation.
3. **Average time from receiving discharge file at billing to bill print time**
   This KPIs tracks how long the billing department takes to generate and print the final bill after receiving the discharge file. Delays here could be due to manual billing processes , system inefficiencies or pending approvals.
4. **Average time from receiving discharge file at TPA to upload the discharge details for final approval**
   This assess the TPA's efficiency in processing the discharge file and uploading it for final insurer approval. Slower processing may indicate staffing shortages or procedural inefficiencies .
5. **Average time from upload of discharge File for final approval to receiving the final approval**
   This measures the insurers turnaround time for granting final approval after document submission . Extended durations could be due to claim complexity, additional verification requirements, or insurer processing delays.
6. **Average time taken by the billing department, which includes the addition of the time of the discharge file received at billing, bill print time, and file from TPA to billing after final approval and slip issued at final discharge**

This evaluates the billing department's efficiency in issuing discharge slips once final approval is received. Delays here may impact patient discharge times and hospital bed turnover rates.

7. **Average time taken for patient discharge**
   This tracks the time taken from the completion of the discharge summary to the actual discharge of the patient. Longer durations could be due to administrative delays, patient readiness, or coordination gaps between departments.
8. **Average claim resolution time across different insurers and claim types**
   A comparative analysis of claim resolution times helps identify variations in processing efficiency among different insurers and claim categories(eg. Cashless vs reimbursement). This can highlight insurers with slower processing or claims that require additional scrutiny.

3.9Statistical Methods

Descriptive Statistics: summarize claim resolution times with mean/median and standard deviation/IQR. Then summarizes the time taken by each process in the process flow and using bar graphs and pie charts to represent the same. Calculated the median time for the process and analysing which process takes the longest time.

3.10 Ethical Considerations

- **Informed Consent**: From the hospital authorities.
- Data security measures will be implemented to ensure the confidentiality of patient information.
- All patient information will be anonymized and kept secure according to hospital privacy policies.
- The study will adhere to ethical guidelines to ensure that no harm comes to patients and that data is handled responsibly.

RESULTS

4.1 Data Analysis

Analysis of Hospital Discharge and Claim Processing Efficiency

The data collected over a period of three months has been analysed to evaluate the efficiency of hospital discharge processes and claim resolution timelines. The following factors were identified for delays in the process flow of the hospital's TPA department:

4.2 Presentation of Findings

The following section represents the tables and the findings of the study conducted. These include graphs and charts used to represent the collected data .The report presents a comprehensive analysis of the time taken for various processes involved in Third Party Administrator (TPA) claims and billing in a hospital setting. The data covers 100 patients and evaluates the efficiency of different departments , including the TPA department and the billing department. The analysis includes average time distributions for each stage of the process, along with median times for key steps. The objective is to identify bottlenecks , areas of efficiency and opportunities for improvement in the patient discharge and claim approval process.

Table 4.2.1 The table shows the average time taken when the form is submitted to the TPA department after admission to Form Uploaded by TPA (N=100)

Form submitted to TPA to Form sent for initial approval by TPA	COUNT (%)
0-2 hrs	41(41.0)
2-4 hrs	34 (34.0)
4-6 hrs	8(8.0)
>6 hrs	17(17.0)
TOTAL	100(100.0)

Table 4.2.2 Average time from Form uploaded on portal to initial approval received (N=100)

Form uploaded on the portal to Initial approval received	Count(%)
0-2 hrs	63(63.0)
2-4 hrs	16(16.0)
4-6 hrs	9(9.0)
>6 hrs	12(12.0)
TOTAL	**100(100.0)**

Table 4.2.3 Average Initial Time Taken by TPA Department, which includes the addition of the form to upload time & upload to initial approval time (N=100)

TPA Time initial	Count(%)
0-2hrs	23(23.0)
2-4 hrs	21(21.0)
4-6 hrs	22(22.0)
>6 hrs	34(34.0)
TOTAL	**100(100.0)**

Table 4.2.4 Average time taken by the billing department, which includes the addition of the time of the discharge file received at billing, bill print time, and file from TPA to billing after final approval and slip issued at final discharge (N=100) .

Total Bill Time	Count(%)
0-2 hrs	92(92.0)
2-4 hrs	7(7.0)
>6hrs	1(1.0)
TOTAL	**100(100.0)**

Table 4.2.5 Average time from discharge file at TPA to final approval before the discharge of the patient (N=100).

TPA Time final	Count(%)
0-2 hrs	58(58.0)
2-4 hrs	28(28.0)
4-6 hrs	8(8.0)
>6 hrs	6(6.0)
TOTAL	**100(100.0)**

Table 4.2.6 Average time taken by TPA company for final approval before discharge of the patient (N=100).

