📊 Healthcare Provider Dashboard Analysis

🔍 Key Findings

1. Overall Financial Overview

- Total Billing Amount: £3M
- Average per Visit: £674.86
- Total Treatment Cost: £3M (Average £526.08)
- Medication Cost: £546K (Average £109.21)
- Room Charges: £180K (Average £14.63)
- Out-of-Pocket: £1M (Average £227.26)
- Insurance Coverage: £2M (Average £456.04)

🧠 Insight:

✅ **Insurance covers approximately 66.7% of total healthcare costs**,
🚫 while **patients are responsible for around 33.3%** out-of-pocket.

This suggests a relatively strong reliance on insurance, but the out-of-pocket expense still presents a significant financial burden for many patients.

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2. Billing by Procedure

Top 3 Procedures by Billing:

- X-Ray: £1,053,529 (31%)
- CT Scan: £805,508 (24%)
- MRI Scan: £600,739 (18%)

🧠 Insight:

✅ **Imaging procedures (X-Ray, CT, MRI) contribute a combined 73% of total procedural billing**,
📌 *highlighting them as the primary revenue drivers in healthcare services.*

This insight may suggest a high demand or overreliance on diagnostic imaging, which could inform future investment, cost optimization, or policy review.

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3. Billing by Diagnosis & Service Type

- Asthma and Migraine have high emergency billing (29.71% and 27.51%).
- Fracture and Appendicitis have more inpatient cases.
- Hypertension has the highest outpatient billing (53.92%).

🧠 Insight:

⚠️ **High emergency billing for chronic conditions** such as **asthma** and **migraine** may indicate **gaps in ongoing outpatient care and preventive treatment plans**.

✅ **Hypertension's dominance in outpatient billing** suggests it is being managed effectively outside emergency settings.

These patterns can help identify areas for improving chronic disease management, reducing avoidable ER visits, and optimizing resource allocation.

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4. Departmental Billing

- Cardiology: £846,925 (25.24%)
- Orthopedics: £813,253 (24.23%)
- General Surgery: £783,247 (23.34%)

🧠 Insight:

✅ These three departments account for **approximately 73% of total billing**, with **Cardiology leading both in patient volume and total revenue**.

This highlights Cardiology as a key revenue driver, while Orthopedics and General Surgery also play major roles in the hospital's financial performance.

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5. Geographic Analysis

- High billing: London, Birmingham, Dublin
- Lower billing: Glasgow and nearby areas

🧠 Insight:

📊 **Billing amounts vary significantly by region.**
The top-performing cities likely benefit from:

- Larger population densities
- More advanced or better-equipped healthcare facilities

This suggests opportunities for targeted resource allocation and potential growth in lower-performing areas through infrastructure improvements or outreach programs.

🔍 Key Findings from Billing Dashboard

1. 📉 Year-over-Year Billing Drop

- 2024 billing: £2.0M
- 2025 billing: £1.4M
- Change: -29.6%

📜 **Insight:**
There has been a **significant 29.6% drop in total billing** from 2024 to 2025. This decline may indicate:

📌 **Why It Matters:**
This trend highlights the **need for immediate analysis** to identify root causes and develop corrective actions. Declining billing can impact cash flow, profitability, and long-term sustainability if not addressed promptly.

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2. 🗓️ Weekday vs. Weekend Billing

- Weekday billing dropped 29% (from £1.4M to £999.6K)
- Weekend billing dropped **31.2%** (from £562.3K to £386.6K)

📜 **Insight:**
Billing decreased across **both weekdays and weekends**, with **weekend billing experiencing a steeper decline**. This could be driven by:

📌 **Why It Matters:**
The sharper decline in weekend billing suggests an opportunity to review **resource allocation** and **service availability** strategies. Optimizing weekend operations could help recover lost revenue and improve overall performance.

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3. 🏥 Departmental Decline

Each department shows a **significant billing decrease across quarters**:

- Orthopedics: -57.8%
- Pediatrics: -67.8%
- General Surgery: -51.5%
- **Cardiology: -78.9%**
- **Neurology: -40**.5%

📜 **Insight:**
Every department experienced a **significant decline in billing**, with **Cardiology and Pediatrics hit the hardest**. Possible reasons may include:

📌 **Why It Matters:**
Such steep drops—especially in critical departments—warrant an in-depth review. Understanding the **underlying causes** is essential for **targeted recovery efforts**, **resource optimization**, and **maintaining quality of care**.

