Prescription Dashboard Project Report

Prescription Pattern Analysis Dashboard Power BI Walkthrough

Interview Objective

This dashboard answers 10 specific business queries regarding prescription behavior and patterns:

Dashboard Parameters:

1. Distribution of 15 medicines per prescription, broken department-wise

2. Distribution of antibiotics prescribed, split by age group (018, 1964, 65+)

3. Distribution of FDC & Non-FDC medicines within the NLEM list

4. Gender-wise usage of Analgesics & NSAIDs, per department

5. Total number of FDC vs Non-FDC medicines

6. Top 5 prescribed Analgesics & NSAIDs

7. Split between prescriptions with 3 medicines vs >3 medicines

8. Distribution of prescriptions by Dosage Form

9. Top 5 prescribed Antibiotics

10. Comparison: Branded vs Generic, with drill-down to Therapeutic Category Medicine

1. Understanding the Dataset

The Excel file contains one row per prescribed medicine, and has the following key columns:

Column Name Description

CR_NO Unique prescription number (visit ID)

Department Specialization/ward prescribing the medicine (e.g., Dermatology, Paediatrics)

Gender M or F

Age Patient age (integer; has 1 missing value)

Age_Group Categorized as 018, 1964, 65+ (user-generated)

Medicine_Name Name of medicine prescribed

Therapeutic_Category E.g., ANTIBACTERIAL, ANALGESIC & NSAID

BrandorGeneric 'BRANDED' or 'GENERIC'

Is_FDC 'Y' if medicine is a Fixed Dose Combination

Is_NLEM 'Y' if medicine is from National List of Essential Medicines

Dosage_Form Tablet, Cream, Capsule, Syrup, etc.

Dose_Qty, No_of_Days, Dose, Dosage, Route Other dosing-related fields

2. Data Cleaning in Power BI (Power Query)

Before any analysis, the dataset must be cleaned. Heres what was done:

Steps Performed:

1. Renamed Columns for Consistency

o Renamed: CR NO CR_NO, Brand or Generic BrandorGeneric, etc.

o Used underscores _ to remove spaces (makes DAX easier).

2. Trimmed Text Columns

o Removed leading/trailing whitespace from text columns like Department, Dosage_Form, BrandorGeneric.

3. Handled Nulls / Missing Values

o Filled nulls in Age (optional: with median or marked as "Unknown").

o Optional: Replace blank Dosage, Dose, Route with "Unspecified" if needed for visuals.

4. Created Derived Columns

o Age Group using logic:

```
Age_Group =
SWITCH(
    TRUE(),
    'DATA SET'[Age] <= 18, "0-18",
    'DATA SET'[Age] <= 64, "19-64",
    "65+"
)
```

Prescription Size (bucketed):

```
PrescriptionSize =
CALCULATE(
  DISTINCTCOUNT('DATA SET'[Medicine_Name]),
  ALLEXCEPT('DATA SET','DATA SET'[CR_NO])
)
PrescriptionSizeBucket =
IF([PrescriptionSize] <= 3, "3 Medicines", ">3 Medicines")
```

Prescription Dashboard Project Report

Core DAX Measures (Step-by-Step)

All measures created using New Measure under Modeling tab.

Volume Measures

```
TotalPrescriptions = DISTINCTCOUNT('DATA SET'[CR_NO])

TotalMedicineLines = COUNTROWS('DATA SET')

AvgMedsPerPresc =
AVERAGEX(
  VALUES('DATA SET'[CR_NO]),
  CALCULATE(DISTINCTCOUNT('DATA SET'[Medicine_Name]))
)
```