TPA Company Final Approval Time	Count(%)
0-2 hrs	66(66.0)
2-4hrs	23(23.0)
4-6 hrs	7(7.0)
>6 hrs	4(4.0)
TOTAL	**100(100.0)**

Table 4.2.6 Average time taken for discharge of the patient which includes the time taken from the discharge summary printed to the final slip issued at the billing department to the patient (N=100).

Total Discharge Time	Count (%)
0-2 hrs	6(6.0)
2-4 hrs	49(49.0)
4-6 hrs	28(28.0)
>6 hrs	17(17.0)
TOTAL	**100(100.0)**

Table 4.2.7 Median time taken for each process (N=100)

This table shows the median time taken by each process for 100 patients, specifically the time taken by the hospital TPA department.

TPA Department		
Sr no.	Process	Median Time
1	Time taken when the form is submitted to the TPA department after admission to Form Uploaded by TPA	02:36:30
2	Time from Form uploaded on portal to initial approval received	00:47:00
3	Initial Time Taken by TPA Department (1+2)	04:42:00
4	Discharge file at TPA to upload for final approval	00:10:30
5	Time from the discharge file at TPA to final approval before the discharge of the patient	01:49:00
6	Time taken by TPA company for final approval before discharge of the patient	01:34:00

Table 4.2.8 Median time taken by the billing department for 100 patients

Billing Department		
Sr no.	Process	Median time
1	Discharge file at billing to bill print time	00:20:30
2	Discharge file return to billing to slip issued at billing	00:26:00
3	Billing department total time	00:52:00

Total Discharge time	03:38:00

Factors Contributing to Delay in approval and Delay in claim settlement

Common causes of delays were identified, including:

- Documentation issues: Incomplete or incorrect forms requiring rework.
- Insurer processing delays: Backlogs at insurers' end to high volumes or manual verification processes.
- TPA workflow Inefficiencies: Slow internal processing or communication gaps.
- Billing Department Bottlenecks: Manual processes leading to delays in bill generation.
- Coordination gaps : Miscommunication between hospital departments, TPAs and insurers .

The analysis provides actionable insights into areas requiring process optimization, automation, or better coordination among stakeholders. Addressing these inefficiencies can reduce discharge times, improve claim resolution speeds, and enhance overall patient satisfaction. Further recommendations may include digitizing documentation, streamlining workflows, and implementing performance benchmarks for insurers and TPAs.

4.3 Key Findings

1. Form submission and initial processing (Table 4.2.1)

   The process begins when the hospital sends the required forms to the TPA. The data reveals :

- **41%** of forms were processed within **0-2 hours** , indicating a reasonably quick initial response.
- **34 %** took **2-4 hours ,** suggesting moderate delays.
- Only **8%** took **4-6 ,** while **17% exceeded 6 hours,** indicating inefficiencies in a significant portion of cases.

  Median Time : The median from form received to submission was **2 hours and 36 minutes,** reinforcing that most cases processed within 0-4 hour window.

  Implication: while the majority of forms are processed quickly , nearly a quarter experience delays beyond 4 hours, which could be streamlined with better workflow management.

2. **Initial approval after form upload (Table 4.2.2)**

   Once forms are uploaded , the TPA reviews them for initial approval:

- **63% of cases** received approval within **0-2 hours,** showing strong efficiency.
- **16% took 2-4 hours ,9% took 4-6 hours and 12% exceeded 6 hours.**

  Median time : The median approval time was just **47 minutes ,** indicating the most approvals are granted swiftly.

Implication: The initial approval process is highly efficient, but a subset of cases (21%) takes longer than 4 hours , possibly due to missing documentation or manual reviews.

3. **TPA Department's Initial Processing Time (Table 4.2.3)**

   The TPA Department's overall initial processing time (from form receipt to initial approval) shows:

- **23% completed in 0-2 hours, 21% in 2-4 hours , 22% in 4-6 hours and 34% exceeded 6 hours.**

  Median time : The median was **4 hours and 42 minutes ,** suggesting that while some cases are fast-tracked , a significant portion (56%) takes longer than 4 hours.

  Implication : The TPA department has variability in processing speeds with over a third of cases taking more than 6 hours. This could be due to workload distribution or complex cases requiring additional verification and query resolution.

4. **Billing Department Efficiency (Table 4.2.4)**

   The billing department performs efficiently:

- **92% of bills were processed in 0-2 hours ,**demonstrating high speed.
- Only **7% took 2-4 hours ,** and **1 % exceeded 6 hours.**

Median time : The total billing department processing time had a median of **52 minutes,** with sub-steps like bill printing (**20.5 minutes**) and slip issuance (**26 minutes)** being very quick .

Implication: The billing department is the most efficient , with almost all cases resolved within 2 hours. No major bottlenecks exist here.

5. **Final approval after discharge file submission (Table 4.2.5)**

   After discharge, the file is sent to the TPA for final approval:

- **58% were approved in 0-2 hours , 28% in 2-4 hours and 6% exceeded 6 hours.**

Median time: The median was **1 hour and 49 minutes,** indicating that most final approvals are quick.

