

Doctor productivity using RVU Project

Dataset Overview:

The dataset consists of two integrated sheets:

1. Data Sheet

This is the primary transactional table, where each row represents a test/service performed.

- **Key Columns:**

TEST_ID: Unique ID for each test

AUTHORIZED: Date the test was authorized

DOCTOR_NAME: Name of the doctor who ordered or performed the test

MODALITY_NAME: Type of imaging or diagnostic modality (e.g., MRI, CT)

SERVICE_NAME: Specific test or procedure name

LOCATION: Where the test was performed

SERVICE_STATUS: Status (e.g., Completed, Pending)

PATIENT_ID: Unique patient identifier

TEST_NAME: Common test name

SERVICE_ID: Key used to map RVU from the RVU table

2. RVU Sheet

This sheet provides RVU (Relative Value Unit) scores assigned to each test/service, enabling productivity and workload analysis.

- **Key Columns:**

SERVICE_ID: Matches the ID from the Data sheet

SERVICE_NAME: Name of the procedure or test

MODALITY_NAME: Test type

RVU_SCORE: Numeric value that indicates the complexity and workload of the service

In Power BI, map the Data and RVU sheets using the SERVICE_ID column to connect test details with RVU scores. Ensure that Service Name and Modality in both sheets are aligned through this relationship. This one-to-many mapping lets you bring RVU values into the Data sheet context. Once mapped, you can analyse RVU by doctor, modality, or service using visuals and slicers.

Column Name: **Service-Modality**(Data & Sheet)

This helps us to:

- Directly link RVU to each doctor via the DOCTOR_NAME field.
- Sum RVU scores for each doctor to measure total productivity.
- A higher total RVU means the doctor handled more or more complex services — indicating higher productivity.

So, the higher the RVU, the more productive the doctor is in terms of workload and complexity.

Before building the Power BI dashboard, essential data transformation steps were performed in Power Query to ensure clean and usable data. Common steps included:

- Removing nulls and duplicates from key columns (like Doctor ID, Modality, Test Name).
- Standardizing column formats (e.g., ensuring RVU Score is numeric, and dates are in proper format).
- Splitting full datetime values to extract only the date from the "Authorized Date" and "Reported Date" columns—this allowed accurate daily/monthly analysis.
- Creating new calculated columns, such as Day of Week and Month, to support time-based insights.
- Establishing relationships between the Data and RVU sheets using shared fields like Service Modality.

A Date Table was created and integrated into the model to enable accurate time-based analysis. It includes columns like Date, Month, Year, and Day of Week, supporting consistent filtering and grouping across visuals. This table was linked to the Authorized Date and used in slicers and trend charts. It also helped in removing time components and ensuring all date fields aligned for reporting.

The dashboard is organized into four focused pages, each serving a distinct analytical purpose:

- **Page 1: RVU PRODUCTIVITY OVERVIEW**

Presents a high-level summary of overall test volume, monthly RVU trends, average RVU per test, and top-performing doctors. This page provides an at-a-glance view of service efficiency and doctor contribution.

- **Page 2: Doctor Productivity**

Drills into individual doctor performance by displaying total and average RVU per doctor, number of tests performed, and contribution by modality. Helps identify high-efficiency doctors and workload distribution.

- **Page 3: Modality Level Insights**

Focuses on how different modalities contribute to overall workload. It highlights test volume and RVU by modality, service status distribution, and common test types under each modality.

- **Page 4: Time-Based Trends**

Tracks RVU and test patterns over time. This page includes weekly/monthly trends, RVU variations by weekday, and service distribution across time slices to uncover peak periods.

Across the pages Slicers

Across all pages, interactive slicers for Location, Modality, Doctor Name, Test Name, and Authorized Date allow users to filter and explore the data from multiple angles, enabling custom views for operational or strategic analysis.

Navigation buttons have been added to the dashboard to enhance user experience. These buttons allow users to move forward and backward between pages easily. Each page includes a "Next" and "Previous" button for smooth navigation. This ensures quick access to insights without using the default page tabs.

Page 1: RVU PRODUCTIVITY OVERVIEW

This page provides a high-level summary of overall service productivity using RVU scores. It allows users to explore test volume, service complexity, and top-performing doctors across various dimensions using interactive filters.

