PATTERNS IN CLAIMS PROCESSING

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CHAPTER-1
INTRODUCTION

Background & Context

Health insurance is the fastest-growing segment in India's insurance industry, driven by rising medical costs and awareness.

Claim processing is the most critical operational function, directly impacting customer trust and satisfaction.

This study examines the operational and clinical patterns underlying these outcomes at Care Health Insurance.

The Indian health insurance market has seen >15% annual growth post-COVID.

Claim adjudication is governed by IRDAI, with TAT, documentation, and reason-coding mandates.

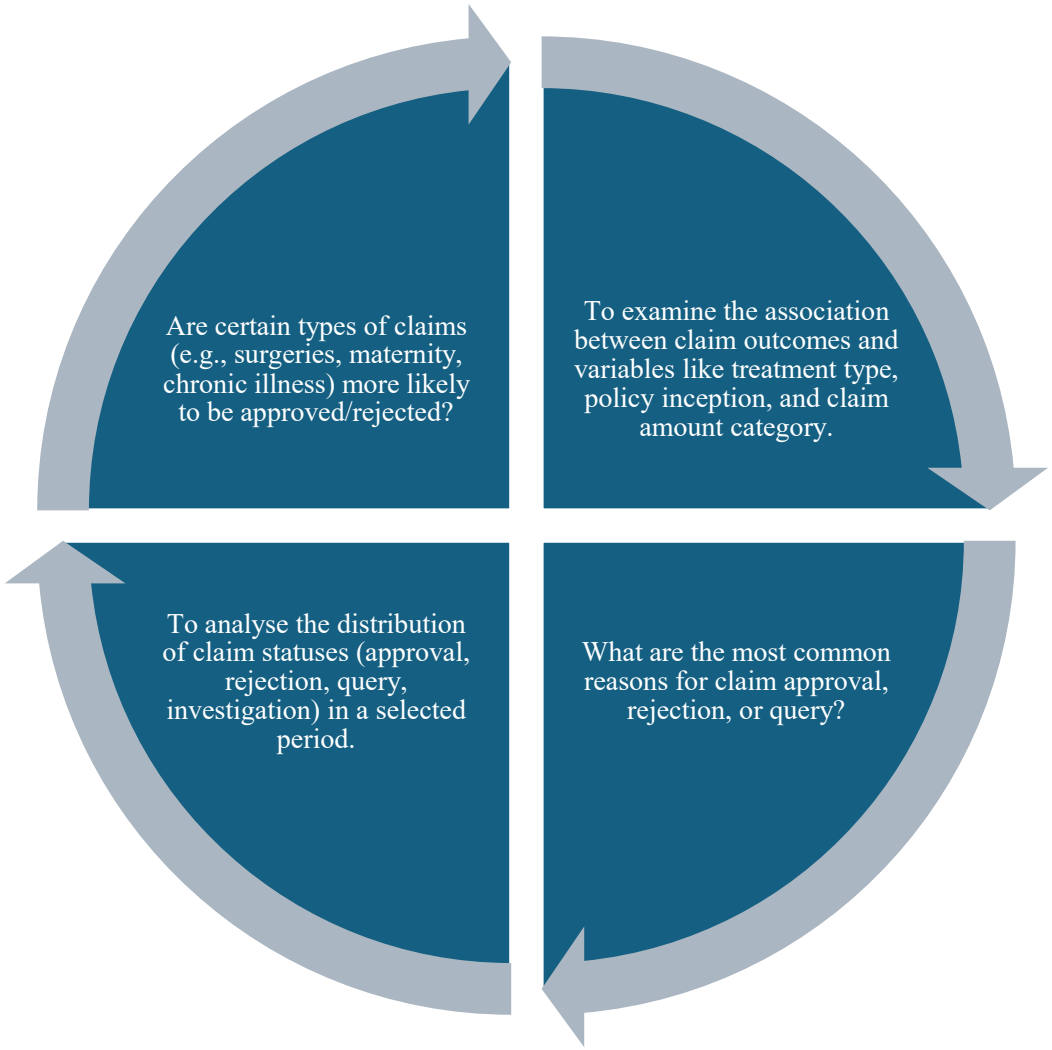
Lack of structured analysis on how policy tenure, treatment type, PED, and documentation influence decisions.

RESEARCH QUESTION

To identify trends in claim handling, especially how different variables influence claim status and resolution.