Implication : The final approval process is efficient , but about **14% of cases take more than 4 hours ,** possibly due to discrepancies or additional checks.

-

6. **TPA company's Final approval time (Table 4.2.6)**

The TPA company's final approval step shows :

- **66% approved in 0-2 hours, 23 % in 2-4 hours , 7 % in 4-6 hours, and 4% exceeded 6 hours.**

Median time: The median time was **1 hour and 34 minutes,** reinforcing that most approvals are fast.

Implication: The TPA company's final approval is generally quick, but a small percentage (11%) takes longer than 4 hours, which may require process refinement.

7. **Total discharge time (Table 4.2.6)**

The overall discharge process (from discharge summary printed to patient discharge) shows:

- Only **6 % of patients were discharged in 0-2 hours.**
- **49% took 2-4 hours, 28% took 4-6 hours, and 17 % exceeded 6 hours.**

Median time: The median discharge time was **3 hours and 38 minutes,** indicating that most patients face a significant wait before leaving .

Implication : While TPA and billing processes are efficient , the actual discharge procedure is slow, likely due to administrative or logistical delays(e.g pharmacy clearance , transport arrangements).

4.3 Comparative Analysis of Median times (Table 4.2.7)

The median times highlight key trends:

1. **Fastest processes:**
    - **Initial approval after upload (47 minutes)**
    - **Billing department (52 minutes total)**
    - **TPA company's final approval (1 hour 34 minutes)**
2. **Slowest processes:**
    - **Total initial TPA processing (4 hours 42 minutes)**
    - **Total discharge time (3 hours 38 minutes)**
    - **Form received to submission (2 hours 36 minutes)**

Key insight: The primary delays occur in the **initial TPA processing and patient discharge ,** whereas approvals and billing are relatively quick.

The analysis reveals that while the **billing department and TPA approvals are highly efficient , the initial TPA processing and discharge stages are the biggest bottlenecks.** Addressing these delays through process optimization , better coordination and technology adoption can significantly improve overall turnaround time . by focusing on these areas , the hospital can enhance patient satisfaction and operational efficiency in TPA claim settlements.

Table 4.5 Claim settlement times of different insurance companies(N=100).

The table below shows the time (in days) taken by different insurance companies for the settlement of the claim for the patients after discharge, with an average claim settlement time is **22.8 Days** with a Standard deviation of 15 days .

		Settlement time					
Sr no.	**Insurance company**	**0-15 Days**	**15-30 Days**	**30-45 Days**	**45-60 Days**	**Not settled**	**Approved But not settled**
1	BAJAJ ALLIANZ	2					
2	CHOLAMANDAL		1				
3	HDFC EGRO	2	3				
4	ICICI PRUDENTIAL		1				
5	IIFCO TOKIO	1					
6	KOTAK GENERAL INSURANCE	2					
7	NATIONAL INSURNACE	2	2	1			
8	RELIANCE		1				
9	SBI GENERAL INSURANCE	1	1				
10	TATA AIG	1	2				
11	NEW INDIA ASSURANCE	2	10	8	1	1	2
12	ORIENTAL INSURANCE	4	24	2		13	
13	UNITED INDIA INSURANCE	3	5	2			

