Analysis of Turnaround Time (TAT) in Medical Insurance Claims: A Data-Driven Approach

Internship Report

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by

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Introduction

This report outlines the objectives of the internship, provides an organizational profile of Visit Health Private Limited, Noida, describes the services provided by the organization, and presents the timeline of activities undertaken during the tenure. Finally, the key learnings are presented across three broad areas: Research Process and Methodology, Health Insurance Operations and Policy Learnings, and Topic-Focused Learnings on Turnaround Time (TAT) in Medical Insurance Claims.

Objectives

The primary objective of this internship (dissertation) was to conduct an empirical, data-driven analysis of Turnaround Time (TAT) in medical insurance claims processed through the TPA integration ecosystem at Visit Health. This included exploring the operational factors, administrative bottlenecks, channel-level differences, and seasonal patterns that affect claim adjudication speed in the Indian private healthcare ecosystem.

From a healthcare analytics lens, the objective extended to understanding how operational variables such as claim type (Cashless vs. Reimbursement), hospital network status (Tier 1, Tier 2, Non-Network), clinical specialty, and documented delay reasons interact to influence claims processing efficiency and financial settlement ratios.

The goals included:

- Analyzing 1,000 adjudicated health insurance claims from January 2024 to December 2025 to document overall TAT patterns, claim volumes, and adjudication outcomes.
- Comparing the Turnaround Time of Cashless versus Reimbursement claims to quantify the operational advantage of electronic pre-authorization workflows.
- Assessing how the network status of admitting hospitals (Tier 1, Tier 2, Non-Network) affects claims processing speed and query generation rates.
- Identifying and ranking primary operational bottlenecks including Administrative Backlog, Medical Query Incomplete, Documentation Incomplete, and Hospital Delay.
- Evaluating TAT variation across eight clinical specialties including Cardiology, Oncology, General Medicine, Maternity, Gastroenterology, Ophthalmology, Orthopedics, and Pediatrics.
- Assessing the impact of seasonal disease outbreaks (monsoon surge in vector-borne and water-borne diseases) on TPA operational capacity and average TAT inflation.
- Formulating practical, evidence-based recommendations for TPAs, insurance providers, network hospitals, and healthcare analytics professionals to minimize claim processing delays.

Organizational Profile

Visit Health Private Limited is a health-tech company headquartered in Noida, India, with additional offices in Gurugram, Mumbai, and Bengaluru. Founded in 2016 by Vaibhav Singh, Anurag Prasad, Chetan Anand, and Shashvat Tripathi, Visit Health has grown into one of India's leading integrated health benefits platforms, now in its ninth year of operations. The company operates at the intersection of corporate wellness, outpatient healthcare, and

insurance integration, serving over 1,000 corporate clients across the country and managing health benefits for more than 50 lakh patients through its platform.

Visit Health functions as an IRDAI-integrated health benefits administrator and TPA-linked platform, connecting employers, employees, insurance providers, and healthcare service providers through a unified digital ecosystem. The company has raised USD 7.79 million in funding across six rounds from investors including MapmyIndia and Docprime, and reported annual revenues of approximately Rs. 225 crore as of March 2025. With a team of over 800 employees, Visit Health is trusted by leading organizations such as Pfizer, Deloitte, Volvo, Axis Bank, Johnson & Johnson, Dolby, Henkel, and Marsh, among others.

Vision

To build healthcare that puts employees first, solving real problems and becoming an essential part of organizational wellbeing — not just an add-on. Visit Health aims to be the all-in-one health and wellness solution for India's workforce, ensuring that when employees are cared for, they stay longer, perform better, and drive productivity.

Mission

Visit Health is dedicated to delivering holistic, accessible, and affordable healthcare to employees anywhere in the country by connecting organizations, insurance providers, and third-party administrators through an integrated digital platform. The company seeks to bridge the gap between wellness, primary care, outpatient benefits, and group health insurance by offering customized, modular solutions that go beyond traditional insurance coverage to ensure genuine employee wellbeing across physical, emotional, legal, and financial dimensions.

Services Provided by Organization

Visit Health operates as a 360-degree integrated health benefits platform, offering a broad range of services to corporate clients, insurers, and brokers. The key services provided by the organization include:

Wellness and Rewards Program

Visit Health provides daily health goal management and wellness tracking tools including step tracking, sleep tracking, calorie counting, and risk profiling. Employees earn FITCoins for healthy behaviors which can be redeemed at 400+ top brands including Zomato, Flipkart, and Amazon. Live and recorded health sessions, nutrition programs, and fitness access to unlimited gyms and fitness studios are bundled under this offering.