How do variables like policy inception, treatment type, and claim amount category influence these outcomes?

OBJECTIVES


Are certain types of claims (e.g., surgeries, maternity, chronic illness) more likely to be approved/rejected?
To examine the association between claim outcomes and variables like treatment type, policy inception, and claim amount category.
To analyse the distribution of claim statuses (approval, rejection, query, investigation) in a selected period.
What are the most common reasons for claim approval, rejection, or query?

CHAPTER -2
LITERATURE REVIEW

01

Vashisht (2023)

Highlighted that claims related to diagnostic-only hospitalizations are frequently denied but may be overturned by the Ombudsman when clinical justification is provided.

02

Asrori & Hikmah (2020)

Emphasized that incomplete documentation often leads to claim postponement or rejection in Indonesia, especially if not resolved within 30 days.

03

Saputra & Simanjuntak (2023)

Explained that non-disclosure of pre-existing diseases (PED) legally voids insurance contracts, reinforcing the insurer's right to reject such claims.

04

Lázaro-Muñoz et al. (2021)

Found that U.S. insurers base claim decisions on clinical evidence, cost-effectiveness, and documentation. Fraud risk and lack of justification often lead to denials.

05

Chatterjee & Saha (2021)

Transparency and timely communication during claims processing significantly improve customer satisfaction.

06

Singh & Sharma (2022

Observed that age, documentation quality, and clarity in communication directly affect claim outcomes and policyholder satisfaction.

07

Kaiser Family Foundation (2016)

Reported that, prior to the ACA, applicants with PEDs often faced rejections or premium hikes, showing global relevance of medical history in underwriting.

08

Das & Roy (2020)

Identified inefficiencies in non-cashless claims and recommended automation and real-time tracking to streamline claim workflows.

CHAPTER- 3
METHODOLOGY

STUDY DESIGN

Retrospective cross-sectional study using descriptive analytics and categorical slicing in Excel.

STUDY SETTING

Stand-alone health insurer: Care Health Insurance (Reimbursement Claims Department), Gurgaon, India.

SAMPLING METHOD

Purposive sampling of recent claims processed within a defined 3-month window (non-probabilistic).

TIME STEMP

Data collected from claims processed between March and May 2025.

SAMPLE SIZE

150 anonymized reimbursement claims across various diagnoses and treatments.

STUDY POPULATION

Policyholders who submitted reimbursement claims to Care Health Insurance during the study period.

DATA COLLECTION METHOD

Data was extracted from Care Health Insurance's internal claim processing system.

The dataset included 150 anonymized reimbursement claims processed between March and May 2025.

Personal identifiers were removed in compliance with confidentiality and ethical standards.

Each claim record included structured fields such as diagnosis, policy tenure, treatment type, claim amount, documentation status, and final claim outcome.

DATA ANALYSIS METHOD

Microsoft Excel and Power Query were used for data cleaning and transformation.

Descriptive statistics and frequency distributions were used to understand overall trends.

Variables were categorized into bands (e.g., policy tenure: <1 year, 1–3 years, >3 years; claim amount: <30k, 30k–1L, >1L).

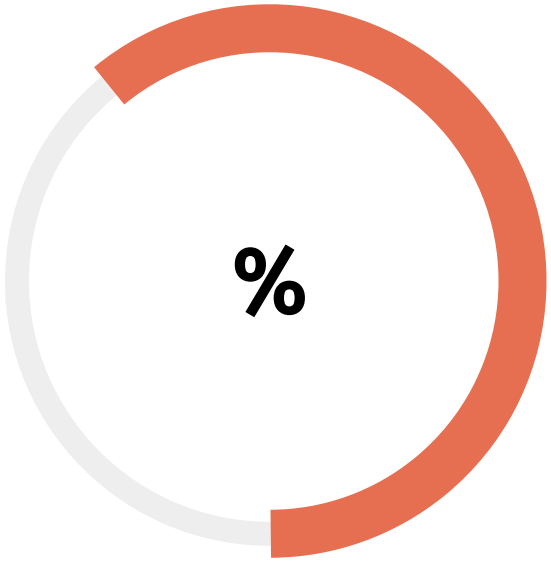
Pivot-table cross-tabulations were used to uncover variable relationships, and the results were visualized with charts, heat-maps, and box-plots to highlight key decision patterns.

