HEALTHCARE WAITLIST ANALYSIS DASHBOARD

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Business Requirement

The goal of this healthcare dashboard is to monitor and analyze patient waitlist data across multiple specialties, time bands, and case types (Day Case, Inpatient, Outpatient).

The dashboard helps stakeholders understand:

- Which specialty areas have the highest backlog.
- How wait times vary over time and by patient age profile.
- Trends in patient admission types.
- Impact of time bands on overall healthcare performance.

The process of creating a dashboard in Power BI consist of following steps:

- Requirement Gathering
- Data Collection
- Data Transformation & Modelling
- Dax Query Optimization
- Dashboard Layout & Adding Interactivity

lets see all of these steps in detail and develop a Power BI dashboard from scratch. For this we will be using publicly available Healthcare data about the Patient Waiting List.

- What is the problem statement?
- Overall Objective
  - Track current status of patient waiting list
  - Analyze historical monthly trend of waiting list in Inpatient & Outpatient categories
  - Detailed specialty level & age profile analysis
- Data Scope
  - 2018 – 2021
- Metrics
  - Average & Median Waiting List
  - Current Total Wait List
- View
  - Summary Page
  - Detailed Page for Granular Analysis

1) Requirement Gathering

- Identify Stakeholders –

  Determine primary stakeholder and establish a point of contact who might be the domain experts or leaders who will eventually use the dashboard

- Understand Business Objectives –

  Through meetings and calls with stakeholders you should get an outline of Goals from the entire endeavor. Asking open ended questions will help you gain more insights to understand the data and how this dashboard will help achieve a specific business goal.

2) Data Collection

- Excel / CSV
- Web or JSON

3) Data Transformation

Data transformation is a process of changing the structure of your data or applying additional steps which will clean or process your data for final usage. These transformations in the Power Query Editor which is inbuilt into Power BI. To get to the Editor, we need to follow below steps:

- Go to the Report View
- Click on the drop down on the Transform data Icon
- You will see 3 Options, select the Transform Data option

4) Dax Query Optimization

Created 2 measures for calculating Latest Month & Previous Year Wait List

- Latest Month Wait List =
  CALCULATE(SUM(All_Data[Total]),All_Data[Archive_Date] =
  MAX(All_Data[Archive_Date])) + 0

- PY Latest Month Wait List
  =CALCULATE(SUM(All_Data[Total]),All_Data[Archive_Date]=
  EDATE(MAX(All_Data[Archive_Date]),-12)) + 0

- Median Wait List = MEDIAN(All_Data[Total])

- Average Wait List = AVERAGE(All_Data[Total])

- Avg/Med Wait List = SWITCH(VALUES('Calculation Method'[Calc Method]),"Average",[Average Wait List],"Median",[Median Wait List])

- Dynamic Title = SWITCH(VALUES('Calculation Method'[Calc Method]),"Average","Key Indicators - Patient Wait List (Average)","Median","Key Indicators - Patient Wait List (Median)")

- NoDataLeft = IF(ISBLANK(CALCULATE(SUM(All_Data[Total]),All_Data[Case_Type]<>"Outpatient")),"No data for selected criteria","")

- NoDataRight = IF(ISBLANK(CALCULATE(SUM(All_Data[Total]),All_Data[Case_Type]="Outpatient")),"No data for selected criteria","")

5) Dashboard design And Adding Interactivity

- Summary Page
- Detailed View
- Tooltip Page
- Beautify the Dashboard

KPIs Requirements

1. Total Wait List Count: 2,464,096 total cases pending.
2. Latest Month Wait List vs Previous Year Same Month: 709K vs 640K.
3. Case Type Split: Outpatient - 72.49%, Day Case - 16.89%, Inpatient - 10.62%.
4. Specialty-Wise Waitlist Breakdown: Bones, General, ENT, Eyes, Skin.
5. Time Band vs. Age Profile Analysis: 0-3 Months and 18+ Months have longest delays.
6. Top 5 Specialty Areas (Average Wait Time): - Paediatric Dermatology: 167.89 - Paed Orthopaedic: 114.50 - Accident & Emergency: 111.19 - Paed Cardiology: 101.77 - Paediatric ENT: 111.19
7. Monthly Trend: Upward trend in outpatient numbers post-2020.

