Hospital Admission Trends and Bed Occupancy Analysis with Forecast

Unifying Data for Better Care

→

Executive Summary - Dynamic Dashboard

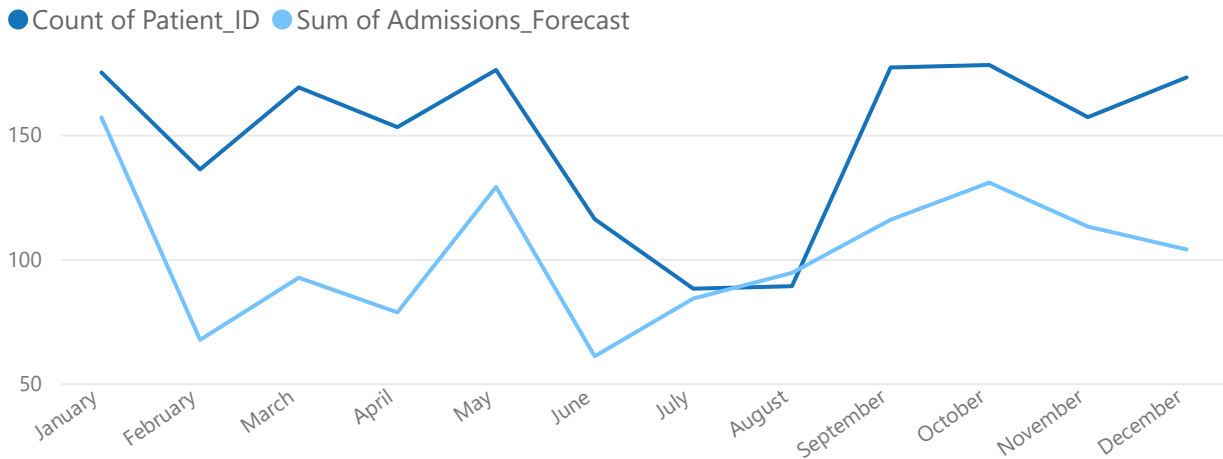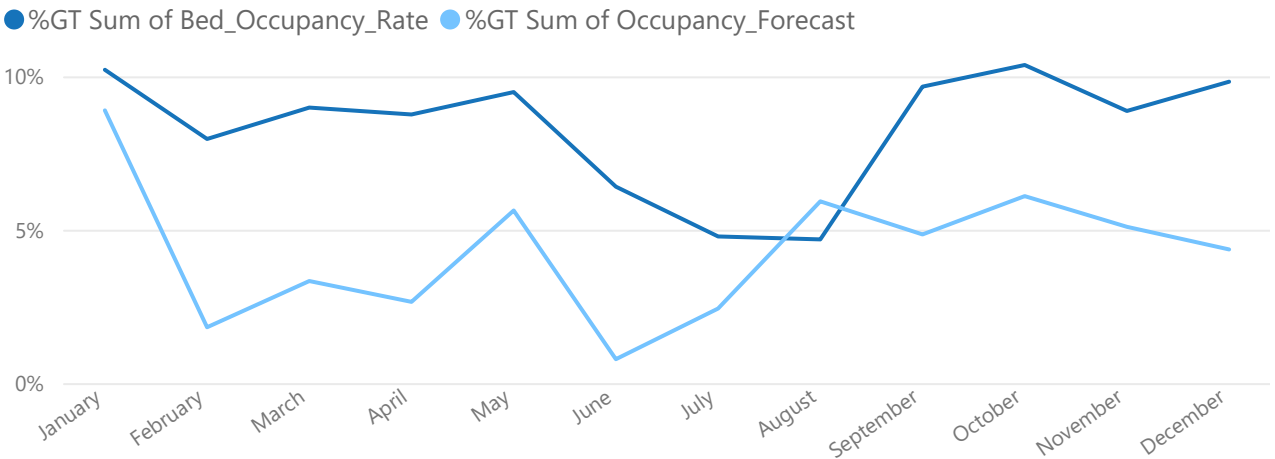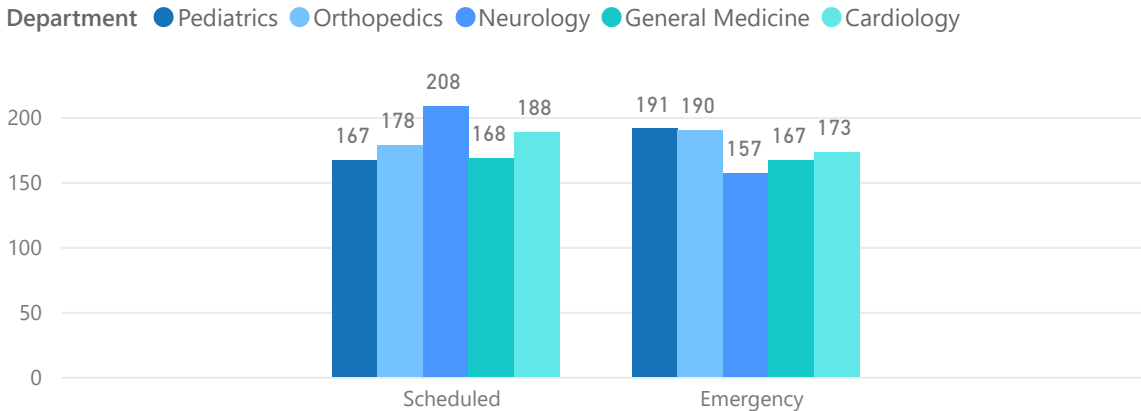| 🏥 Total Admissions	🛏️ Average Bed Occupancy %	⏱️ Average Stay Duration	📈 Forecasted Admissions (Next 6 Months)
1787	60.47	7.86	4,894.63