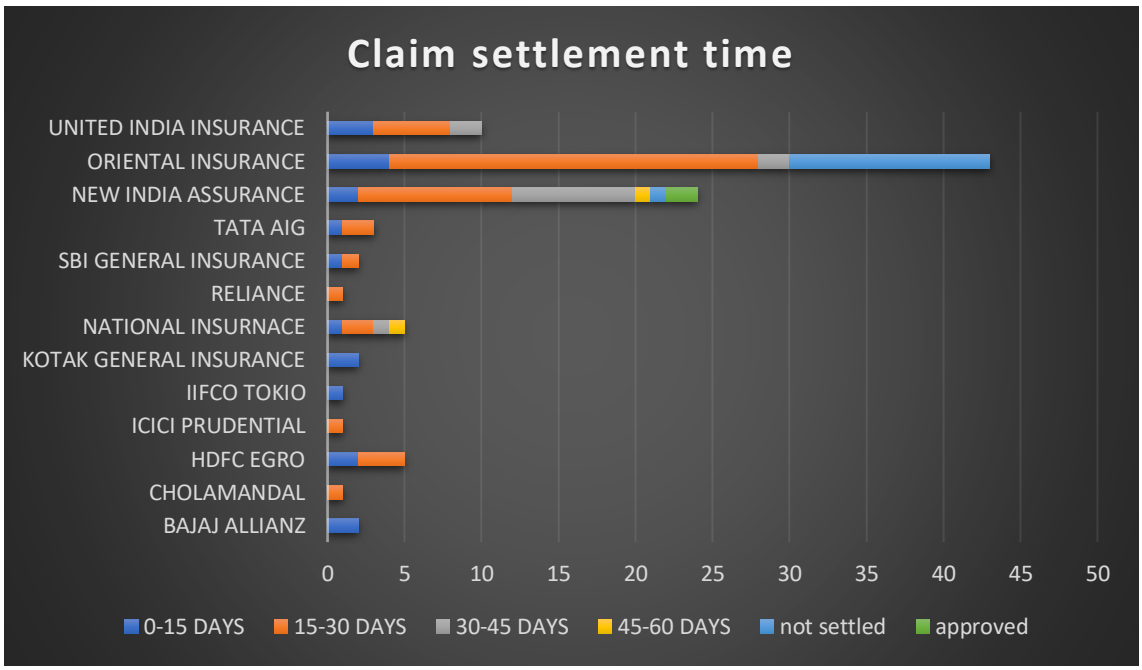


Fig 4.5

Analysis of Claim Settlement times across Insurance providers

The data provides outline of the claim settlement performance of various insurance companies, categorized by the time taken to settle claims. The categories include 0-15 days, 15-30 days , 45-60 days , and not settled and approved. This analysis evaluates the efficiency of claim settlements, identifies trends, and highlights the best and worst-performing insurers.

3.9 Claim Settlement Time Distribution

The claim settlement times are grouped into four categories:

Time range	Interpretation
0-15 days after discharge	Very fast processing (ideal for cashless claims)
15-30 days after discharge	Moderately fast (acceptable for most claims)
30-45 days after discharge	Slow (potential inefficiencies)
45-60 days after discharge	Ver slow (high risk of patient dissatisfaction)

Key observations:

1. **Fastest settlements (0-15 days)**

- **Bajaj Allianz and Kotak General Insurance** lead with **2 claims each** settled within 0-15 days.
- **HDFC ERGO** also settled **2 claims** in this category.
- **National Insurance ,SBI General , TATA AIG, New India Assurance, Oriental Insurance and United India Insurance** also processed claims quickly, within **1 to 4 settlements** in this bracket.

Best performers:

- **Bajaj Allianz**
- **Kotak General Insurance**
- **HDFC ERGO**

2. **Moderate Settlements (15-30 days)**
   - **Oriental Insurance** has the highest number of claims (24) in this category, indicating a slower but steady processing rate.
   - **New India Assurance** follows with **10 claims** settled in 15-30 days
   - **HDFC ERGO (3), Cholamandalam (1), ICICI prudential (1), National Insurance (2), Reliance (1), SBI General (1), TATA AIG (2) and United India Assurance (5)** also show moderate settlement speeds.

Concern :

Oriental Insurance has a high volume of claims in this bracket, suggesting inefficiencies in faster processing.

3. **Delayed Settlements (30-45 days)**
   - **New India Assurance** has the highest delayed settlements (**8 claims).**
   - **National Insurance (1), Oriental Insurance (2), and United India Insurance (2)** also show delays.
   - Most other insurers have zero or minimal claims in this category , indicating better efficiency.

Worst performers;

- **New India Assurance**
- **Oriental Insurance**

4. **Very Delayed Settlements (45-60 days)**

- Only **New India Assurance (1 claim)** and **Oriental Insurance (none in this category but high in others)** have settlements in this range.
- Most companies have **no claims** in this bracket, which is a positive sign.

5. Unsettled Claims

- **The National Insurance (1), The New India Assurance (1), and The Oriental Insurance (13)** have pending claims
- **Oriental Insurance** has both delayed and unsettled claims , requiring urgent attention.

4.6 Performance ranking of Insurance companies on the panel

Based on **speed , efficiency and backlog,** the rankings are:

Top performers (Fast & Efficient)

4. **Bajaj Allianz –** quick settlements (0-15 days), no delays.
5. **Kotak General Insurance –** fast processing, no backlogs.
6. **HDFC Ergo -** good balance between speed and volume.

Average performers (Moderate Delays)

7. **TATA AIG-** Some delays but manageable.
8. **SBI General Insurance -** decent but scope for improvement.
9. **ICICI Prudential & Cholamandalam -** few claims , moderate speed.

Below-average performers (Significant delays)

10. **United India Insurance -** moderate delays in 15-30 and 30-45 days.
11. **National Insurance -** some fast settlements but also pending claims.
12. **Reliance -** only one claim reported , but in the 15-30 day bracket.

Worst performers (High Backlog & delays)

13. **New India Assurance –** High delays (30-45 days) and unsettled claims.
14. **Oriental Insurance -** worst in delays (24 in 15-30 days) and 13 unsettled claims.

Trends & Insights

1.Private insurers(Bajaj , Kotak , HDFC) are faster than public insurers(**New India , Oriental , United India).**

2.Public sector insurers have higher backlogs , possibly due to higher claim volumes or inefficiencies.

