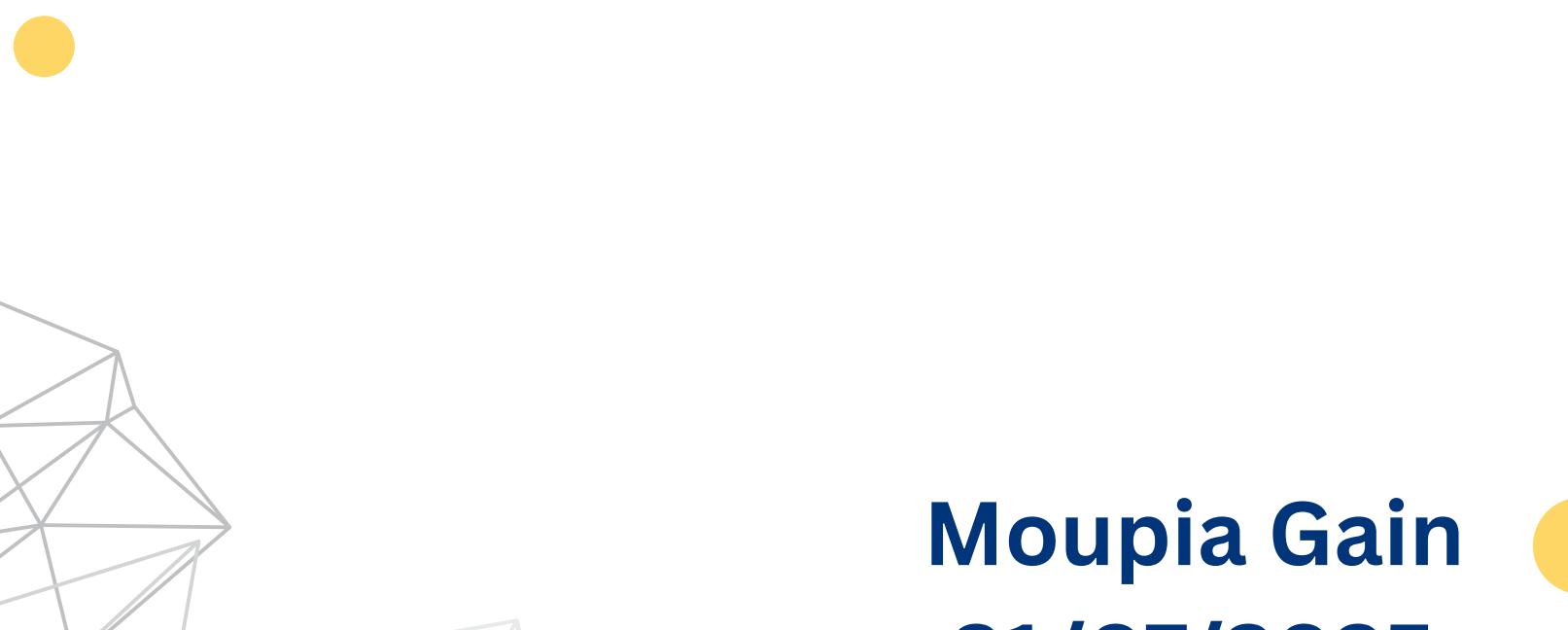
A large, semi-transparent stethoscope graphic is positioned on the right side of the slide, angled from the top right towards the center. It features a light blue headpiece, a pink chest piece, and a silver tube.

COLUMBIA ASIA

HOSPITAL DATA ANALYSIS

Two small yellow circular dots are located on the left side of the slide, one near the top and one near the bottom.

Moupia Gain



21/07/2025



- Columbia Asia Hospital is a leading multi-specialty healthcare provider, known for delivering high-quality, patient-centered medical services. Equipped with state-of-the-art infrastructure and advanced technology, the hospital offers comprehensive care across a wide range of specialties including General Practice, Orthopedics, Cardiology, Neurology, Gastroenterology, and more.
- With a strong emphasis on clinical excellence, Columbia Asia combines skilled medical expertise with modern facilities to ensure safe, effective, and compassionate treatment



Problem Statement

Assess the hospital's revenue generation 01

Assess the hospital's revenue generation 02

Strategies suggestions for patient discounts 03



Data Overview

- **Date:** This column contains date and time information without specifying AM or PM. The format is **DD-MM-YYYY HH:MM**.
- **Patient ID:** Each patient is assigned a unique identifier, which seems to be in the format **124-62-3289**.
- **Patient Gender:** This column records the gender of the patient, denoted by 'M' for male and 'F' for female.
- **Patient Age:** The age of the patients is listed in years.
- **Patient Sat Score:** It seems to represent a satisfaction score given by or for the patient. However, the scores are single-digit, and it's not clear what the scale is.
- **Patient First Initial:** This column contains the first initial of the patient's first name.
- **Patient Last Name:** The surname of the patient is listed in this column.



