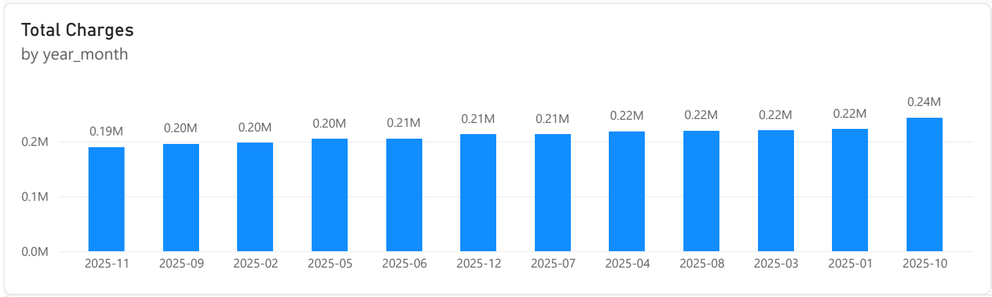
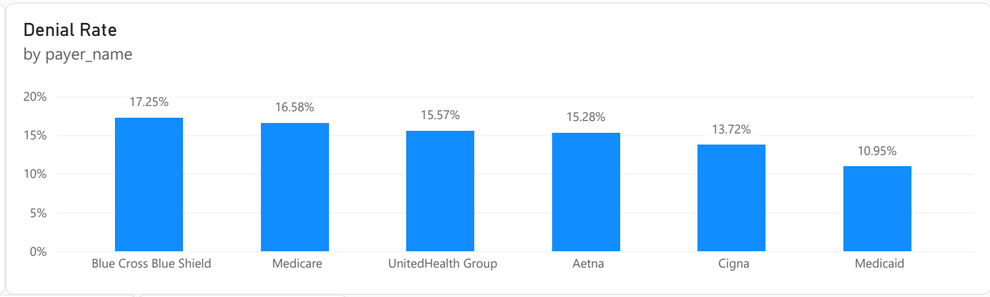
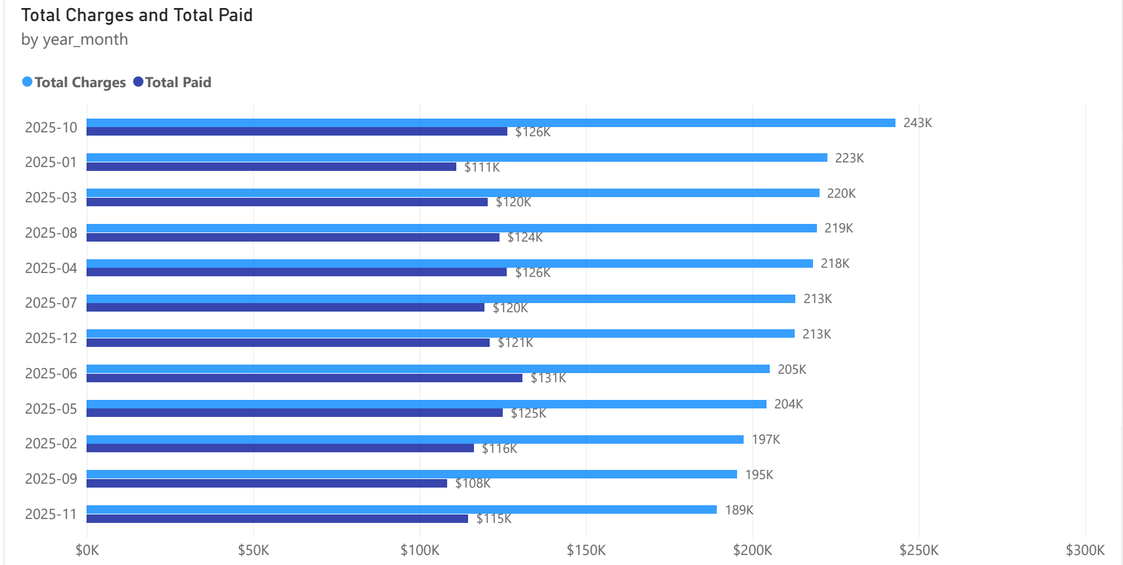
Healthcare Revenue Cycle & Data Quality Executive Summary