ETHICAL CONSIDERATION

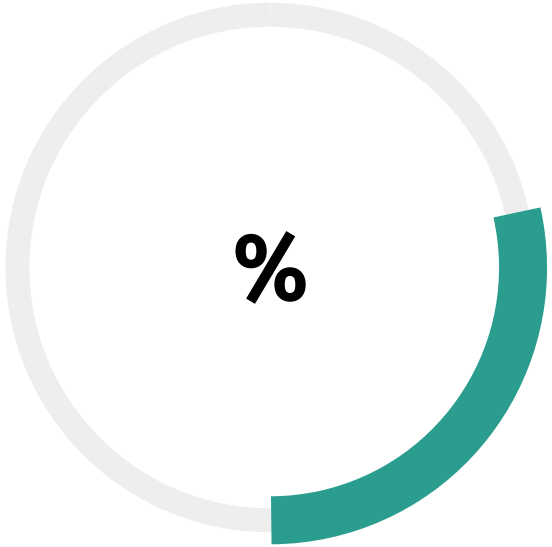
All data were de-identified before analysis, and no personal or sensitive identifiers were accessed.

The study involved no direct human interaction or intervention and did not require Institutional Review Board (IRB) clearance, as per local academic guidelines for secondary data analysis.

Care Health Insurance granted permission to use organizational data for academic research.



