

ANUDIP FOUNDATION



A PROJECT REPORT ON HEALTHCARE – PATIENT WAIT LIST ANALYSIS

Student ID – AF0410412

Student Name – NISARGA C M

INTRODUCTION

This report analyses patient waitlists in healthcare systems from February 2018 to March 2021, focusing on trends in case types (Outpatient, Day Case, Inpatient), age profiles, and medical specialties. Prolonged wait times impact patient outcomes and satisfaction, making this analysis critical for optimizing healthcare delivery. Using Power BI, the dashboard provides interactive visualizations to identify inefficiencies, monitor historical trends, and support strategic decision-making. Key insights include disparities by age and specialty, allowing healthcare administrators to prioritize resources effectively. This data-driven approach aims to enhance service efficiency, ensure equitable care delivery, and improve patient experiences by addressing long-standing healthcare challenges.

OBJECTIVE

- To monitor and compare the monthly and yearly trends in patient waitlists.
- To break down waitlists by case type, age groups, and specialties to identify patterns.
- To identify areas with the longest waiting times and prioritize resources accordingly.
- To assist in decision-making by highlighting specialties with high demand.
- To provide a comprehensive view of patient waitlist trends over a specific time range.

METHODOLOGY

- **Data Collection:** Patient data was collected from the healthcare system's database over a time period spanning February 2018 to March 2021.
- **Data Cleaning:** Ensured data accuracy by removing inconsistencies and duplicates.
- **Dashboard Design:** Power BI was used to create interactive visualizations, including bar charts, pie charts, and line graphs, to summarize and present data trends effectively.
- **Filters and Segmentation:** Data was segmented by archive date, case type, specialties, age groups, and time bands for granular insights.
- **Comparison Metrics:** Monthly and yearly waitlist counts were compared, highlighting differences in patient volumes.

KEY FINDINGS

1. Overall Waitlist:

- The latest month's waitlist reached **709K**, compared to **640K** in the same month of the previous year, indicating a year-on-year increase.
- The highest percentage of waitlisted patients were categorized under **Outpatient cases (72.58%)**.

2. Age Profile:

- Patients aged **16-64** contributed the largest share of waitlisted cases across all time bands.
- Longest wait times (18+ months) were predominantly seen in older age groups (65+).

3. Specialty Analysis:

- Top specialties with high waitlists included:
 - **Orthopaedics** (2.62M total waitlist).
 - **ENT (Otolaryngology)** and **Dermatology**, each with over 1.5M waitlisted cases.
- Specialties like **Anaesthetics** and **Breast Surgery** had fewer patients but may indicate underutilization or specific capacity challenges.

4. Trends by Case Type:

- Outpatient cases showed a steady increase over time, surpassing other case types.
- Inpatient and Day Case waitlists remained relatively stable but contributed smaller portions to the total.

SOFTWARE AND HARDWARE REQUIREMENTS

• SOFTWARE:

- **Power BI Desktop** for creating and publishing dashboards.
- **Microsoft Excel** or a similar tool for preliminary data cleaning and validation.
- **Windows 11** as the operating system.

• HARDWARE:

- **Processor:** Intel i5.
- **RAM:** Minimum 8 GB.
- **Storage:** At least 225 GB.
- **Display:** Full HD resolution for better visualization clarity.

IMPLICATIONS

- **Operational Efficiency:** The findings can help healthcare administrators allocate resources more effectively to specialties with higher waitlist demands.
- **Policy Changes:** Insights into long wait times for certain age groups or specialties can prompt targeted interventions and policy adjustments.
- **Capacity Planning:** The increase in outpatient waitlists suggests a need for expanded outpatient services or enhanced process efficiencies.

RESULT

1. Total Waitlist Comparison

- **Latest Month Waitlist:** 709,000 patients are on the waitlist as of the most recent month analysed.

- **Previous Year Comparison:** The corresponding figure from the previous year was 640,000, indicating a significant increase in the total waitlist.