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4. 🗓️ Monthly Billing Fluctuations

- Biggest monthly jump: Jan 2025, billing rose by £663.9K (+352.7%)
- Significant drops: Feb to Oct showed consistent declines, especially in **Oct (-£174.2K)**

📜 **Insight:**
January's spike may reflect a **post-holiday backlog** or **rescheduled procedures** from December. However, the **overall trend for the year remains negative**, signaling weaker performance or demand in later months.

📌 **Why It Matters:**
The **unsustainable surge in January**, followed by prolonged underperformance, points to **seasonal imbalances** and potential issues in **scheduling, demand forecasting**, or **resource management**.

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5. 📊 Weekday Billing Patterns

- Wednesday showed the highest growth: +28.7% (up £117.1K)
- Sunday had the largest drop: -18.5% (down £96.7K)
- Weekends (Sat/Sun) perform the weakest overall

📜 **Insight:**
Weekday billing is generally **more stable and efficient**, while **weekend billing—especially Sundays—underperforms**. This may be due to:

📌 **Why It Matters:**
The contrast between weekdays and weekends suggests an opportunity to **optimize scheduling**, **increase service availability**, or **promote weekend services** to balance capacity and revenue.

Documentation

Table-Level Logic & Date Intelligence

DateTable

Creates a calendar table with added columns for year, month, quarter, etc.

Description: Creates a full date table using CALENDARAUTO() and enriches it with common time intelligence fields such as year, month, quarter, weekday names, and a classification for weekends vs. weekdays. This table is essential for enabling proper date-based filtering, grouping, and time intelligence calculations in your dashboard.

```
DateTable = ADDCOLUMNS(
    CALENDARAUTO(),
    "Year", YEAR([Date]),
    "Month", FORMAT([Date], "mmm"),
    "MonthNum", MONTH([Date]),
    "Weekday", FORMAT([Date], "ddd"),
    "WeekdayNum", WEEKDAY([Date]),
    "Qtr", "Q-" & FORMAT([Date], "Q"),
    "DayType", IF(WEEKDAY([Date]) = 1 || WEEKDAY([Date]) = 7, "Weekend", "Weekday")
)
```

Length of Stay

Calculates the number of days between admission and discharge.

Description: A calculated column in the visits table that determines the number of days a patient stayed in the hospital by calculating the difference between the admission date and discharge date.

```
Length of Stay = DATEDIFF(visits[Admitted Date], visits[Discharge Date], DAY)
```

Basic Measures

Total Insurance Coverage

Sums all insurance coverage amounts from visits.

Description: Calculates the total amount of insurance coverage applied to patient visits by summing the Insurance Coverage column in the visits table.

```
Total Insurance Coverage = SUM(visits[Insurance Coverage])
```

Total Medication Cost

Sums all medication costs from visits.

Description: Calculates the total cost of medications prescribed during visits by summing the Medication Cost column.

Total Medication cost = SUM(visits[Medication Cost])

Total Patient

Counts distinct patients based on Patient ID.

Description: Counts the number of unique patients who had visits. This is done by counting distinct Patient ID values.

Total Patient = DISTINCTCOUNT(visits[Patient ID])

Total Room Charges

Calculates total room charges using daily rate and length of stay.

Description: Computes the total cost of room charges based on the daily rate and length of stay for each visit. Uses SUMX to calculate row-by-row multiplication.

*Total Room Charages = SUMX(visits, visits[Room Charges(daily rate)] * visits[Length of Stay])*

Total Treatment Cost

Sums all treatment costs.

Description: Calculates the total cost of treatments during all patient visits

Total Treatment Cost = SUM(visits[Treatment Cost])

Total Billing Amount

Sum of Medication, Treatment, and Room Charges.

Description: Sums up all billing components including medication, treatment, and room charges to get the total billed amount before insurance.

Total Billing Amount = [Total Medication cost] + [Total Treatment Cost] + [Total Room Charages]

Out-of-Pocket

Billing amount not covered by insurance.

