This project focuses on Revenue Cycle Management (RCM) Analysis using Power BI, aimed at optimizing financial performance in healthcare billing. The dashboards provide a comprehensive view of revenue trends, provider performance, missing payments, and payment delays, enabling better decision-making for financial and operational improvements.

The analysis is structured into four dashboards:

Financials Dashboard – Tracks key financial metrics such as total payments, charges, and payer distributions.

Operational Dashboard – Monitors procedure volumes, modality codes, and revenue trends across service locations.

Provider Dashboard – Analyzes provider contributions to total payments and trends in referring provider performance.

Missing Payments Dashboard – Identifies missing payments and analyzes payment delays to improve revenue collection efficiency.

**Methodologies:**

**Step 1: Data Cleaning (Pre-processing)**

Cleaned billing dataset with the following relevant columns:

Accession #

Date of Service

Date of Initial Bill

Date of Entry (used as proxy for payment posting date)

Total Payments Amount

Primary Payer Name, Referring Provider Name

Modality Code, Procedure Code.

The dataset was cleaned using Power Query Editor, ensuring accuracy by removing duplicates, correcting data types, and handling missing values.

**Step 2: Derived Metrics Using DAX**

1.Avg Payment Per Procedure =

DIVIDE(SUM('billing data'[Total Payments Amount]), SUM('billing data'[Times Performed (TPF) (Total Units)]))

2.Payment % by Payer =

DIVIDE(

    SUM('billing data'[Total Payments Amount]),

    CALCULATE(SUM('billing data'[Total Payments Amount]), ALL('billing data'))

)

3.Total Adj & Contractual =

SUM('billing data'[Total Adjustments Amount]) + SUM('billing data'[Total Contractual Adjustment Amount])

4.Is Payment Missing =

IF(

    'billing data'[Total Payments Amount] = 0

    && 'billing data'[Charge Line Item Amount] > 0,

    "Yes",

    "No"

)

**Step: 4 Visualization**

**1. Financial KPIs (Card)**

Avg Payment Per Procedure: Displays the average payment received per procedure performed.

Total Adjustments & Contractual Allowances: Indicates any adjustments or contractual write-offs

Total Charges: The total amount billed before adjustments

Sum of Total Patient Payments: The sum of payments made directly by patients

**2. Month Selection (Slicer)**

A slicer allows users to filter financial data based on the selected month (e.g., August is currently selected).

**3. Payment % by Payer (Pie Chart)**

This chart displays the distribution of payments received by various payers.

Each segment represents a different primary payer.

**4. Sum of Total Payments by Location of Service (Donut Chart)**

Breaks down total payments based on different locations of service.

Shows percentages for each location (e.g., 67.71% for one location and 32.29% for another).

**5. Sum of Total Payments by Date of Service (Line Chart)**

This visualization shows the daily total payment trends.

The number "50.00" appears to indicate a specific value for a date.

Usage Instructions

**Filtering by Month**: Use the month slicer to analyze financial trends for a specific month.

**Analyzing Payment Distributions:**

Use the Payer Pie Chart to see which insurance companies contribute the most to payments.

Use the Service Location Donut Chart to analyze the revenue contribution from different locations.

**Tracking Daily Payments:** Observe trends in the Date of Service visualization to identify peak revenue Month.

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**6 Sum of Times Performed (TPF) by Procedure Description (Bar Chart)**

Displays the number of times each procedure was performed.

Example procedures:

**2019-NCOV CORONAVIRUS**: 5.6K times

**PROSTATE CANCER SCREENING**: 1K times

**7.Modality Code -Procedure Category (Card Visualization)**

It is classified into Two:

1.Apath

2.12

**8 Sum of Total Payments Amount by Location of Service Name (Bar Chart)**

Compares total payments across different service locations.

Example data:

Location of Service Name A: 70K

Location of Service Name B: 26K

**9. Monthly Revenue Summary Table (Bottom - Table Visualization)**

Displays charge line-item amounts and total payments per month.

Example data for 2024:

January: $12,917.20 collected on $26,474 charged.

March: $9,083.75 collected on $24,096 charged.

December: $7,315.93 collected on $34,607 charged.

Grand Total:

Charge Line Item Amount: 307,106

Total Payments Amount: 95,921.43

Usage:

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**10.Sum of Total Payments Amount by Referring Provider (Donut Chart t - Bar Chart)**

Visualizes the contribution of different referring providers to total payments.

**Top Provider**: Referring Provider Name 64 (10.5K in payments).

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**11.Primary Payer Name (Top Right - Slicer)**

Allows selection of different payers to filter payment data.

Example payers: Primary Payer Name 1, 10, 11, 12, 104.

**12.Missing Payments by Provider (Table Visualization)**

Displays the count of missing payments for each provider.

Example data:

Provider 9: 284 missing payment

Provider 1: 1 missing payment.

Provider 10: 1 missing payments

Total Missing Payments: 286

**13.Payment Delay Analysis (Semi-Circular Gauge Chart)**

Visualizes the count of delayed payments.

Example data: 286 delayed payments (out of 572).

The chart provides an easy way to gauge the extent of payment delays.

**14. Payment Delay Trends by Month (Slicer)**

Allows filtering of data by **Month**.

Users can analyze payment delays per month.

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**Step:5 Outcome & Business Impact:**

These Power BI dashboards provide valuable insights into healthcare billing and revenue trends.

By leveraging these visualizations, users can:

Optimize revenue collection by identifying missing and delayed payments.

Enhance financial performance by monitoring key financial KPIs.

Improve operational efficiency by analyzing high-volume procedures.

Strengthening provider relationships through payment trend analysis