Power BI Dashboard Report: Patient Waiting List Analysis

1. Introduction

This Power BI dashboard was created to analyze patient waiting lists for a healthcare setting, focusing on both *inpatients* (admitted for at least one night) and *outpatients* (treated without overnight admission). The primary goals were to:

- Track current patient waiting lists
- Compare historical monthly trends
- Provide detailed specialty-level and age-profile insights

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2. Data & Scope

- **Data Source**: Publicly available healthcare data split into *inpatient* and *outpatient* folders (2018–2021).
- **Core Metrics**:
    - **Total waiting list** (count)
    - **Average waiting list**
    - **Median waiting list** (to mitigate the effect of outliers)
- **Data Modeling**:
    - Consolidated inpatient and outpatient files into a single table using **Append** in Power Query.
    - Added a **mapping table** to group numerous specialty names under broader specialty categories.

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3. Development Process

1. **Requirement Gathering**
    - Established stakeholder objectives (e.g., see current vs. last-year data, monthly trends, specialty analysis).
    - Defined scope (timeframe: 2018–2021, essential metrics: total/average/median wait lists).
2. **Data Collection**
    - Imported multiple CSV files via the **Folder** connector.
    - Verified schema consistency (same columns across files).
3. **Data Transformation (Power Query)**
    - Cleaned and merged inpatient/outpatient datasets (removed duplicates, fixed missing values, unified column names).

- Handled outliers and standardized text fields (e.g., removing extra spaces, renaming categories).

4. **Data Modeling**
    - Established relationships between main dataset and **specialty-mapping** table in the Model view.
    - Ensured a star-like model for clarity, hiding redundant tables (inpatient/outpatient) to avoid confusion.
5. **Dashboard Layout & Visualization**
    - Created two pages: **Summary** (high-level KPIs and trends) and **Detail** (granular data exploration).
    - Implemented visuals:
        - **Card visuals** for current vs. previous-year waiting list.
        - **Donut** and **Stacked Column** charts for average/median wait list across case types, age profiles, and time bands.
        - **Multi-row card** for top 5 specialties.
        - **Line charts** for monthly trends (inpatient/day cases vs. outpatient).
6. **Interactivity & Navigation**
    - Deployed a **toggle button** (slicer) to switch between *average* and *median* waiting list metrics using DAX (SWITCH function).
    - Added **page navigation** buttons (Summary ↔ Detail).
    - Created a **drill-down tooltip** page to display specialty group breakdown upon hovering over monthly trend charts.
    - Fine-tuned slicer interactions (e.g., disabling certain filters for specific charts).
7. **Testing & Sharing**
    - Validated results by filtering and ensuring correct updates in all visuals (e.g., zero instead of blank for missing data).
    - Published the report to **Power BI Service** for stakeholders.
    - Configured default page view, hidden tooltip page, and tested interactive features in full-screen mode.
8. **Maintenance & Refresh**
    - Documented routine steps for monthly/periodic data refresh (i.e., placing new files in the folder, refreshing in Power BI Desktop, and republishing).
    - Considered row-level security (RLS) for data confidentiality if multiple user roles were involved.

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4. Key Insights & Benefits

- **Real-Time Decision Making**: Stakeholders can compare month-over-month trends and quickly pinpoint surges in waiting lists.
- **Outlier Management**: The **median** metric provides a clearer picture of high-variance specialties.
- **Enhanced User Experience**: Drill-down tooltips and navigation buttons foster easier exploration without cluttering the main pages.
- **Scalability**: Simple folder-based ingestion can be replaced or supplemented by databases or cloud connectors for larger deployments.

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5. Conclusion

This Power BI dashboard offers a structured, end-to-end solution—starting from data ingestion and cleaning, through modeling, visualization, and finally interactive sharing. It equips healthcare stakeholders with clear metrics on patient waiting lists, enabling informed decisions and more efficient resource allocation.