Denial Rate
15.37%

Clean Claim Rate
96.87%

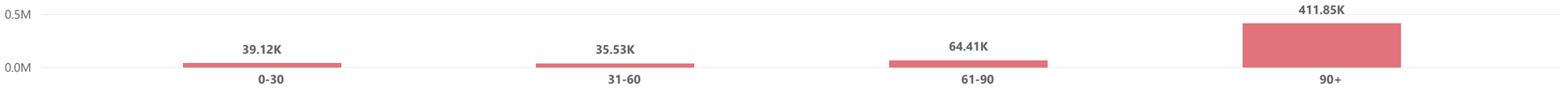
Avg Days to Pay
37.24

Total Paid
$1.44M



Quick measure

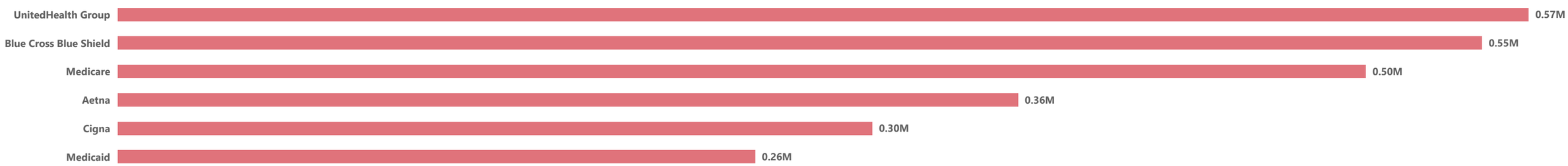
Pending AR
by Age Bucket



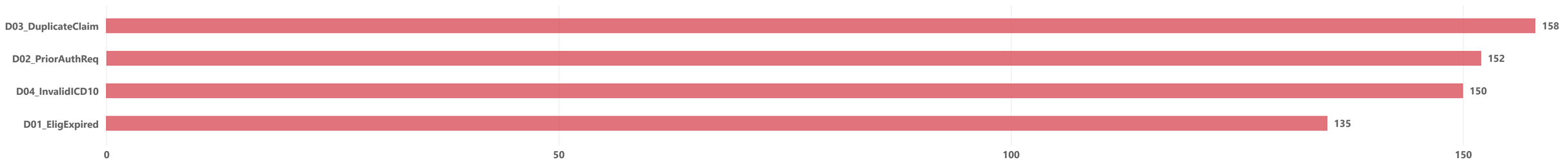
Avg Days to Pay
37.24

Denial Rate
15.37%

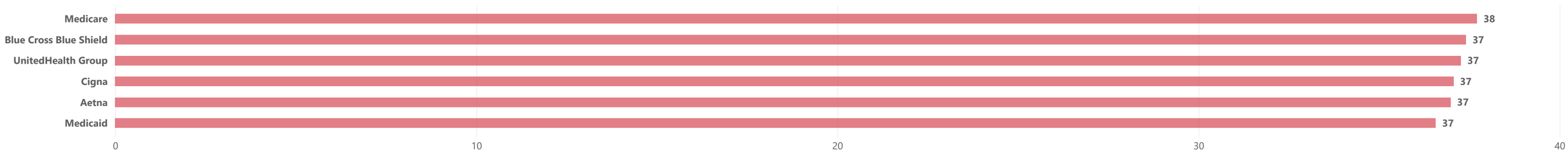
Total Charges
by payer_name



Claims
by denial_code



Avg Days to Pay
by payer_name



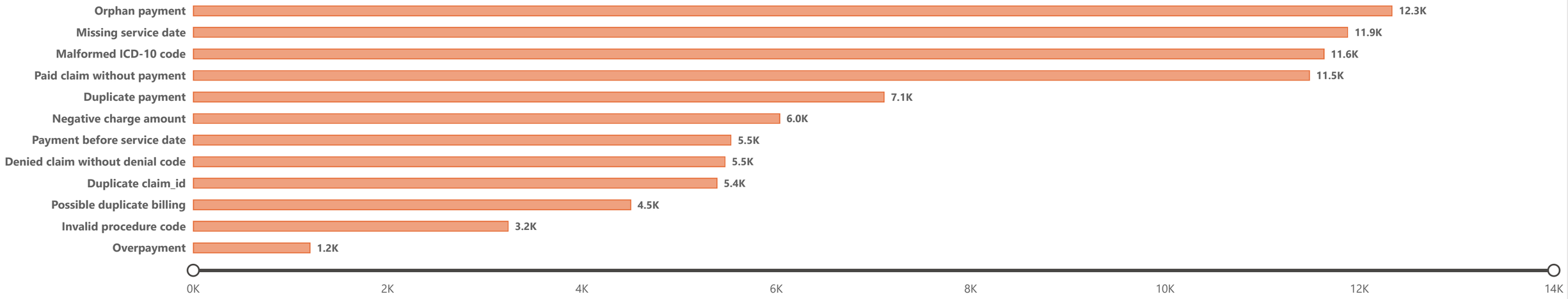
Quick measure

Clean Claim Rate
96.87%

DQ Findings
182

Quick measure

Dollars at Risk
by rule_name



Findings

rule_name	severity	failures	dollars_at_risk
Denied claim without denial code	Minor	14	5,475.14
Duplicate claim_id	Critical	12	5,391.82
Duplicate payment	Critical	14	7,111.24
Invalid procedure code	Major	19	3,243.58
Malformed ICD-10 code	Major	19	11,636.88
Missing service date	Major	19	11,881.78
Negative charge amount	Major	17	6,036.16
Orphan payment	Critical	14	12,337.80
Overpayment	Critical	14	1,203.74
Paid claim without payment	Critical	14	11,488.20
Payment before service date	Major	14	5,535.90
Possible duplicate billing	Critical	12	4,503.91
Total			

HEALTHCARE REVENUE CYCLE & DATA QUALITY DASHBOARD NOTES

1. DATASET & SYNTHETIC DESIGN

• Source: Synthetic claims and payments data simulating revenue cycle workflows.
• Purpose: Modeled to capture end-to-end revenue cycle management (RCM) workflows and data governance logic.

2. DATA QUALITY RULES (12 CORE RULES)

1. Orphan Payment: Payments recorded without a corresponding master claim record.