Slicers Applied:

- Location
- Modality
- Doctor ID
- Test Name
- Authorized Date

These slicers enable dynamic filtering of all visuals to compare productivity across locations, test types, and timeframes.

Chart 1: Line Chart — Total RVU Over Time

X-Axis: Authorized Date (by Month), Y-Axis: Total RVU Score

DAX Measure:

Total RVU Score = SUM(RVU[RVU_SCORE])

Insight: Shows how total clinical workload fluctuates month-to-month, helping identify high-demand periods.

Chart 2: Clustered Bar Chart — Avg RVU per Case by Modality

X-Axis: Modality Name, Y-Axis: Average RVU per Case

DAX Measure:

Avg RVU per Case = AVERAGE(RVU[RVU_SCORE])

Insight: Highlights which modalities handle more complex or higher-effort cases based on average RVU.

Card 1: Total Test Volume

DAX Measure:

Total Tests = COUNT(Data[TEST_ID])

Insight: Reflects the total number of tests performed within the selected filters.

Card 2: Average RVU per Case

DAX Measure:

Average RVU per Case = AVERAGE(RVU[RVU_SCORE])

Insight: Indicates overall test complexity, useful for comparing workload intensity.

Table: Top 3 Performing Doctors

Columns: Doctor Name, Avg RVU

Sorted By: Total RVU (Descending)

Insight: Identifies the doctors contributing the highest value and workload based on RVU performance.

Page 2: DOCTOR PRODUCTIVITY

This page is focused on analysing individual doctor performance by comparing test volume, average RVU, and overall contribution. It helps to evaluate and benchmark doctor workload and efficiency.

Slicers Applied:

- Location
- Doctor ID
- Test Name
- Patient Type
- Authorized Date

These filters allow users to analyse doctor productivity across different patient groups, services, and time periods.

Chart 1: Line Chart — Total RVU per Doctor

X-Axis: Doctor name , Y-Axis: Total RVU Score

DAX Measure:

Total RVU Score = SUM(RVU[RVU_SCORE])

Insight: Compares overall workload handled by each doctor to identify high-volume performers.

Chart 2: Clustered Bar Chart — Avg RVU per Test per Doctor

X-Axis: Doctor Name, Y-Axis: Average RVU per Test

DAX Measure:

Avg RVU per Test = AVERAGE(RVU[RVU_SCORE])

Insight: Reveals which doctors perform more complex or high-value services on average.

Card 1: Total Tests Conducted

DAX Measure:

Total Tests = COUNT(Data[TEST_ID])

Insight: Indicates the overall test workload assigned to the doctors.

Card 2: Total RVU

DAX Measure:

Total RVU Score = SUM(RVU[RVU_SCORE])

Insight: Reflects the cumulative clinical effort by all doctors within the selected filters.

Table: Doctor-Wise Summary

Columns: Doctor ID, Avg RVU per Case, Total RVU

DAX Measure:

Avg RVU per Case = AVERAGE(RVU[RVU_SCORE])

Total RVU Score = SUM(RVU[RVU_SCORE])

Insight: Provides a compact view of doctor-wise performance in terms of both volume and complexity.

Page 3: MODALITY LEVEL INSIGHTS

This page focuses on understanding test performance and workload across different modalities. It helps assess which modalities are most active, complex, or underutilized using RVU and test data.

Slicers Applied:

- **Location**
- **Test Name**
- **Modality**
- **Reported Date**
- **Authorized Date**

These filters help isolate insights based on department, test type, and time window to compare modality-level performance.

Chart 1: Line Chart — Total RVU per Modality

X-Axis: Modality Name , Y-Axis: Count of RVU Records

Insight: Shows the overall service frequency and test load managed by each modality over time.

Chart 2: Clustered Bar Chart — RVU Contribution per Modality

X-Axis: Modality Name, Y-Axis: Total RVU Score

DAX Measure:

Total RVU Score = SUM(RVU[RVU_SCORE])

Insight: Helps identify which modalities contribute most to overall productivity in terms of RVU value.