Telemedicine and Medical Advice

The platform offers unlimited teleconsultations with general physicians and specialists, enabling employees to consult doctors online or in-clinic at their convenience. Expert medical guidance and health consultations from qualified healthcare professionals are accessible via the Visit app, positioning the service as a first point of contact for primary care needs.

OPD (Outpatient Department) Plans

Visit Health provides customized OPD subscription and insurance plans that cover doctor visits, lab tests, medicines, vaccinations, dental care, and vision services. These plans give employees cashless access to a vast network of service providers across India, including 70,000+ doctors, 1,000+ diagnostic centers, 1,000+ pharmacy pin codes, and 5,000+ hospital partners.

Employee Assistance Program (EAP)

The EAP offering ensures a happy and productive workforce by providing mental health support, financial guidance, and legal advisory services through four pillars of employee wellbeing: Physical, Emotional, Legal, and Financial. The EAP is delivered digitally and provides employees with one-tap access to professional support.

Health Insurance Integration and Claims Management

Visit Health integrates with leading TPA platforms and insurance providers to offer group health insurance policy e-cards, digital claims submission, and real-time claims tracking to employees. The company's claims team has handled over 3 lakh claims in a single year, ensuring a seamless and data-smart claims experience. The platform bridges the gap between employers, insurers, and third-party administrators through its modular technology, offering insurance integration that can be customized for teams of any size and implemented in as little as 72 hours.

Lab Tests, Health Checkups, and Medicine Delivery

Employees can book comprehensive health checkups and prescribed diagnostic tests from NABL-accredited laboratories, with home sample collection or in-center services available. Medicine delivery to home addresses is also supported, covering prescribed medicines and pharmacy needs across 1,000+ pin codes.

The internship at Visit Health, Noida provided direct access to the organization's operational claims data environment, supervised by Preceptor Mr. Aman Aggarwal, enabling the data-driven dissertation research on Turnaround Time in medical insurance claims that forms the core of this study.

Activities Undertaken

- Drafted an initial research synopsis outlining the dissertation title, research objectives, methodology, research questions, variable definitions, inclusion and exclusion criteria, and chapter structure in coordination with Faculty Guide Dr. Ram Krishan Chahar and Preceptor Mr. Aman Aggarwal at Visit Health.
- Obtained and pre-processed a retrospective dataset of 1,000 adjudicated health insurance claims from the Visit Health TPA-integrated claims database, covering January 1, 2024 to December 31, 2025, ensuring all patient identifiers were fully anonymized prior to analysis.
- Conducted a structured review of literature on health insurance claims TAT, TPA operations in India, role of Electronic Data Interchange (EDI) and OCR automation in

claims adjudication, and seasonal patterns in claim volumes using IRDAI reports and peer-reviewed journals.

- Defined and mapped key operational variables for analysis including Claim Type (Cashless/Reimbursement), Hospital Network Status (Tier 1/Tier 2/Non-Network), Clinical Specialty, Adjudication Status, Delay Reason, Claimed Amount, Settled Amount, and Turnaround Time (TAT) in days.
- Performed descriptive statistical analysis to compute mean (7.67 days), median (7 days), minimum (0.2 days), and maximum (25 days) TAT values overall and across all operational subgroups — claim type, hospital category, specialty, delay reason, and month.
- Conducted comparative group analysis to quantify the TAT differential between Cashless (avg. 2.69 days) and Reimbursement (avg. 13.32 days) claims, and between Network hospitals (avg. ~4.3 days) and Non-Network hospitals (avg. 14.3 days).
- Analyzed the frequency and average TAT impact of eight documented delay and rejection reasons: Administrative Backlog, Medical Query, Hospital Delay, Documentation Incomplete, Non-Disclosure of Pre-existing Condition, Policy Exclusion, and Invalid Documentation.
- Performed specialty-wise TAT analysis across eight clinical categories — identifying Cardiology (8.39 days) as the longest and Pediatrics (7.16 days) as the fastest.
- Conducted seasonality analysis of monthly claim volume and average TAT, identifying monsoon months (July-September) as generating the highest administrative backlog and TAT inflation, consistent with surge in vector-borne and water-borne disease claims.
- Computed overall financial settlement ratios by policy type: Individual (84.38%), Family Floater (84.51%), Corporate (82.88%) from total claimed (Rs. 16.93 crore) and settled amounts (Rs. 14.20 crore) across the 1,000 claims.
- Drafted comprehensive dissertation chapters covering Introduction, Literature Review, Methodology, Results, Discussion, Recommendations, and Conclusion, incorporating all data findings from the Visit Health claims environment.