2. Key Indicators: Patient Waitlist Breakdown

- **By Case Type:** Outpatients constitute the majority (72.58%), followed by Day Case (16.8%) and Inpatients (10.59%).
- **By Age Profile:** Wait times are categorized into four age groups:
 - **0-15 years**
 - **16-64 years**
 - **65+ years**
 - Patients aged 16-64 dominate the waitlist, while the elderly (65+) show a concerning trend of prolonged waiting times.
- **By Time Bands:** Time bands (e.g., 0-3 months, 3-6 months, etc.) reveal that the highest number of patients wait between 0-3 months, but a notable backlog exists in the 18+ month category.

3. Top 5 Waitlist by Specialty

- **Anaesthetics:** 17 patients on average/median waitlist.
- **Breast Surgery:** 4 patients on average.
- **Cardiology:** 23 patients on average.
- **General Surgery:** Significant wait times, reflecting demand.
- **Ophthalmology:** Among the most impacted specialties.

4. Trends Over Time

- **By Archive Date and Case Type**
 - Steady increase in Outpatient cases from 2018 to 2021.
 - Day Case and Inpatient cases exhibit a slower, more stable trend.
 - A surge in waitlist numbers is observed during 2020, likely reflecting COVID-19 impacts.

5. Specialty – Wise Distribution

- The dashboard highlights the total number of patients waiting by specialty:

- **Orthopaedics and ENT** top the chart with over 2.6M patients each.
- Other high-demand specialties include Dermatology, Ophthalmology, and General Surgery.
- Lower demand specialties like Paediatric Neurology, Paediatric Gastroenterology, and Anaesthetics have smaller waitlists.

6. Interactive Filters

- The dashboard allows filtering by **Archive Date**, **Case Type**, **Specialty Name**, **Age Profile**, and **Time Bands** for granular analysis of patient waitlists.