RESULTS & FINDINGS

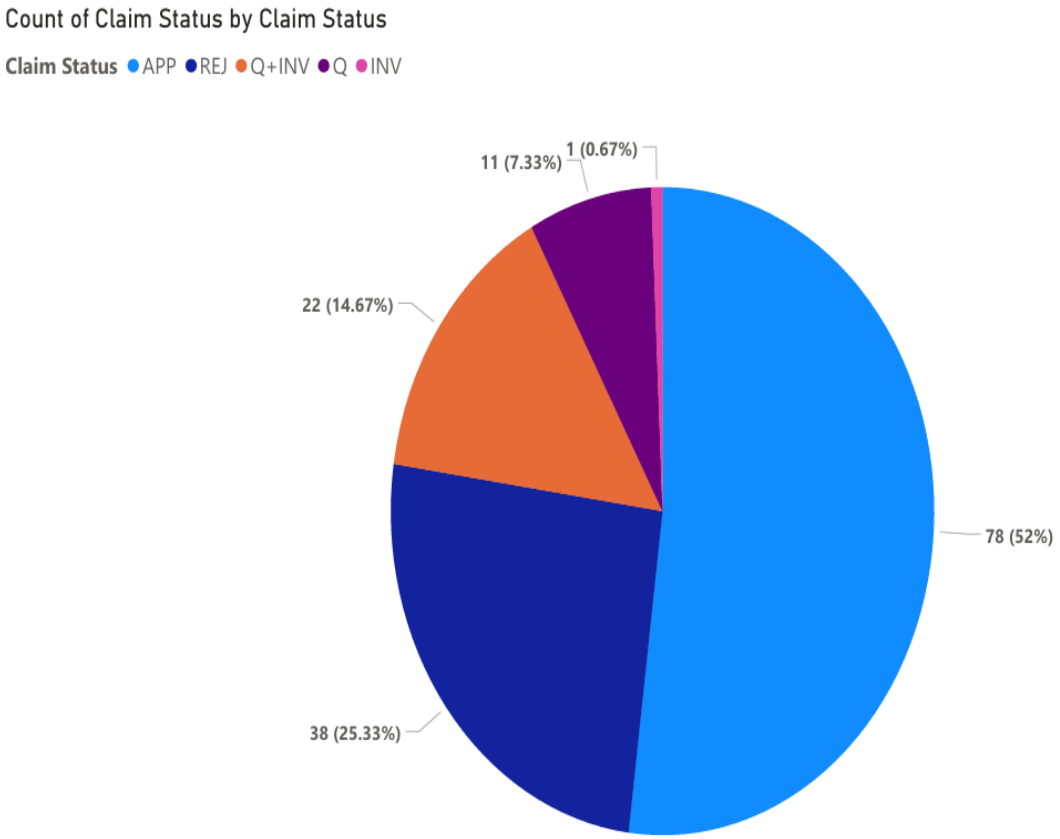


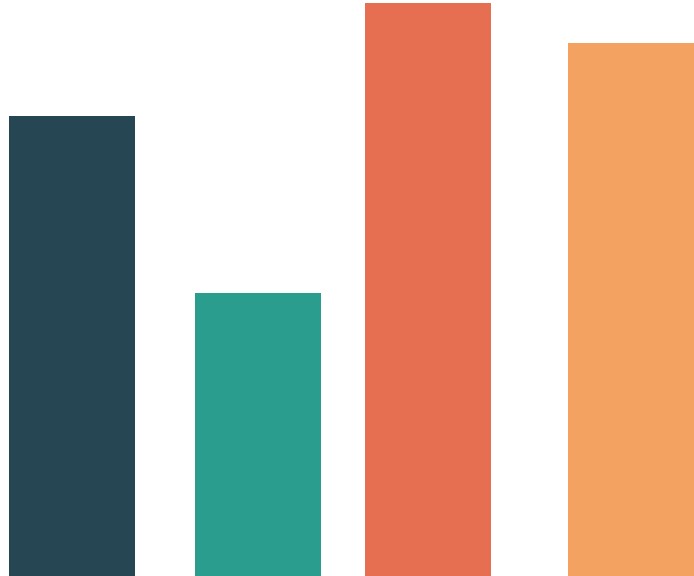
Overview

- Sample size
  - ❑ 150 reimbursement claims (Mar–May 2025)
- Claim status distribution
  - ❑ Approved: 52%
  - ❑ Rejected: 25%
  - ❑ Query/Investigation: 23%
- The majority of claimants were aged 21–60 years (71%)
- 58% of claims were from policies older than 3 years
- Most claims (68%) were mid-range (₹30k–1L)

Claim Status Distribution

Out of 150 data, the most common outcome was 'Approved' (52%), followed by 'Rejected' (25%), and 'Queried and Investigation' (15%). The remaining 8% can be seen in the chart.





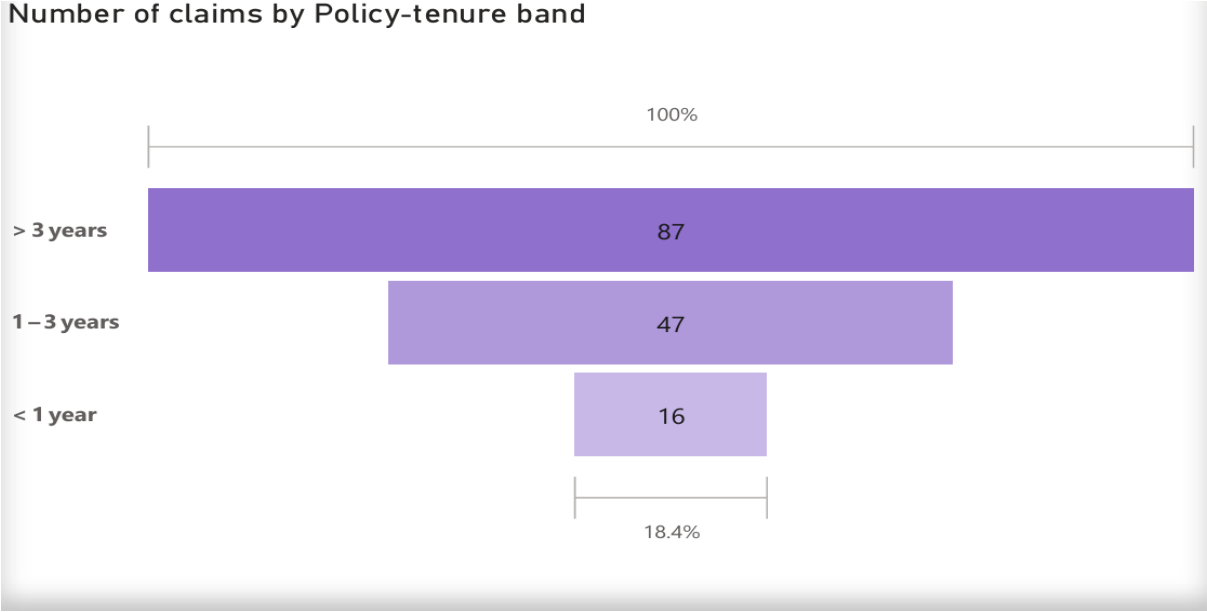
Age Group Distribution

Most claimants (41.3 %) were in the 21–40-year age group, followed by those aged 41–60 years (30.0 %). Only 12.7 % of claimants were below 21 years, while 16.0 % were aged 60 years and above.

