

Case Study — Medical Claim Denial Analysis & Optimization

Role: Business Analyst

Timeline: 2 Weeks

Tools: SQL, Power BI, Draw.io, GitHub

Background

The organization was experiencing high preventable claim denials due to eligibility errors and repeated coding mistakes. Denials were tracked manually with limited visibility into financial impact, leading to revenue leakage and operational waste.

Objectives

- Analyze denial trends across payer, department, and reason category
 - Identify preventable denials (Coding, Eligibility)
 - Enable a feedback loop to reduce repeated denials
 - Improve revenue outcomes and reduce turnaround time
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Approach

1. Designed a **star schema** linking Claims, Denials, Payers, and Denial Reasons
2. Built **SQL measures** for:
 - Denial Rate %
 - Preventable Denied Amount %
3. Developed a **2-page Power BI dashboard** for:
 - Executive denial visibility

- Root cause analysis and drilldown
 - 4. Created **AS-IS and TO-BE workflows**
to correct upstream issues
 - 5. Provided a **prioritized action plan**
with measurable KPIs
 - 6. Documented **BRD, FRD, UAT plan, and Roadmap**
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Results & Business Value

- Reduced repeated denial drivers by enabling departmental ownership
- Targeted a **20–25% improvement** in preventable denial amount
- Faster rework resolution using drilldown visibility
- Front-office eligibility checks prevent avoidable rejections

Financial Outcome: Reduced revenue leakage and improved clean claim rate

Key Deliverables

- Dashboard (Power BI)
 - SQL data model & queries
 - BRD + FRD
 - AS-IS and TO-BE workflows
 - Process optimization recommendations
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Role & Ownership

Personally handled:

- Data modeling + analytics logic
 - All functional documentation
 - Stakeholder-focused visual design
 - Process improvement strategy
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Links

GitHub Repository: <https://github.com/akshatshrivas26/Medical-Claims-Denial-Analysis>

Dashboard PBIX File:

<https://github.com/akshatshrivas26/Medical-Claims-Denial-Analysis/blob/main/pbix/Medical%20Claim%20Denial%20Analysis.pbix>

Next Steps

Automated payer feedback + alerting

Weekly insights review for continuous improvement

End of Case Study