Admissions Trend (Actual vs Forecast)

● Count of Patient_ID ● Sum of Admissions_Forecast

Bed Occupancy Rate (Actual vs Forecast)

● %GT Sum of Bed_Occupancy_Rate ● %GT Sum of Occupancy_Forecast

Admissions by Department and Type

Department ● Pediatrics ● Orthopedics ● Neurology ● General Medicine ● Cardiology

Department

All

Admission Type

All

Admission Date

25-08-2023

10-06-2025

Admissions

Latest Admission_Date	Last Patient_ID	Depart
07 June 2025	P01994	Cardio
09 June 2025	P02000	Orthop
10 June 2025	P01996	Genera
10 June 2025	P01991	Neurol
10 June 2025	P01999	Pediatr
10 June 2025	**P02000**	

Department Analysis

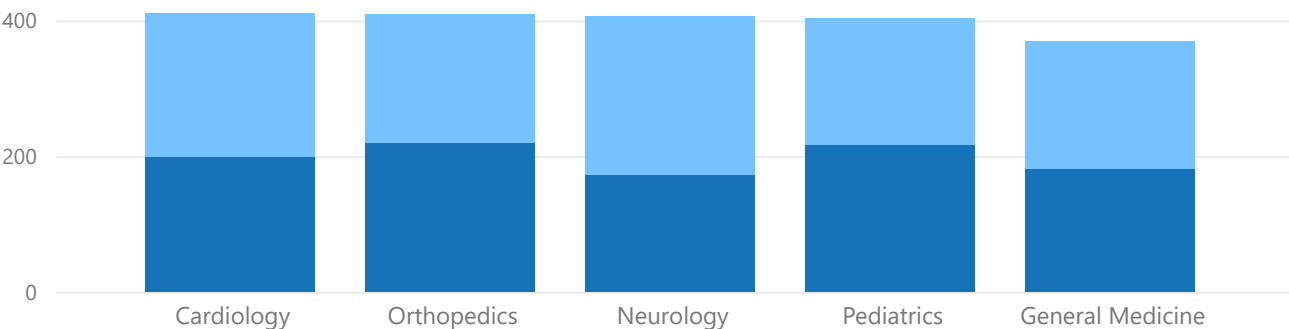| 🏥 Admissions in Selected Department	Average Stay Duration (Dept)	Average Bed Occupancy Rate %(Dept)
2000	7.86	60.68