Age band (yrs)	n	% of total
0 - 20	19	12.7 %
21 - 40	62	41.3 %
41 - 60	45	30.0 %
60 +	24	16.0 %

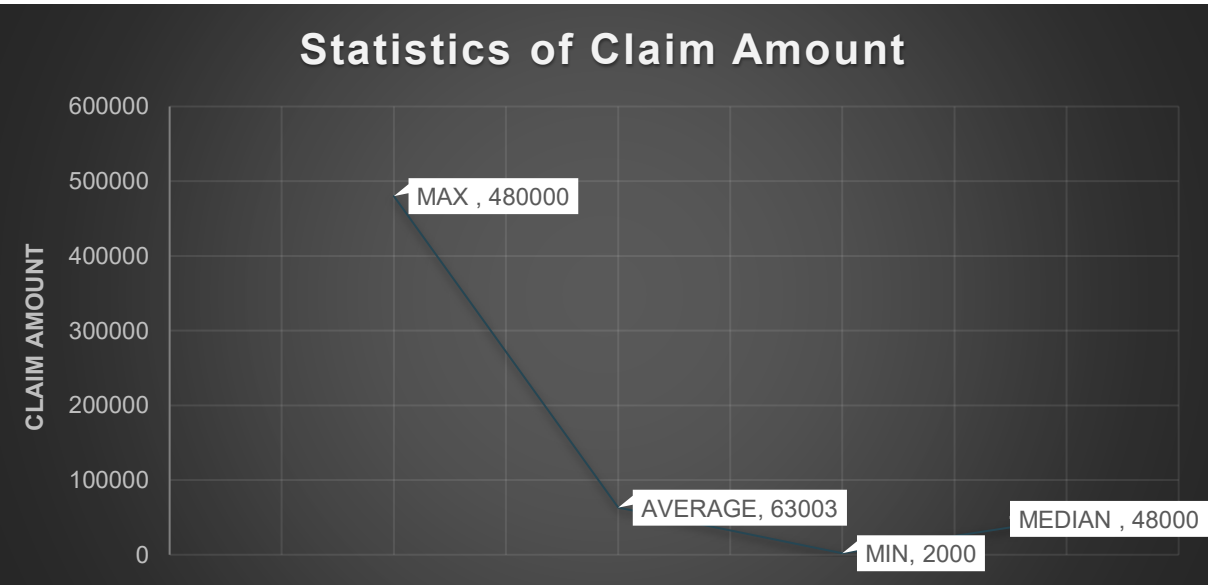
Policy-Tenure Distribution

More than half of all claims (58.0 %) were lodged under policies that were older than three years, while just under one-third (31.3 %) came from policies that were between one and three years old. Only 10.7 % of claims were associated with policies that had been in force for less than one year.



Claim Amount Distribution

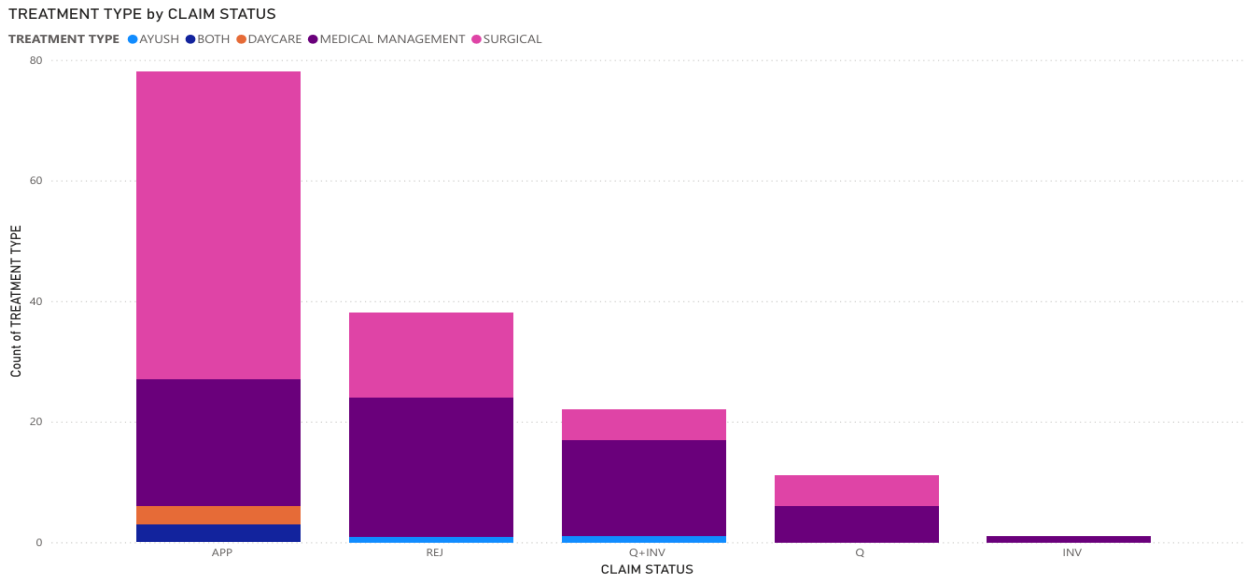
Claim amounts in the dataset ranged from ₹ 2,000 to ₹ 480,000, with a mean of ₹ 63,003 and a median of ₹ 48,000. The relatively high spread in values (₹ 478,000) reflects variation in treatment costs depending on diagnosis, treatment type, and policy tenure. The median being lower than the mean suggests the distribution is slightly right-skewed.