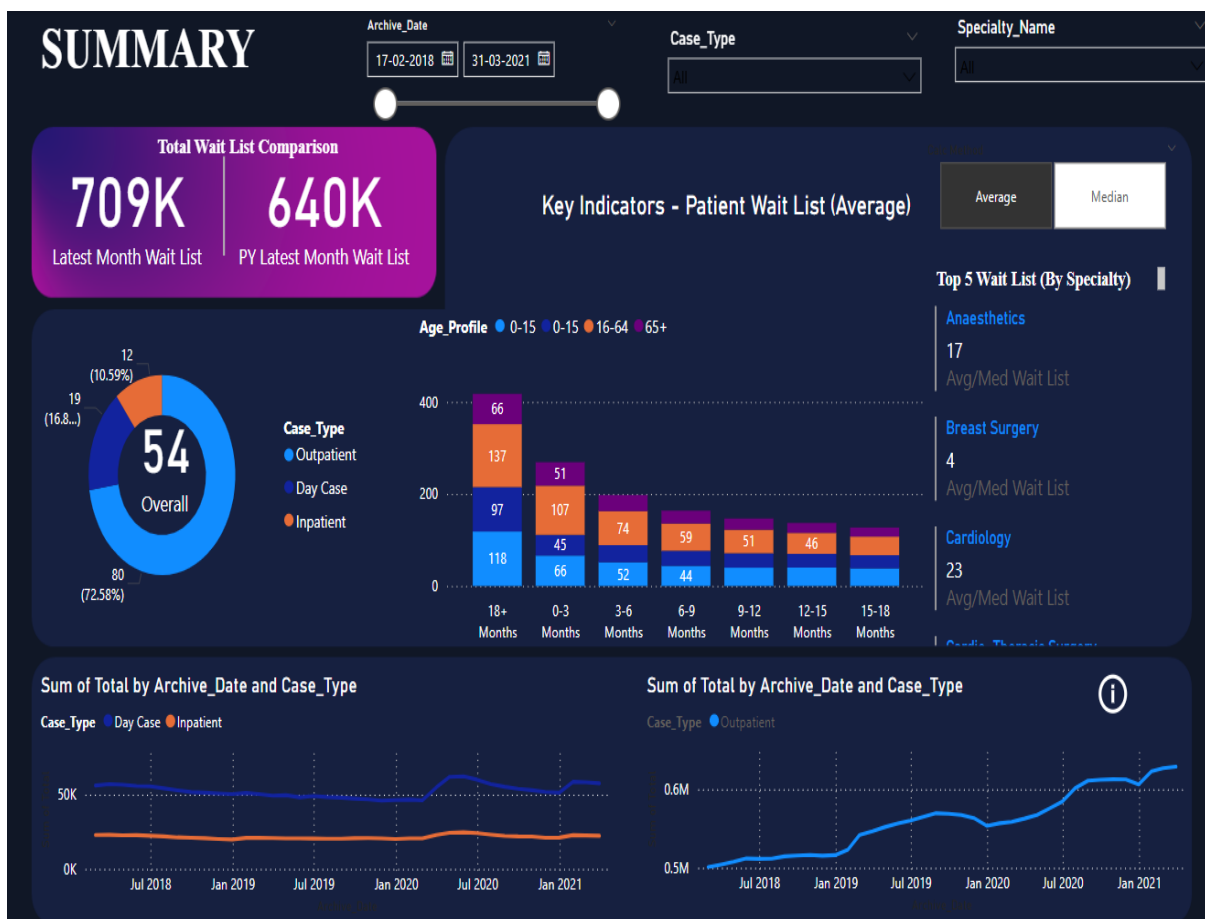


Fig 1: Summary



Fig 2: Detailed View

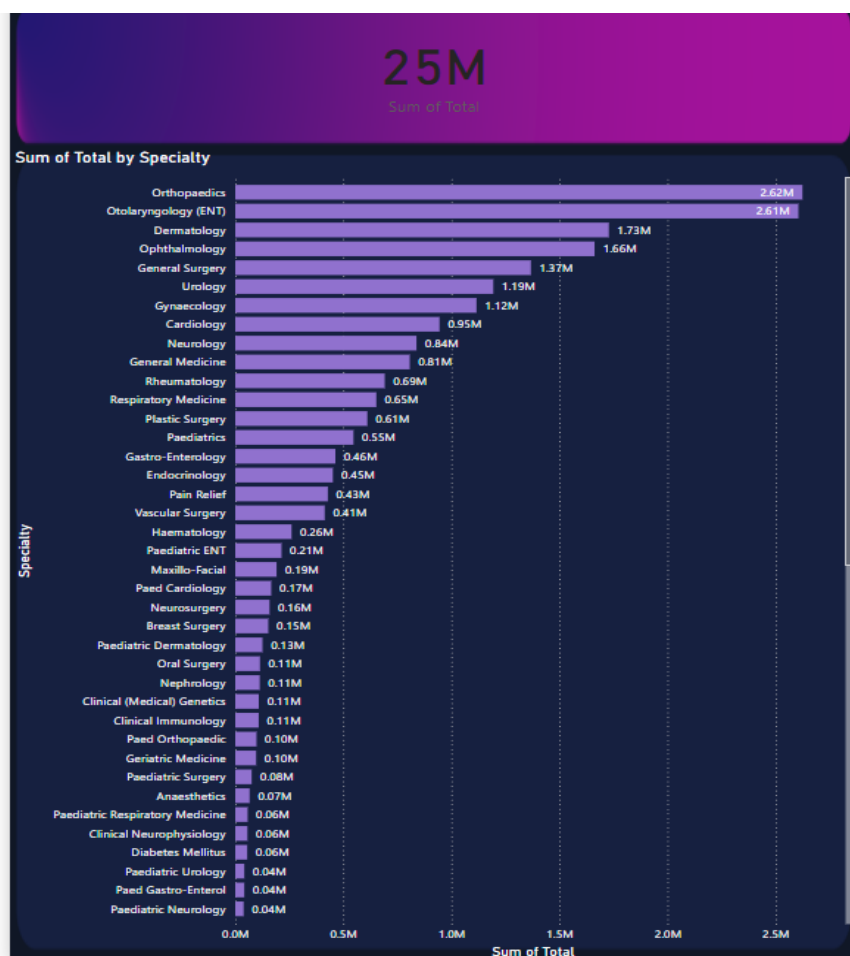


Fig 3: Sum of Total By Specialty

CONCLUSION

This report provides a comprehensive analysis of patient waitlists within a healthcare system. It highlights critical bottlenecks, offering actionable insights to improve service delivery and reduce wait times. By leveraging the findings, healthcare providers can better plan and allocate resources, ensuring timely and equitable patient care. The trends observed emphasize the importance of continuous monitoring and strategic adjustments in managing patient flows effectively