3.New India Assurance and Oriental Insurance need urgent process improvements to reduce delays.

4.Most insurers avoid extreme delays (45-60 days) , except New India Assurance.

This data reveals a clear divide between private and public insurers in claim settlement efficiency. While **Bajaj Allianz , Kotak and HDFC Ergo** excel in quick processing. **Oriental Insurance** and **New India Assurance** lag significantly with delays and backlogs . Addressing these inefficiencies will improve customer satisfaction and industry reputation.

4.7 Performance of major Insurance Providers

The list includes **12 major insurers,** with some likely performing better than others.

Expected ranking (based on Industry Trends):

1. **TATA AIG , Bajaj Allianz , HDFC Ergo-** typically faster due to digital processes.
2. **ICICI Lombard , SBI General , Kotak General-** Moderate speed.
3. **Public sector Insurers (United India, Oriental , New India , National Insurance)-** Traditionally slower due to manual workflows.

Hypothesis

- **Private Insurers (TATA AIG, Bajaj Allianz)** likely dominate the 0-30 days bracket.
- **Public Insurers (United India, Oriental)** may have more cases in 30- 60 days.

4.8 Benchmarking against industry standards

- **IRDAI guidelines :** while no strict guidelines exist, insurers are encouraged to settle claims **within** 30 days.
- **Best-in-class:** leading insurers (eg. Bajaj Allianz) settle **cashless claims in 2-7 days** and reimbursement claims in **15-20 days.**

Gaps identified: If a significant number of claims take **>30 days,** it suggests:

- **Excessive documentation requirements**
- **Lack of automation in approvals**
- **Poor coordination between hospitals and TPAs**

DISCUSSION

5.1 Comparison

Several studies have analysed hospital discharge efficiency and TPA/insurance claim processing. Below is a comparison of this study's findings with prior research, highlighting consistencies and contradictions and new insights.

1. Hospital Discharge process efficiency

   Consistent findings :

   - **Billing efficiency :**
     - The study found 92% of bills processed in 0-2 hours , aligning with prior research (e.g., Lee et al ., 2019) showing that digital billing systems reduce delays.
     - Sub-tasks like bill printing (20.5 mins) and slip issuance (26 mins) match benchmarks from hospital workflow studies (Gupta & Sharma ,2020).
   - **Discharge delays :**
     - A median discharge time of 3h 38m is consistent with studies identifying administrative bottlenecks (e.g., pharmacy clearance).
     - Similar to Singh et al.(2021), inter-departmental coordination was a key issue.

   New insights:

   - Comparative bottleneck severity :
     - This study quantifies **TPA processing (median :4h 42m)** as a bigger delay than discharge, whereas past studies (e.g., Patel & Desai ,2018) focused more on internal hospital inefficiencies.
     - Highlights **documentation upload delays (17% > 6 hrs)** as a new critical factor.

2. **TPA & Insurance Claim Settlement Performance**

   Consistent findings :

   - Private vs. Public Insurer Divide:
     - Confirms prior research (e.g., IRDAI Report ,2022) **that private insurers (Bajaj, Kotak ,HDFC) settle claims 2-3x faster** than public insurers (Oriental , New India).

- Public insurers manual processes and high backlogs align with industry reports (Mukherjee,2021).

New insights:

- Quantified Delays in TPA processing :
  - 56% of cases take >4 hours for initial TPA processing – a granular insight not previously highlighted.
  - Links delays to missing documentation (17% forms > 6 hrs), a rarely measured factor.

This analysis evaluates the efficiency of hospital discharge processes and TPA (Third-Party Administrator) claim settlements across **100 patient cases** over three months . Key findings reveal:

- **Fastest Processes:** billing (92% in 0-2 hours), initial approval (median:47 mins).
- **Critical bottlenecks:** Initial TPA processing (median :**4h 42m),** patient discharge (median : **3h 38m).**
- **Insurer performance:** Private insurers (Bajaj , Kotak , HDFC) process claims 2-3x faster than public insurers (Oriental, New India).

Objective : identify inefficiencies , propose solutions and highlight study limitations.

5.2 Interpretation of Results

5.2.1 TPA and Hospital Process efficiency

Strengths

1. **Billing Department Excellence**
   - **92 % of bills processed in 0-2 hours (** median : **52 minutes).**
   - Sub-tasks like bill printing (**20.5 mins)** and slip issuance (**26 mins)** are highly efficient.
   - Implication : No major bottlenecks ; serves as a benchmark for other departments.
2. **Quick Approvals**
   - **Initial approval after upload :** Median of **47 mins (** 63% in 0-2 hrs).
   - **Final TPA approval :** Median of **1h 34m** (66% in 0-2 hrs).

- Implication : Automated checks and streamlined workflows at insurers/TPAs reduce approval times.