Treatment Type Distribution by Claim Status

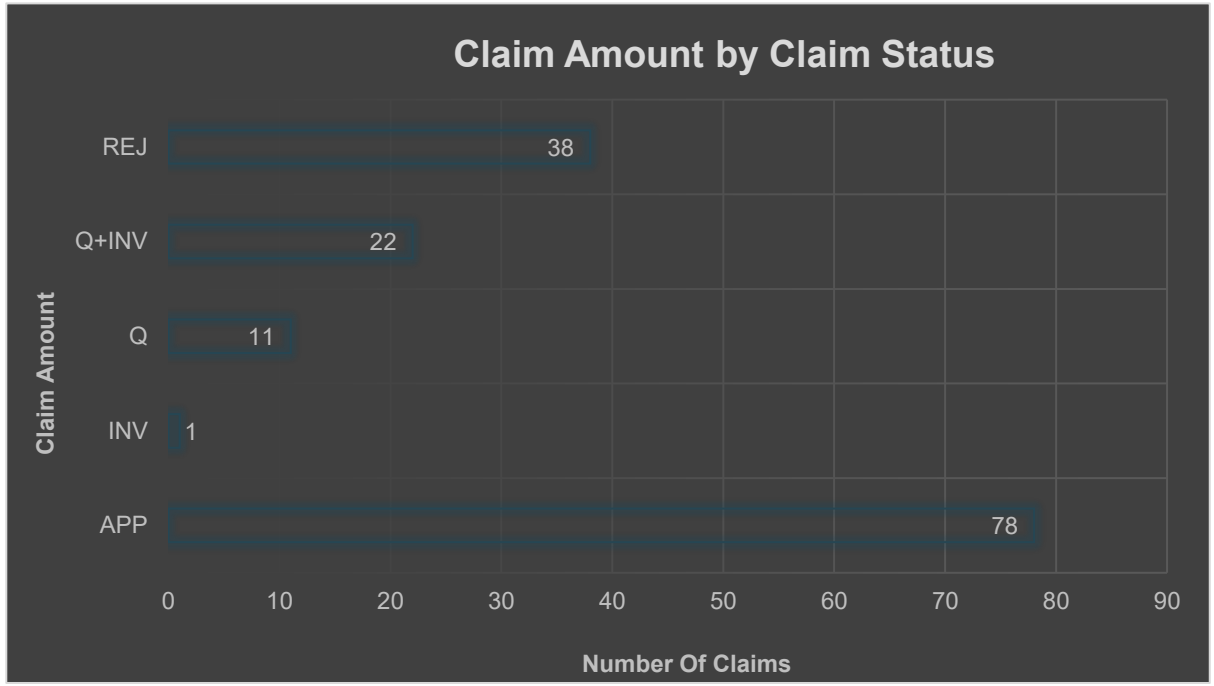
This distribution shows

- Approval Claims
  - The highest approval was seen in Surgical (51) and Medical Management (21) cases.
  - Daycare and both (MM &Surgical) had 3 approvals.
  - No AYUSH claims were approved.
- Rejected Claims
  - A total of 38 claims were rejected: 23 under Medical Management, 14 under Surgical, and 1 AYUSH case
- Query Claims
  - 11 cases queried: 6 from Medical Management and 5 from Surgical.
- Query + Investigation Claims
  - 22 claims underwent both query and investigation: 16 from Medical Management, 5 from Surgical, and 1 AYUSH.
- Investigation Claims
  - A single Medical Management claim was investigated without a query.