Card 1: Highest Modality Used

DAX (Top Modality by RVU):

Top Modality =

```
CALCULATE( MAX(RVU[MODALITY_NAME]),
    TOPN(1,
        SUMMARIZE(RVU, RVU[MODALITY_NAME], "TotalRVU", SUM(RVU[RVU_SCORE])),
        [TotalRVU], DESC    ))
```

Insight: Displays the most heavily used or highest-value modality based on RVU.

Card 2: Active Modality Count

DAX Measure:

Active Modality Count = DISTINCTCOUNT(RVU[MODALITY_NAME])

Insight: Indicates how many different modalities are actively used in the current filter context.

Card 3: Average RVU per Modality

DAX Measure:

```
Avg RVU per Modality = AVERAGEX(
    VALUES(RVU[MODALITY_NAME]),
    CALCULATE(AVERAGE(RVU[RVU_SCORE]))
)
```

Insight: Reflects the average case complexity per modality, helping identify intensive departments.

Card 4: Average Tests per Modality

DAX Measure:

Avg Tests per Modality =

```
AVERAGEX(  
    VALUES(Data[ServiceModality]),  
    CALCULATE(COUNT(Data[TEST_ID]))  
)
```

Insight: Measures how frequently each modality is used on average, identifying load distribution.

Page 4: TIME-BASED TRENDS

This page analyses productivity and testing patterns based on time dimensions like weekday, date, and month. It provides insights into test volume peaks, daily workload variation, and monthly trends.

Slicers Applied:

- **Location**
- **Test Name**
- **Service Status**
- **DayofWeek**
- **Authorized Date**

These slicers allow time-wise filtering and analysis of test volume and RVU contribution by location, service type, and workflow stage.

Chart 1: Line Chart — RVU by Day of Week

X-Axis: Day of Week , Y-Axis: Sum of RVU Score

DAX Measure:

Total RVU Score = SUM(RVU[RVU_SCORE])

Insight: Helps identify which weekdays carry higher clinical effort or more complex services.

Chart 2: Clustered Bar Chart — Test Volume by Weekday

X-Axis: Day of Week, Y-Axis: Count of UHID (Unique Patients)

DAX Measure:

Total Tests = COUNT(Data[UHID])

Insight: Shows daily patient/test load patterns to optimize scheduling and resources.

Card 1: Peak Test Day

DAX Measure:

Peak Test Day =

```
CALCULATE(  
    SELECTEDVALUE(Data[DayOfWeek]),  
    TOPN(1,  
        SUMMARIZE(Data, Data[DayOfWeek], "TestCount", COUNT(Data[UHID])),
```

```
[TestCount], DESC
```

```
)
```

```
)
```

Insight: Displays the busiest day of the week by number of tests conducted.

Card 2: Average Daily RVU

DAX Measure:

Avg Daily RVU =

```
AVERAGEX(
```

```
VALUES(Data[Authorized Date]),
```

```
CALCULATE(SUM(RVU[RVU_SCORE]))
```

```
)
```

Insight: Indicates the average daily workload handled across all services.

Table: Monthly Test and RVU Summary

Columns: Month, Total Test Volume, Total RVU Score

DAX Measure:

Create a Month column from Authorized Date

Total Tests = COUNT(Data[UHID])

Total RVU = SUM(RVU[RVU_SCORE])

Total RVU Score = SUM(RVU[RVU_SCORE])

Insight: Helps analyse monthly operational trends and workload fluctuations.

Integrated Navigation Overview

To ensure a seamless user experience across the Power BI dashboard, I have added interactive navigation buttons that allow smooth transitions between all four report pages:

RVU Productivity Overview → Doctor Productivity → Modality Insights → Time-Based Trends.

Each button is clearly labeled and strategically placed to guide users through the analytical flow. This structure supports both linear exploration and quick access to specific areas of interest. Whether reviewing performance by doctor, modality, or time, users can move forward or backward effortlessly—improving usability and storytelling within the report.

This integrated navigation enhances report accessibility and ensures that all key metrics and insights can be explored in a connected and intuitive way.

Outcome from This Dashboard:

This Power BI dashboard provides a comprehensive view of healthcare service productivity using RVU (Relative Value Units). It analyses doctor performance, modality-level efficiency, and time-based trends in test volume and workload. With interactive slicers and dynamic visuals, users can drill down into location, service type, and time dimensions. The final output enables data-driven decisions to optimize staffing, resource allocation, and clinical efficiency.