Description: Calculates the amount patients must pay themselves by subtracting insurance coverage from the total billing amount.

Out-of-Pocket = [Total Billing Amount] - [Total Insurance Coverage]

Average Measures & Patient-Level Insights

Average Billing Amount per Visit

Average billing per patient.

Description: Calculates the average total billing amount per patient by dividing the overall billing amount by the number of unique patients.

Average Billng Amount per visits = DIVIDE([Total Billing Amount], [Total Patient])

Average Insurance Coverage

Average value of insurance coverage.

Description: Returns the average value of insurance coverage across all visits.

```
Average Insurance Coverage = AVERAGE(visits[Insurance Coverage])
```

Average Length of Stay

Average stay duration in days.

Description: Computes the average number of days patients stayed in the hospital.

```
Average Length of Stay = AVERAGE(visits[Length of Stay])
```

Average Medication Cost

Average cost of medications.

Description: Returns the average cost of medication per visit.

```
Average Medication cost = AVERAGE(visits[Medication Cost])
```

Average Out-of-pocket

Average out-of-pocket cost per patient.

Description: Calculates the average out-of-pocket cost per patient by dividing the total out-of-pocket amount by the number of patients.

```
Average Out-of-pocket = DIVIDE([Out-of-Pocket], [Total Patient])
```

Average Patient Satisfaction Score

Average patient satisfaction rating.

Description: Computes the average satisfaction score as reported by patients during or after their visits.

```
Average Patient Satisfaction Score = AVERAGE(visits[Patient Satisfaction Score])
```

Average Room Charges

Average daily room charge.

Description: Calculates the average daily room charge from the visits data.

```
Average Room Charges = AVERAGE(visits[Room Charges(daily rate)])
```

Average Treatment Cost

Average cost of treatment.

Description: Returns the average cost of treatment provided during visits.

```
Average Treatment Cost = AVERAGE(visits[Treatment Cost])
```

Contribution Percentage Measures

Department %

Percentage of total billing amount per department.

Description: Calculates each department's contribution to the overall billing amount. This is done by dividing the billing amount for the current department by the total billing amount across all departments.

```
Department % = DIVIDE(
    [Total Billing Amount],
    CALCULATE([Total Billing Amount], ALL(departments[Department]))
)
```

Procedures %

Percentage of total billing amount per procedure.

Description: Calculates each procedure's contribution to the total billing amount by dividing the billing for a specific procedure by the total billing amount across all procedures.

```
procedures % = DIVIDE(
    [Total Billing Amount],
    CALCULATE([Total Billing Amount], ALL(procedures[Procedure]))
)
```

Context & Helper Measures

Blank

A placeholder measure that returns zero.

Description: A helper measure returning zero. Often used to avoid errors, fill gaps in visuals, or as a placeholder.

```
Blank = 0
```

Active Department

Returns the currently selected department.

Description: Returns the currently selected department from the departments table. Useful for dynamic titles, KPIs, and contextual text in your visuals.

```
Active Department = SELECTEDVALUE(departments[Department])
```

Previous Month Billing Amount

Previous Month Billing Amount

Calculates the total billing amount from the previous month.

Description: Returns the total billing amount for the month immediately preceding the current date context. Useful for month-over-month comparisons.

DAX:

```
Previous Month Billing Amount =
   CALCULATE(
      [Total Billing Amount],
      DATEADD(DateTable[Date], -1, MONTH)
   )
```

📅 Previous Weekday Billing Amount

Previous Weekday Billing Amount

Calculates the billing amount for the previous weekday.

Description: Returns the total billing amount for the weekday that directly precedes the currently selected weekday, regardless of the current filter context. Useful for day-over-day weekday comparisons.

DAX:

```
PreviousWeekday =
VAR _CurrentWeekday = SELECTEDVALUE(DateTable[Weekday])
VAR _PreviousWeekday = SWITCH(
   _CurrentWeekday,
   "Mon", "Sun",
   "Tue", "Mon",
   "Wed", "Tue",
   "Thu", "Wed",
   "Fri", "Thu",
   "Sat", "Fri",
   "Sun", "Sat"
)
RETURN
   CALCULATE(
      [Total Billing Amount],
      DateTable[Weekday] = _PreviousWeekday,
      ALL(DateTable)
   )
```