2. Missing Service Date: Claim entries missing mandatory clinical service dates.
3. Malformed ICD-10 Code: Diagnosis codes failing regex format checks.
4. Paid Claim Without Payment: Claims marked "Paid" but lacking payment ledger records.
5. Duplicate Payment: Multiple payment transactions recorded for the same claim, amount, and payment date.
6. Negative Charge Amount: Invalid billing entries where charge amounts are less than zero.
7. Payment Before Service Date: Payment transaction dates preceding clinical service dates.
8. Denied Claim Without Denial Code: Denied status missing explicit reason/denial mapping.
9. Duplicate Claim ID: Repeated primary claim keys present in the fact table.
10. Possible Duplicate Billing: Same patient, provider, service date, procedure, and charge amount under a different claim ID.
11. Invalid Procedure CPT Code: Procedure codes failing validation against a 14-code reference table.
12. Overpayment: Individual payment amount exceeding the claim's total charge amount.

3. DATA PIPELINE ARCHITECTURE

• Raw Tier: Ingestion of transaction logs from Azure SQL source tables.
• Staging Tier: Data cleaning, type standardization, and key validation.
• DQ Rules Engine: Logic execution evaluating transactions against the 12 DQ rules to populate dq_findings and dq_rule_summary.
• Analytics Tier: Kimball Star Schema with active/inactive date dimensions enabling RCM and Data Quality analytical reporting in Power BI.

Quick measure