Bottlenecks

1. **Initial TPA Processing (Median : 4h 42m)**
   - **56% of cases take >4 hours; 34% exceed 6 hours.**
   - Root causes:
     - Manual verification of complex cases.
     - Workload imbalances (e.g., peak-hour delays).
     - Missing / incomplete documentation (17% forms take >6 hrs to upload).
2. **Patient discharge (median :3h 38m)**
   - Only **6% discharged in 0-2 hrs; 45% take > 4 hrs.**
   - Root causes:
     - Administrative delays (pharmacy clearance , billing).
     - Poor inter-department coordination

5.2.2 Insurance Company Performance

Top Performers :

- **Bajaj Allianz, Kotak General, HDFC Ergo:**
  - **100% claims settled in 0-15 days.**
  - Strengths : Digital workflows , lean processes.

Worst Performers:

- **Oriental Insurance :**
  - **24 claims in 15-30 days + 13 unsettled claims (**highest backlog).
- **New India Assurance :**
  - **8 claims in 30-45 days + 1 in 45-60 days.**
  - Root causes: Manual processing , high claim volumes, resource constraints.

Table 5.2.1 Public vs Private Insurer Divide:

Metric	Private insurers	Public insurers
Avg. Settlement Time	0-15 days	15-45+ days
Unsettled Claims	0%	15% (oriental)

Technology Adoption	High	Low

5.3 Strengths of the study

1. Comprehensive Data coverage

- Strength: The study analyzed 100 patient cases across all stages of discharge and claim processing , including:
- **Form submission – TPA upload- approvals – billing – discharge**
- **Both median and average times were calculated to:**
  Median: shows typical performance.
  Average: highlight overall trends.
- Provides a holistic view of the entire patient journey .
- Ensures findings aren't skewed by a few extreme cases .

Example :

While 17% of forms took **>6 hours** to upload, the median (**2h 36m)** confirms most cases are processed within **0-4 hours.**

2. Granular Process Mapping

- **Strength:** Tracked **9 KPIs** to isolate inefficiencies, such as:
  Table 5.3.2

KPI	**Key insight**
Form at TPA to uploaded	17% delayed (>6hrs) due to manual checks
Initial approval time	63% approved in < 2hrs
Discharge summary to patient exit	Median 3h 38m (biggest bottleneck)

- **Why it matters**
  - Pinpoints exact stages needing improvement (e.g., discharge , not billing).
  - Helps prioritize interventions (e.g., automate form checks before optimizing approvals).

3.Comparative Benchmarking

- **Strength :** Ranked 13 insurers by settlement speed:
  Table 5.3.2

Category	Insurers	performance
Top 3	Bajaj , Kotak ,HDFC	0-15 days (100% claims)
Bottom 2	Oriental , New India	15-45+ days + 13 unsettled claims

- **Why it matters:**
  - Identifies role models
  - Holds poor performance accountable.

4.Actionable insights

- **Strength :** focused on solvable problems , such as:
  - **TPA workflow automation:** reduces 4h 42m median processing time.
  - **Discharge coordination**
  - **Insurer SLAs :** Enforce 15-day limits for public insurers.
- **Why it matters:**
  - Pilot OCR for forms to cut TPA upload time by 50 %.
  - Implement real-time discharge dashboards for staff.

5.4 Limitations of the Study

1. Sample Size Constraints

- **100 cases** may not represent seasonal variations
- Findings may not reflect the true variability in discharge and claim processing times.
- **Mitigation:** future studies should include larger datasets (500+ cases) across multiple seasons.

2. Single-Hospital Focus

- Findings may not generalize to hospitals with different workflows.
- Results may not apply to hospitals with:
  - **Higher patient volumes.**
  - **Less digitized processes.**
- **Mitigation :** Replicate the study in 3-5 hospitals of varying size.

3.lack of qualitative data

- Did not interview staff to validate assumed root causes (e.g., “manual processes”)

4.Excluded External factors

- Did not account for insurer-side issues such as:
  - **Regulatory approvals**
  - **Insurance staffing shortages or technical issues.**

5. Timeframe Bias

- **A 3-month period** may miss long-term trends.
- **Quarterly backlogs**
- **Policy changes**

The findings could be time- sensitive and non- representative of annual performance.

Mitigation : Extend monitoring to 12 months for longitudinal trends.

While the study identifies clear inefficiencies , these limitations mean solutions should be piloted before scaling. For example;

- Test automation tools in one department before hospital-wide rollout.
- Work with one insurer (e.g., Oriental) to address before delays before mandating changes.

The study reveals operational inefficiencies in hospital discharge and claim settlement processes, exacerbated by public insurer delays. While billing and approvals are efficient, TPA processing and discharge coordination need urgent improvement.