SUMMARY

HEALTHCARE ANALYSIS

Date: 1/31/2018 – 3/31/2021

Case Type: All

Specialty: All

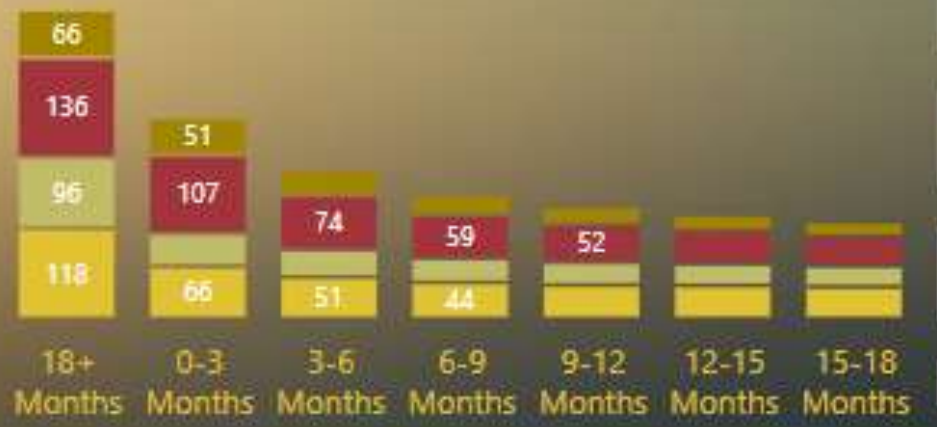
709K Latest Month Wait List | **640K** PY Latest Month Wait List

Key Indicators - Patient Wait List (Average)

Average | Median

Case Type Split

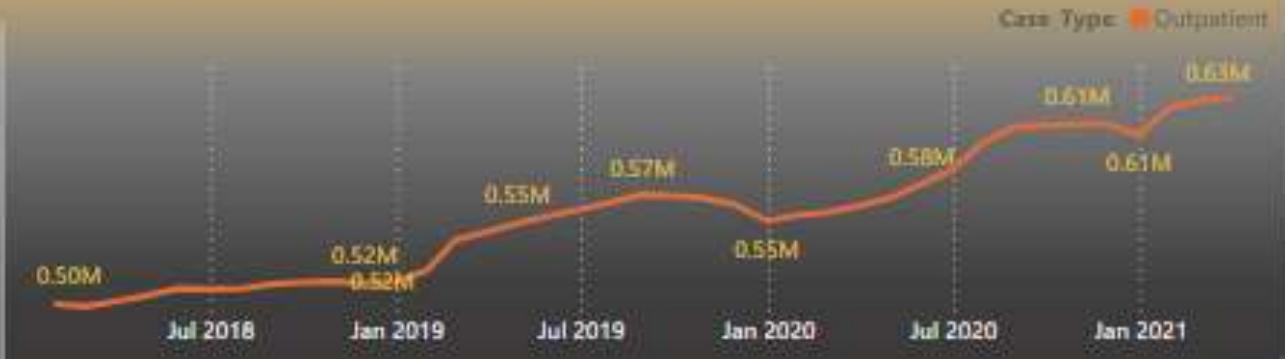
Time Band vs. Age Profile



Top 5 Specialty

Specialty	Value
Accident & Emergency	111.19
Paed Cardiology	101.77
Paed Orthopaedic	114.50
Paediatric Dermatology	167.89
Paediatric ENT	

Monthly Trend Analysis + Day Case /Inpatient VS Outpatient



DETAIL VIEW

Date

1/31/2018 3/31/2021

Case_Type

All

Specialty_Name

All

Age_Profile

All

Time_Bands

All

Archive_Date	Day Case	Inpatient	Outpatient	Total
3/31/2021	**57631**	**22342**	**628756**	**708729**
2/28/2021	**58378**	**22558**	**626895**	**707831**
1/31/2021	**58691**	**22765**	**622963**	**704419**
8/31/2020	**55305**	**22315**	**610996**	**688616**
9/30/2020	**53985**	**21917**	**612083**	**687985**
10/31/2020	**53029**	**21831**	**612817**	**687677**
11/30/2020	**51800**	**21043**	**612576**	**685419**
Orthopaedics	**4865**	**4838**	**76786**	**86489**
16-64	**3152**	**2460**	**50758**	**56370**
18+ Months	449	357	13172	**13978**
0-3 Months	1149	935	9886	**11970**
3-6 Months	426	361	6758	**7545**
9-12 Months	437	318	6411	**7166**
12-15 Months	287	203	5451	**5941**
6-9 Months	271	170	4750	**5191**
Total	**2059882**	**845348**	**21735739**	**24640969**

Recommendations

1. Focus on High-Wait Specialties like Bones, General, and ENT.
2. Improve Outpatient Flow since it contributes over 72% of the waitlist.
3. Target Age Profile 16-64 for faster case resolutions.
4. Shorten Long Waiting Time Bands (18+ Months).
5. Optimize Inpatient Admissions where possible.

Conclusion

The dashboard shows the healthcare system is heavily burdened with over 2.46 million patients awaiting treatment. Outpatient services are the main contributor. Specialties like Bones, General, and ENT need immediate attention. Prioritizing long wait time bands and optimizing resources can significantly improve the system's efficiency and patient care outcomes


THANK
YOU!