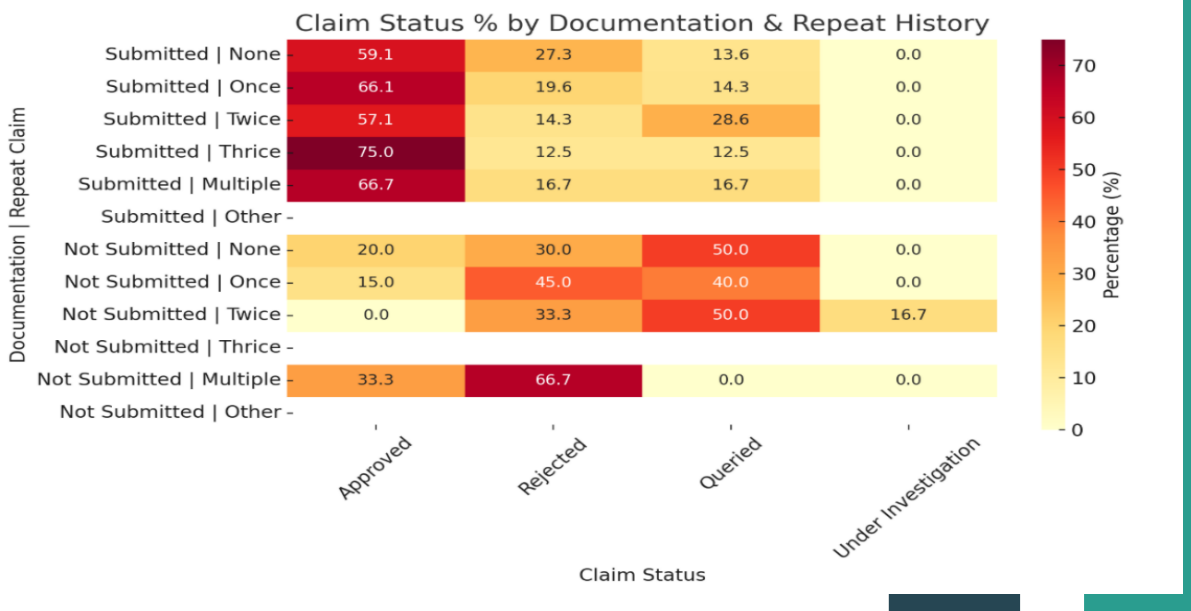
Claim Amount Distribution by Claim Status

- Two-thirds of every claim (102 of 150, 68 %) sit in the 30k - 1 lakh band.
- Just one-fifth (31 claims, 20.7 %) are under 30k, and only about one in nine (17 claims, 11.3 %) exceed 1 lakh.