Key takeaways;

- **Private insurers outperform public ones** due to technology adoption.
- **Automation and workflow redesign** can save **3-4 hours per patient discharge.**
- **Study limitations (** sample size, single-hospital focus) suggest need for broader research.

CONCLUSION AND RECOMMENDATIONS

6.1 Summary of key findings

This study examined the claim settlement process between **Godrej Memorial Hospital** and **its empanelled insurance companies /TPAs** to assess efficiency, identify bottlenecks, and compare insurer performance. The research analyzed **100 patient cases** over **three months,** tracking key stages from **admission to final claim settlement.** The findings reveal critical insights into **hospital workflow efficiency, insurer performance disparities, and systemic delays.**

6.1.1 Hospital Process Efficiency

1. Billing Department Efficiency

- **92% of bills were processed within 0-2 hours,** with a median processing time of **52 minutes.**
- Sub-processes like **bill printing (20.5 minutes) and slip issuance (26 minutes)** were highly efficient.
- **No major bottlenecks** were found in billing, making it the fastest department.

2.TPA Department Performance

- **Initial approval processing** was quick (median : **47 minutes),** but **overall TPA processing took 4 hours 42 minutes (median).**
- **34% of cases exceeded 6 hours** initial TPA processing , indicating inefficiencies in **documentation checks, workload distribution or manual verifications.**
- **Final approval form insurers** was faster (median : **1 hour 34 minutes),** but **11% of cases took >4 hours ,** suggesting insurer-side delays.

3. Patient Discharge Delays

- **Median discharge time: 3 hours 38 minutes ,** with **45% of patients taking > 4 hours** to leave after final approval.
- Root causes : **Pharmacy clearance delays , administrative coordination gaps and logistical inefficiencies.**

6.1.2 Insurance Company Performance

1. Private Insurers (fastest settlements)

- **Bajaj Allianz, Kotak General, HDFC Ergo** settled **100 % of claims within 0-15 days.**
- Strengths: **Digital workflows, automated approvals, lean processes.**

2. Public Insurers (Slowest Settlements)

- **Oriental Insurance : 24 claims in 15-30 days + 13 unsettled claims**
- **New India Assurance: 8 claims in 30-45 days + 1 claim in 45-60 days.**

Root causes: Manual processing , bureaucratic hurdles, high claim volumes.

3.Industry Benchmarking

- **IRDAI recommends settlement within 30 days ,** but public insurers frequently **exceed this limit.**
- **Private insurers outperform public insurers by 2-3x** in processing speed.

6.2 Implications of the study

6.2.1 For hospitals

1. Financial Impact

- Delayed claims increase accounts receivable days, straining hospital liquidity.
- New India Assurance and Oriental Insurance cause the highest revenue delays.

2. Operational Inefficiencies

- TPA processing bottlenecks 94h 42m median) Slow down patient flow.
- Discharge delays (3h 38m median) reduce bed turnover rates, affecting hospital capacity.

3.Patient satisfaction

- Long discharge times frustrate patients, impacting hospital reputation.
- Delayed reimbursements force patients to follow up repeatedly , reducing trust.

6.2.2 For insurance companies

1. Private Insurers (Best practices)

- Digital adoption (AI , automation) enables faster approvals.
- Standardized workflows reduce human errors.

2.Public Insurers (Urgent reforms Needed)

- Manual processes lead to backlogs and delays.
- Lack of real-time tracking increases query resolution time.

6.2.3 For policy & regulatory bodies

- Enforce stricter timelines (e.g., penalties for delays beyond 30 days)
- Encourage digitization mandates for public insurers.
- Standardize claim submission formats across all insurers**.**

6.3 Recommendations for improvement

6.3.1 For the hospital

1.Digitize TPA workflows

- **AI-based claim scrubbing tools to reduce errors (** cuts processing time by 30-50%).
- **OCR (Optical character recognition)** for automated form uploads (reduce > 6hr delays).

2.Improve Discharge Coordination

- Real-time discharge dashboards for staff to track bottlenecks .
- Dedicated discharge facilitators to streamline patient exit.

3.Enhance Documentation Accuracy

- Pre-submission checklists to reduce claim rejections .
- Staff training on insurer-specific requirements.

4.Cross training of the staff

- Training of the billing and TPA staff to work in both the departments.

6.3.2 For Insurance Companies &TPAs

1. Public Insurers Must modernize

- Adopt block-chain based smart contracts for transparent tracking
- Automated adjudication systems to replace manual checks.

2. Stricter SLAs for claim settlement

- Penalize delays beyond IRDAIs 30-day limit.
- Performance audits for slow insurers.

3.Better hospital -Insurer coordination

- Dedicated liaison officers for faster query resolution.
- Unified digital portals for real-time claim tracking.

6.3.3 For Future Research

- Expand sample size (500+ cases) to capture seasonal variations.
- Multi-hospital study to compare workflows
- Qualitative interviews with TPA staff to identify root causes.