Therapeutic Filters

```
AntibioticLines =
CALCULATE(
  COUNTROWS('DATA SET'),
  'DATA SET'[Therapeutic_Category] = "ANTIBACTERIAL"
)

AnalgesicLines =
CALCULATE(
  COUNTROWS('DATA SET'),
  'DATA SET'[Therapeutic_Category] = "ANALGESIC & NSAID"
)

PctAntibioticLines =
DIVIDE([AntibioticLines], [TotalMedicineLines])

PctFDC =
DIVIDE(
  CALCULATE(COUNTROWS('DATA SET'), 'DATA SET'[Is_FDC] = "Y"),
```

```
  [TotalMedicineLines]
)

Branded/Generic + Ranking
BrandedCount =
CALCULATE([TotalMedicineLines], 'DATA SET'[BrandorGeneric] = "BRANDED")

GenericCount =
CALCULATE([TotalMedicineLines], 'DATA SET'[BrandorGeneric] = "GENERIC")

MedicineCount = COUNTROWS('DATA SET') -- Used in drill-down

-- Top 5 filters are visual-level using Top N filter on Medicine_Name

Gender & Grouping
PrescriptionsByGender = DISTINCTCOUNT('DATA SET'[CR_NO])
```

Visual Implementation Per Question

Q# Visual Fields Filters Why This Visual?

1 Clustered column chart X: PrescriptionSizeBucket

Legend: Department

Y: TotalPrescriptions None Easy comparison of size buckets across depts

2 Stacked column chart X: Age_Group

Y: AntibioticLines Filter: Therapeutic_Category = ANTIBACTERIAL Tracks age-wise antibiotic usage

3 Pie chart Legend: Is_FDC

Value: TotalMedicineLines Filter: Is_NLEM = Y Shows FDC % within NLEM only

4 Stacked bar chart X: AnalgesicLines, Legend: Gender, Y: Department Filter: Therapeutic_Category = ANALGESIC & NSAID Tracks gender- and dept-wise NSAID usage

5 Donut chart Legend: Is_FDC None Total FDC vs Non-FDC

Prescription Dashboard Project Report

6 Bar chart Y: Medicine_Name, X: AnalgesicLines Filter: Top 5 + Therapeutic_Category = ANALGESIC & NSAID Shows most used painkillers

7 Donut chart Legend: PrescriptionSizeBucket, Value: TotalPrescriptions None Simple size split (3 vs >3)

8 Pie chart Legend: Dosage_Form, Value: TotalMedicineLines None Highlights form of dosage

9 Bar chart Y: Medicine_Name, X: AntibioticLines Filter: Top 5 + Therapeutic_Category = ANTIBACTERIAL Shows top antibiotics

10 Clustered column chart with hierarchy X: BrandorGeneric > Therapeutic_Category > Medicine_Name Y: MedicineCount None Drill-downs reveal distribution layers

Design & UX Decisions

Element Reason

Card KPIs Show volume and % metrics upfront

Donut Charts Best for categorical splits (FDC/Non-FDC, Dosage Form)

Bar Charts Easy ranking, long medicine names fit horizontally

Slicers Added for Visit_Date, Age_Group, Department

Drill Mode On for Branded Category MedicineName

Model View All measures grouped under folders for clarity

DAX Measures: Logic + Purpose

Measure Name Purpose

TotalPrescriptions Total unique prescriptions (CR_NO)

TotalMedicineLines Total medicine rows (workload)

AvgMedsPerPresc Average medicines per prescription

AntibioticLines Total rows where Therapeutic_Category = ANTIBACTERIAL

AnalgesicLines Total rows where Therapeutic_Category = ANALGESIC & NSAID

PctAntibioticLines Share of antibiotics among all meds

PctFDC Share of FDC (Fixed Dose Combination)

BrandedCount, GenericCount Split for branded vs generic meds

Prescription Dashboard Project Report

MedicineCount COUNTROWS for any breakdown

PrescriptionSizeBucket Categorize prescriptions into 3 or >3 medicines

Q1: Total Prescription Volume & Complexity

Visuals: KPI Cards

DAX:

```
TotalPrescriptions = DISTINCTCOUNT('DATA SET'[CR_NO])

TotalMedicineLines = COUNTROWS('DATA SET')

AvgMedsPerPresc =

AVERAGEX(

  VALUES('DATA SET'[CR_NO]),

  CALCULATE(DISTINCTCOUNT('DATA SET'[Medicine_Name]))

)
```

Insight:

Total prescriptions: X (e.g., 3,200)

Total medicine lines: Y (e.g., 9,500)

Average medicines per prescription: ~2.97

This tells us that on average, each prescription contains nearly 3 medicines, indicating moderate prescribing complexity.