Admissions by Department

Department	Value
Cardiology	411
Orthopedics	409
Neurology	406
Pediatrics	404
General Medicine	370
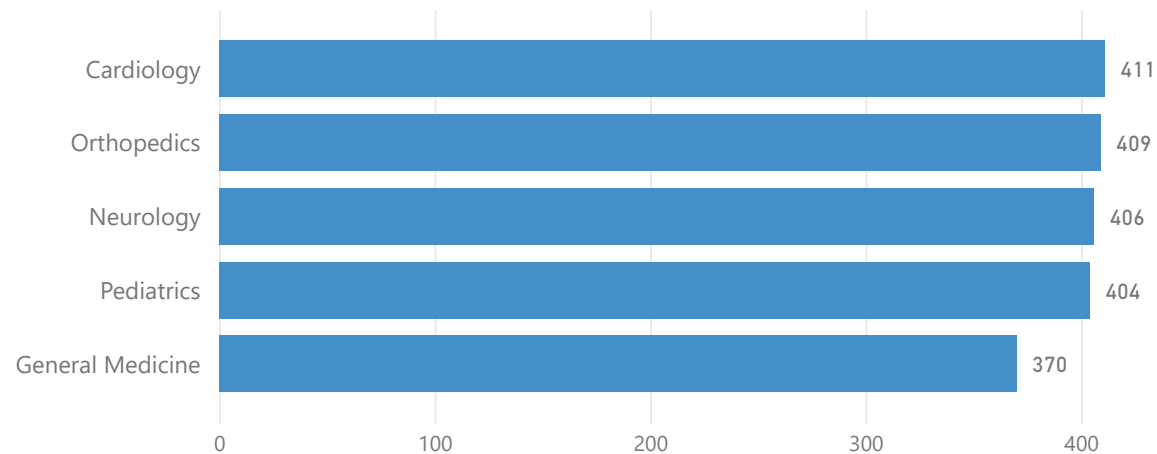
Admission Type by Department

Admission_Type ● Emergency ● Scheduled

Stay Duration by Dept & Type

Department	Emergency	Scheduled	Total
Cardiology	7.87	7.88	**7.87**
General Medicine	8.06	7.62	**7.84**
Neurology	7.12	8.38	**7.85**
Orthopedics	7.95	7.81	**7.89**
Pediatrics	7.75	7.99	**7.86**
Total	**7.77**	**7.96**	**7.86**

Occupancy Trend by Department

Department
● Cardiology
● General Medicine
● Neurology
● Orthopedics
● Pediatrics
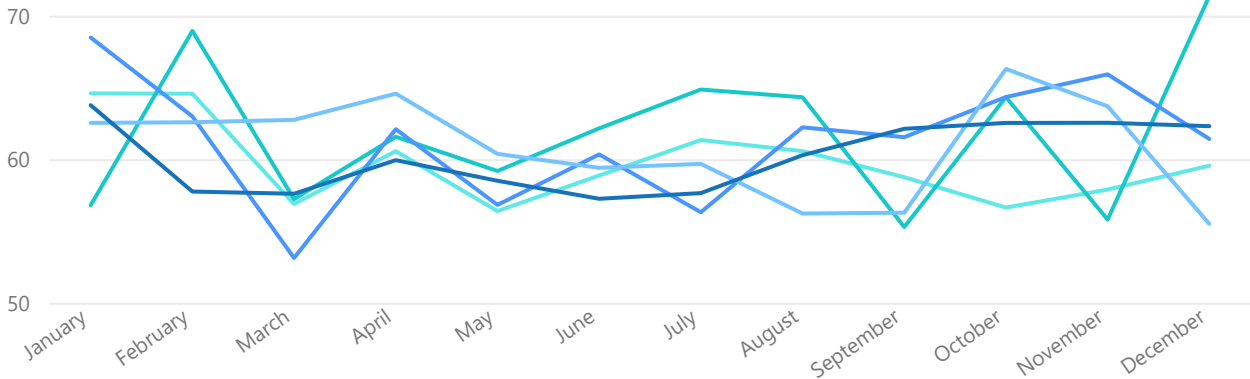
Patient Demographics & Trends