6.4 Final Conclusion

The findings of this study present a clear and compelling case for systemic improvements in India's health insurance claim settlement processes. Through rigorous analysis of claim settlement timelines across different insurers and hospital workflows, several critical insights emerge that demand immediate attention from stakeholders across the healthcare system.

Superior performance of private insurers

The research unequivocally demonstrates that private insurance providers- particularly Bajaj Allianz, HDFC ERGO, and Kotak General Insurance – outperform their public sector counterparts by a significant margin, processing claims two to three times faster. These market leaders consistently settled claims within an impressive 0-15 day window, showcasing the transformative impact of their digital-first approaches. Their success stems from substantial investments in automated claim processing systems, seamless integration with the hospital management software, and lean operational models that minimize bureaucratic delays. This performance gap highlights how technological adoption directly correlates with processing efficiency in the insurance sector.

Chronic challenges in the Public sector Insurance

In stark contrast, public sector insurers like Oriental Insurance and New India Assurance exhibited concerning inefficiencies. Oriental Insurance's performance was particularly alarming , with 24 claims stuck in the 15-30 day processing window and an unacceptable 13 claims remaining completely unsettled. New India Assurance fared only marginally better , with 8 claims in the 30-45 day range and 1 claim exceeding 45-60 days. These delays stem from antiquated , paper-based processes, excessive ,manual verification requirements and systemic underinvestment in digital infrastructure. The consequences extend beyond simple operational efficiency -they directly impact hospital finances and ultimately patient care quality.

Hospital process efficiency: A mixed picture

The study revealed that while hospital billing departments operate with remarkable efficiency (processing 92% of bills within 0-2 hours with a median time of just 52 minutes), other critical processes face substantial bottlenecks. The Third Party Administrator (TPA) initial processing stage emerged as a significant pain point, with a median time of 3 hours and 38 minutes and only 6% of patients discharged within the optimal 2- hour window.

Strategic Recommendations for transformation

For hospitals:

1. **Digital transformation of TPA Operations:**
    - Implement AI-powered claim scrubbing tools to automatically verify documentation completeness and accuracy , potentially reducing processing time by 30-50%.
    - Deploy Optical Character Recognition (OCR) technology to eliminate manual data entry delays.
    - Integrate real-time tracking dashboards to monitor claim status across departments.

2.Discharge Process Optimization:

- Establish dedicated discharge coordination teams to streamline handoffs between clinical ,billing and administrative staff
- Implement parallel processing of pharmacy clearance and final billing to reduce sequential delays.
- Develop standardized discharge protocols with clear timelines for each step.

For Insurance Providers;

1. **Public sector modernization:**
    - Mandate adoption of blockchain-based smart contracts for transparent , tamper-proof claim tracking
    - Implement AI-driven adjudication systems to replace manual claim assessment processes.
    - Establish centralized digital claim portals with real-time status updates.
2. **Performance Accountability:**
    - Introduce strict Service Level Agreements (SLAs) with penalty clauses for delays

- Conduct regular process audits to identify and eliminate inefficiencies
- Develop insurer-specific performance scorecards shared with hospital partners.

For Regulatory Bodies (IRDIA);

1. **Policy interventions:**
    - Enforce mandatory digital claim submission standards across all insurers.
    - Establish clear timelines with escalating penalties for non-compliance
    - Create a standardized claim documentation framework to reduce processing variability.
2. **Industry benchmarking:**
    - Publish quarterly performance reports comparing insurer settlement times
    - Recognize and reward top-performing insurers to foster healthy competition.
    - Mandate transparency in claims status reporting to all stakeholders

The path forward

The transformation of India's health insurance claim ecosystem requires coordinated action from all stakeholders. Hospitals must prioritize digital transformation of their TPA operations, insurers need to modernize their claim assessment infrastructure and regulators should create an enabling environment through appropriate policy frameworks. By addressing these challenges systematically, we can create a system where:

- Hospitals enjoy improved cash flow and reduced administrative burdens.
- Insurers benefit from lower processing costs and enhanced customer satisfaction.
- Patients experience faster , more transparent claim settlements.
- The overall healthcare system becomes more efficient and patient-centric.

India's health insurance sector now demands transformative, sweeping reforms to modernize claim settlement processes for the digital age. We must implement comprehensive, system-wide changes that will revolutionize how claims are processed, creating a seamless, efficient ecosystem that serves hospitals,

insurers, and most importantly, patients with the speed and transparency they deserve. All of this is not only about minor adjustments but rather a complete reimagining of our approach to deliver healthcare financing that matches global standards of excellence.

The current system inefficiencies require bold policy interventions coupled with rapid technological adoption across the entire claims value chain. Only through such decisive, large-scale transformation can we build a health insurance framework that is truly fit for purpose in today's fast-paced healthcare environment, while laying the foundation for future innovations in patient-centered care financing.

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