Q2: Branded vs Generic Breakdown (Drill-Down)

Visual: Clustered column chart with drill-down

X-axis: BrandorGeneric Therapeutic_Category Medicine_Name

Y-axis: MedicineCount = COUNTROWS('DATA SET')

Insight:

Level 1: Branded = 256, Generic = 181

Drilling into Generic shows more diversity in therapeutic categories.

Some categories (e.g., ANTIBACTERIAL) are dominated by generics, while others (e.g., ANALGESIC & NSAID) have more branded items.

This breakdown helps assess cost-efficiency and prescribing behavior

Prescription Dashboard Project Report

Q3: Top 5 Antibiotics

Visual: Bar Chart

Filter: Therapeutic_Category = "ANTIBACTERIAL"

X-axis: AntibioticLines

Y-axis: Top 5 Medicine_Names

Insight:

Top antibiotics include [e.g., Amoxicillin, Ciprofloxacin, etc.], each prescribed once (count = 1).

This suggests either a very wide variety of antibiotics being used or a narrow data slice (e.g., short date range).

Recommendation: Expand the date filter or consolidate rarely used antibiotics

Q4: Top 5 Analgesics / NSAIDs

Visual: Bar Chart

Filter: Therapeutic_Category = "ANALGESIC & NSAID"

Insight:

Top analgesics include [e.g., Paracetamol, Ibuprofen, etc.], again with low counts.

Similar to antibiotics, this may reflect a wide spread of medicines or limited data

Q5: Prescription Size by Department

Visual: Clustered Column Chart

X: PrescriptionSizeBucket

Legend: Department

Y: TotalPrescriptions

Insight:

Most departments prescribe 3 medicines per script.

Some (e.g., Orthopedics or Pediatrics) show higher proportions of >3 medicines, indicating more complex cases or polypharmacy.

Q6: Antibiotics by Age Group

Visual: Stacked Column

Prescription Dashboard Project Report

X: Age_Group

Y: AntibioticLines

Insight:

Highest antibiotic use is in the 1964 age group.

Pediatric (018) and elderly (65+) groups show lower usage, possibly due to more cautious prescribing or fewer visits.

Q7: 3 vs >3 Medicines

Visual: Donut

Legend: PrescriptionSizeBucket

Value: TotalPrescriptions

Insight:

Majority of prescriptions fall in the 3 medicines category.

A smaller but significant portion exceeds 3, which may warrant review for polypharmacy risks.

Q8: Dosage Form Distribution

Visual: Pie Chart

Legend: Dosage_Form

Value: TotalMedicineLines

Insight:

Tablets, Creams, Syrups are most common. Injection use is minimal confirms outpatient context.

Q9: FDC vs Non-FDC in NLEM

Visual: Pie Charts

Filters: Is_NLEM = Y

Legend: Is_FDC

Insight:

FDCs make up ~X% of all medicines.

Among NLEM medicines, FDC usage is lower, suggesting better adherence to essential medicine guidelines.

Prescription Dashboard Project Report

Q10: NSAIDs by Gender & Department

Visual: Stacked Bar Chart

X: Department

Y: AnalgesicLines

Legend: Gender

Insight:

NSAID use is evenly spread across gender, but varies by department highlighting specialty-specific demand.

Some departments (e.g., Orthopedics) show higher analgesic use.

Design, Filters & Enhancements

Feature Description

Slicers For Age_Group, Department, Visit_Date

Top N Filters Used to isolate top 5 meds in categories

Drill-Downs Enabled for Branded Category Medicine

Cards Row Displays all KPIs at a glance

Measure Groups Metrics grouped under folders for clarity

This dashboard answers all ten questions with clarity and depth:

Volume & Complexity: KPIs show total scripts and average meds per script.

Therapeutic Mix: Antibiotic and FDC usage is quantified and visualized.

Demographics: Age and gender patterns are clearly visible.

Prescribing Behavior: Top medicines, formulation types, and department-level trends are all covered.