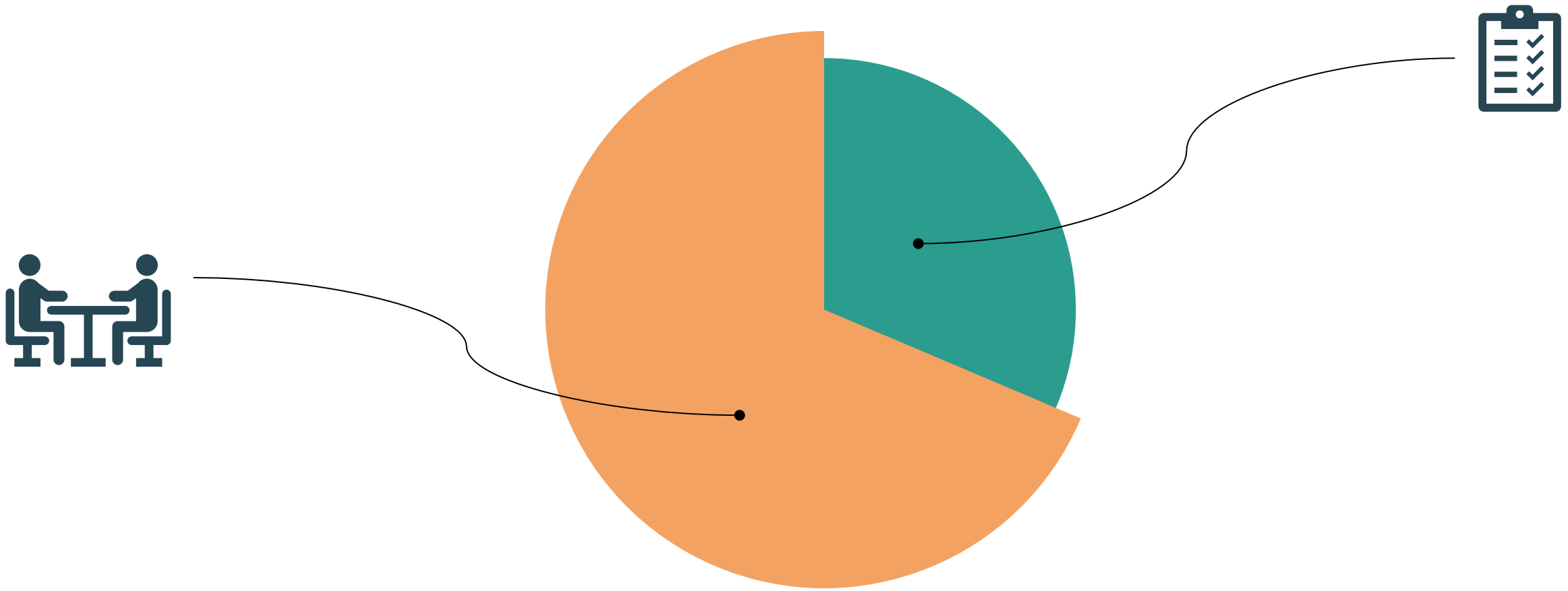


Proper Documentation vs. Repeated Claims by Claim Status

The heatmap clearly shows that claims with **submitted documents** and **no repeat history** have the highest approval rates (59–75%). However, as documentation quality drops or the number of previous claims increases, rejection and query rates climb sharply. For instance, in cases with 'Not Submitted' documentation and multiple prior claims, over 66% were rejected. This validates the hypothesis that **documentation completeness and repeated claims act as red flags in claim processing.**



CHAPTER-5



DISCUSSION

Key Patterns Observed

Documentation quality emerged as the most decisive factor in claim approval.

Approval rates were strongly influenced by policy tenure — newer policies (<1 year) showed higher rejection rates.

Medical Management claims were disproportionately rejected or queried compared to Surgical or Daycare claims.

Repeat claim history acted as a risk amplifier, especially when combined with documentation issues.

IMPLICATION OF THE STUDY

- Documentation completeness can be treated as a process KPI - early automation or reminders can reduce rejection rates.
- Policyholders with new policies need clearer communication on waiting periods and documentation norms.
- Treatment-type bias indicates a need for standard review criteria across medical vs. surgical cases.
- Repeated claimants may be screened using a flag system for prior denial reasons or incomplete submissions.

STRENGTHS AND LIMITATIONS OF THE STUDY

Real-world operational dataset from an active insurer

Integration of claim outcome, policy tenure, and documentation in a single model

Sample size limited to 150 claims

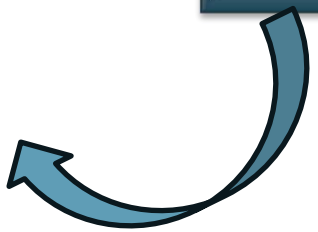
Results may not generalize across all insurers or policy types

Only reimbursement claims were studied, not cashless claims

CHAPTER-6
CONCLUSION

FINDINGS

- Strong documentation increases approval rates from 20% to 63%.
- Newer policies (<12 months) face higher scrutiny; approvals improve with tenure.
- Surgical & Daycare treatments receive higher approval than Medical Management.
- Repeat claims, especially with poor documentation, trigger >80% rejection/query.
- Claim processing is driven by operational risk management, not just medical judgment.



💡 Insight
Mid-value claims (30k - 1L) pose a greater operational burden than high-value claims.

IMPLICATIONS & RECOMMENDATIONS

Operational Improvements for Insurer

- Automate document verification with OCR at the front end.
- Introduce a “Green Channel” for old, clean policies with full documentation.
- Send real-time waiting period alerts to new policyholders.
- Use diagnosis-specific templates to reduce Medical Management bias.

Strategic Recommendations

- Standardize rejection reasons via IRDAI-approved deficiency codes.
- Develop a national fraud registry (privacy-preserved).
- Promote transparency on ailment-specific waiting periods.

Thank You!