Summary of Key Findings from Dissertation

Parameter	Metric	Value
Overall Sample	Total Claims Analyzed	1,000
TAT - Overall	Mean / Median (Days)	7.67 / 7.0
TAT - Cashless	Average TAT (Days)	2.69
TAT - Reimbursement	Average TAT (Days)	13.32
TAT - Tier 1 Network	Average TAT (Days)	4.30
TAT - Tier 2 Network	Average TAT (Days)	4.28
TAT - Non-Network	Average TAT (Days)	14.30
Claims Approval Rate	Direct Approval (%)	71.3%
Claims Rejection Rate	Rejected (%)	9.6%
Overall Settlement Ratio	Amount Settled / Claimed	83.87%

Top Bottleneck	Administrative Backlog (Monsoon)	19.2% of claims
Highest TAT Specialty	Cardiology	8.39 Days
Lowest TAT Specialty	Pediatrics	7.16 Days

Key Learnings from Internship

A. Research Process and Methodology

- Learned to design and execute a retrospective descriptive-analytical study using secondary administrative data from the Visit Health claims database, bypassing recall biases inherent in survey-based research.
- Gained experience in operationalizing quantitative variables (TAT, claimed amount, settled amount, adjudication status) with precise measurement scales from transactional records.
- Developed skills in multi-dimensional comparative statistical analysis — computing group means, settlement ratios, frequency distributions, and seasonal trend analyses across 1,000 claims records.
- Understood the importance of inclusion and exclusion criteria in constructing a clean, relevant dataset — including exclusion of pending claims, outpatient claims, government hospital claims, and records with missing date fields.
- Enhanced ability to synthesize operational, financial, and clinical data within a single analytical framework to generate holistic, multi-dimensional management insights applicable to TPA operations.

B. Health Insurance Operations and Policy Learnings

- Discovered the critical structural difference between Cashless and Reimbursement claim workflows — pre-authorization enables real-time digital adjudication in cashless claims, whereas reimbursement involves manual document transmission, scanning, indexing, and multi-level clinical review.
- Learned how Visit Health's TPA integration model bridges the gap between employers, insurers, and providers — and how additional communication tiers, when not managed with standardized SOPs and SLAs, can generate query-related delays.
- Understood how hospital network status directly correlates with claims processing speed — network hospitals with dedicated TPA desks, standardized billing formats, and EDI integration achieve significantly faster adjudication cycles compared to non-network facilities.
- Identified that seasonal disease outbreaks (Dengue, Malaria, Gastroenteritis during monsoon) create predictable volume surges that overwhelm static TPA staffing models, resulting in Administrative Backlog as the single most common documented cause of delay.
- Recognized the regulatory role of IRDAI in setting TAT benchmarks and how integration with Ayushman Bharat Digital Mission (ABDM) can systematically reduce claim processing delays across Visit Health's insurer network.

C. Topic-Focused Learnings on TAT in Medical Insurance Claims

- Found that claim submission channel is the single strongest operational driver of TAT — cashless claims averaged 2.69 days versus 13.32 days for reimbursement, a nearly 5x differential attributable to Visit Health's digital pre-authorization workflows and electronic data interchange capabilities.
- Observed that Administrative Backlog (19.2% of claims, avg. TAT 8.55 days) is the most frequent bottleneck, predominantly arising during the monsoon surge — indicating a structural need for dynamic staffing models and automated triage systems.
- Recognized that Medical Query generation (6.8% of claims, avg. TAT 13.98 days) creates the highest per-claim delay, as each query triggers an iterative back-and-forth documentation cycle between underwriters, hospital billing desks, and patients.
- Understood that clinical complexity drives specialty-level TAT differences — Cardiology and Oncology claims involve multi-level clinical audits and implant cost verifications that inflate processing time, while Pediatrics and Ophthalmology benefit from standardized diagnostic protocols and package-based billing.
- Highlighted the potential for Visit Health's modular technology platform to further reduce TAT through OCR-based document parsing, rule-based auto-adjudication engines for standard procedures, and pre-submission standardized checklists at hospital TPA desks integrated within its ecosystem.