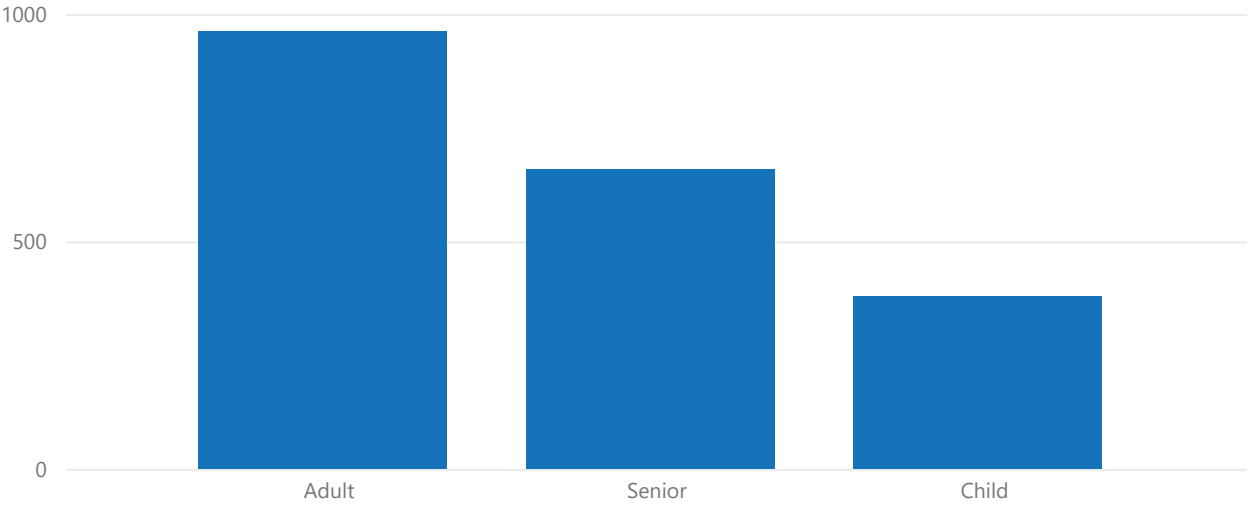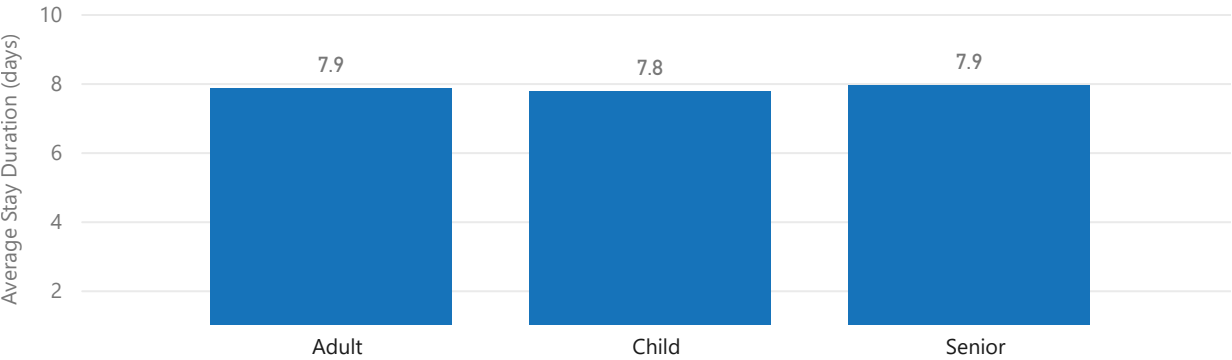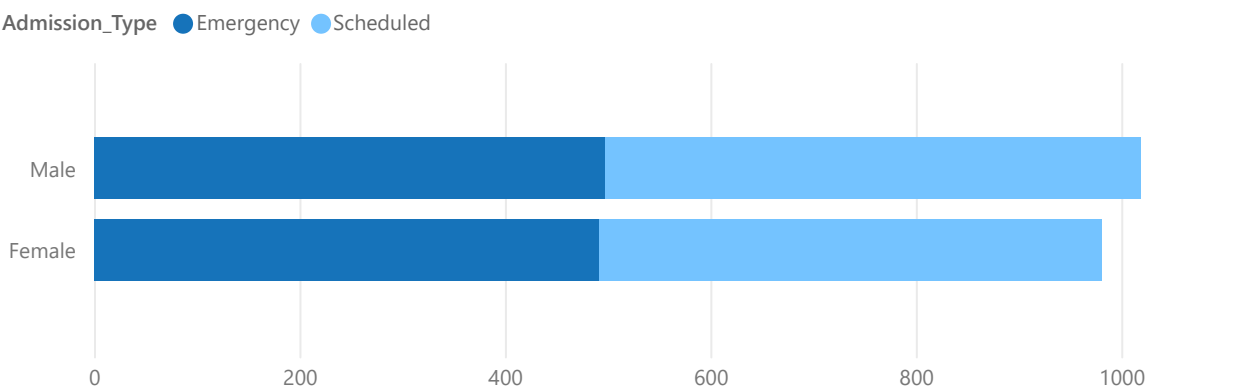| Male %	Female %	Total Admissions	Avg Stay Duration
50.95%	**49.05%**	**2000**	**7.86**

Total Patients by Age_Group

Total Patients by Gender and Admission_Type

Admission_Type ● Emergency ● Scheduled

Avg Stay Duration3 by Age_Group

Total Patients by Gender

Gender ● Male ● Female
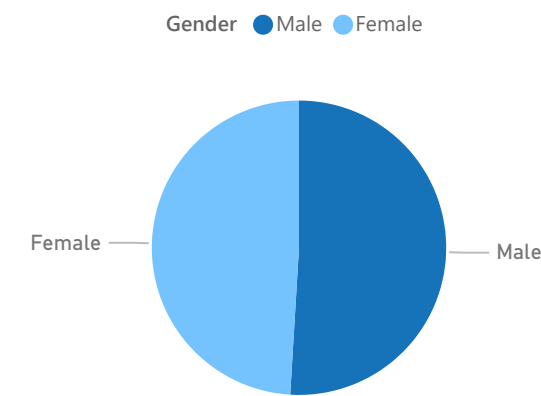
Admission_Date

| 25-08-2023 | 24-08-2025 |

Gender

All ⌄

Age Group

All ⌄

Forecasting Dashboard

Forecasted Occupancy	Forecasted Admissions	Forecast Admission Range
4.19K	5.59K	314.88

Department

All ⌄

Admission Type

All ⌄

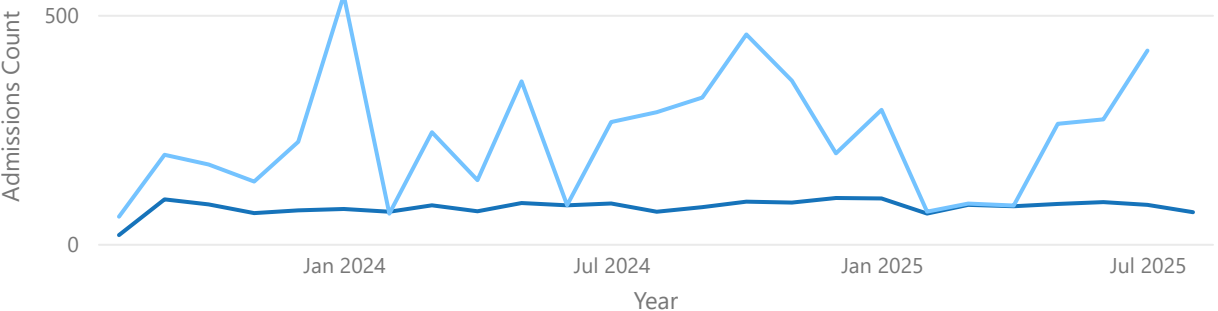**Date**

25-08-2023   24-08-2025

Actual Admissions and Forecast Admissions by Year and Month
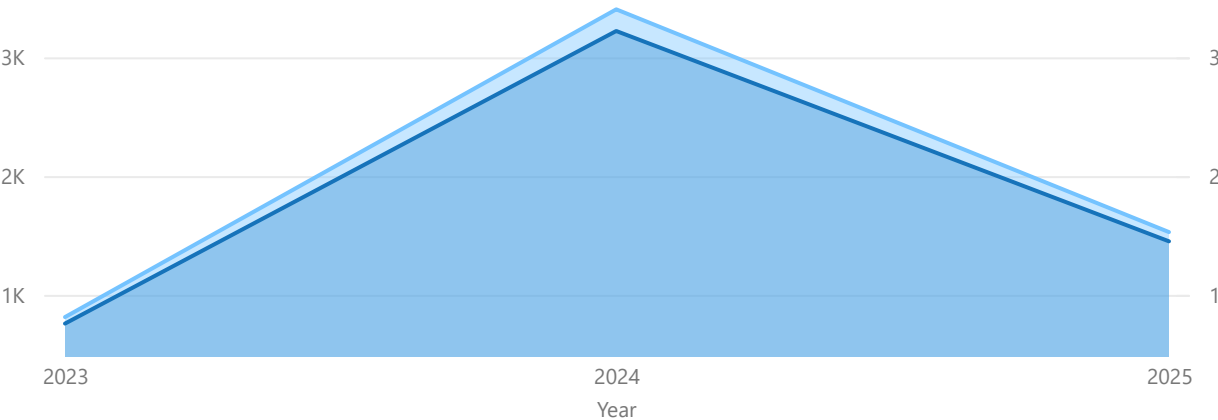
● Actual Admissions ● Forecast Admissions

Forecast Growth in Admissions

● Sum of Admissions_Forecast_Lower ● Sum of Admissions_Forecast_Upper

Actual vs Forecasted Bed Occupancy

● Sum of Bed_Occupancy_Rate ● Sum of Occupancy_Forecast

Forecasted Admissions by Department
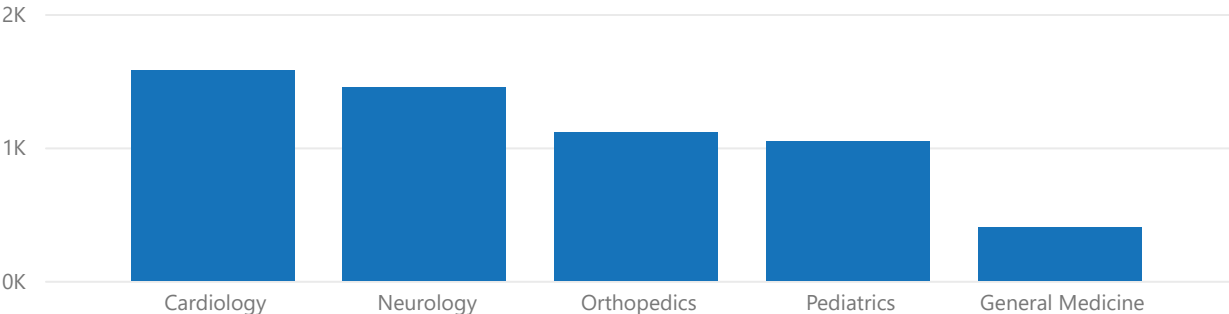
Insights & Recommendations

Key Findings:

🏥 **Total Admissions: 1,787** patients admitted during the study period.

🛏 **Average Bed Occupancy: 60.47%** overall; department-level average is **60.68%**.

⏱ **Average Stay Duration: 7.86 days** across all patients.

🚑 **Department Load:** Cardiology (411), Orthopedics (409), Neurology (406), Pediatrics (404), and General Medicine (370).

Emergency & Surgery (Cardio/Ortho) show longest stays and highest occupancy.

Forecast Highlights:

📈 **Forecasted Admissions (Next 6 Months): 4,894.63** patients.

📊 **Forecasted Occupancy (Next Period): 4.19K** (aggregated occupancy index).

📅 **Growth Trend:** Admissions predicted to rise steadily through 2024–2025, with peaks around **~5.6K** forecasted admissions.

✅ **Model Accuracy:** Prophet forecasts closely aligned with actuals, outperforming ARIMA in error metrics.

Recommendations:

👨‍⚕️ **Resource Allocation:** Prioritize staff & beds in **Cardiology, Orthopedics, and Emergency**, as they show **highest demand and longest stays (~7.8–7.9 days)**.

⏳ **Elderly Care:** Plan for longer stays in **Senior patients (avg 7.9 days)**, which strain bed availability more than children (avg 7.8 days).

📅 **Proactive Planning:** Prepare for **forecasted admissions surge (~5.6K patients)** by expanding temporary bed capacity and adjusting staff rosters.