Data Overview

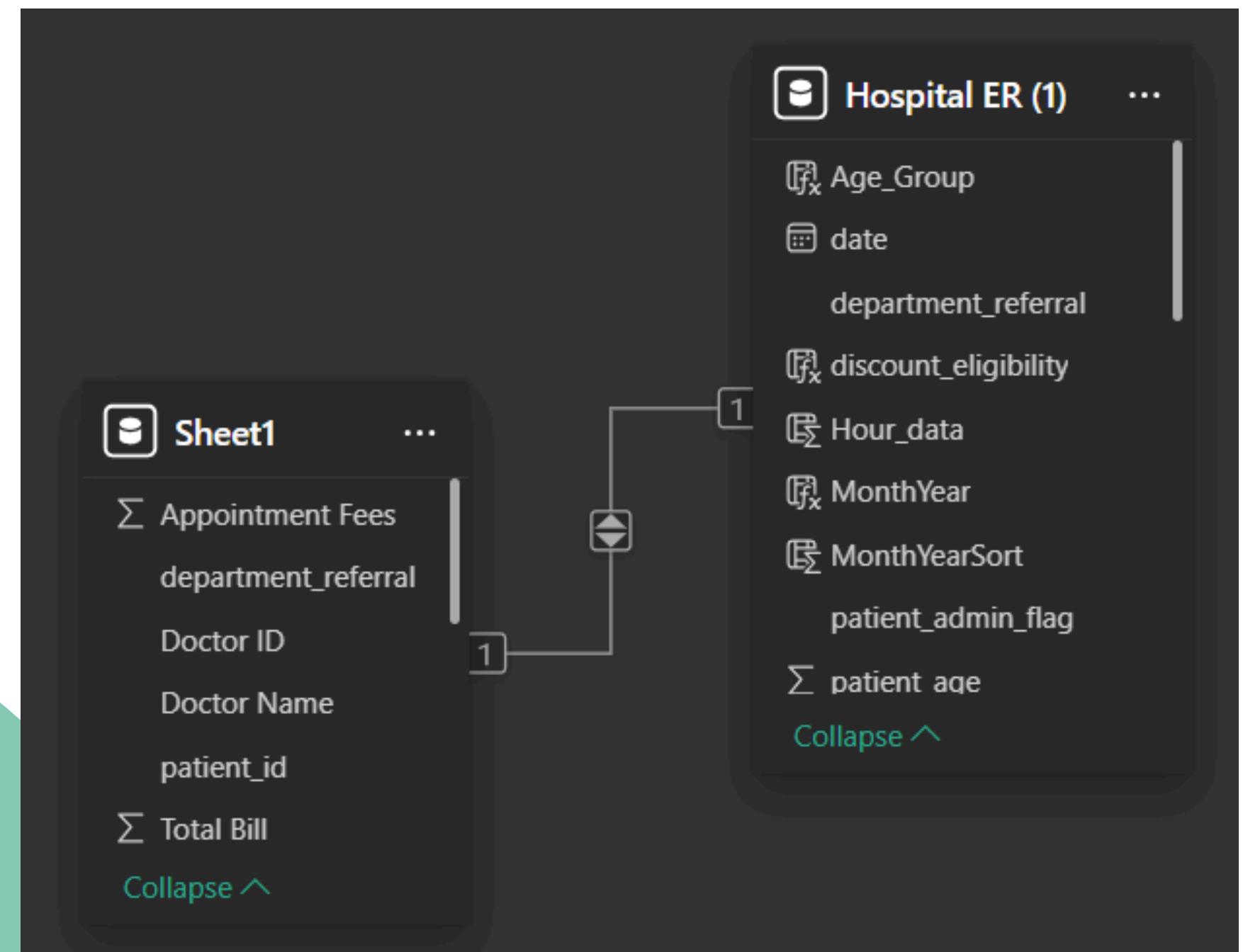
- **Patient Race:** The racial or ethnic background of the patient is recorded here, with categories such as 'White', 'African American', 'Asian', 'Native American/Alaska Native', and 'Two or More Races'.
- **Patient Admin Flag:** This column contains boolean values ('TRUE' or 'FALSE') which might indicate whether the patient was admitted or some other administrative flag.
- **Patient Wait Time:** Appears to indicate the time the patient waited, possibly in minutes, before being seen or processed.
- **Department Referral:** This column lists the department to which the patient was referred, with entries such as 'General Practice', 'Orthopedics', 'Gastroenterology', or 'None' indicating no referral.
- **Doctor Name:** Identifies the doctor who attended each patient.
- **Appointment Fees:** The cost charged for a doctor's consultation.
- **Total Bill:** The overall amount billed to the patient, including all services and charges.



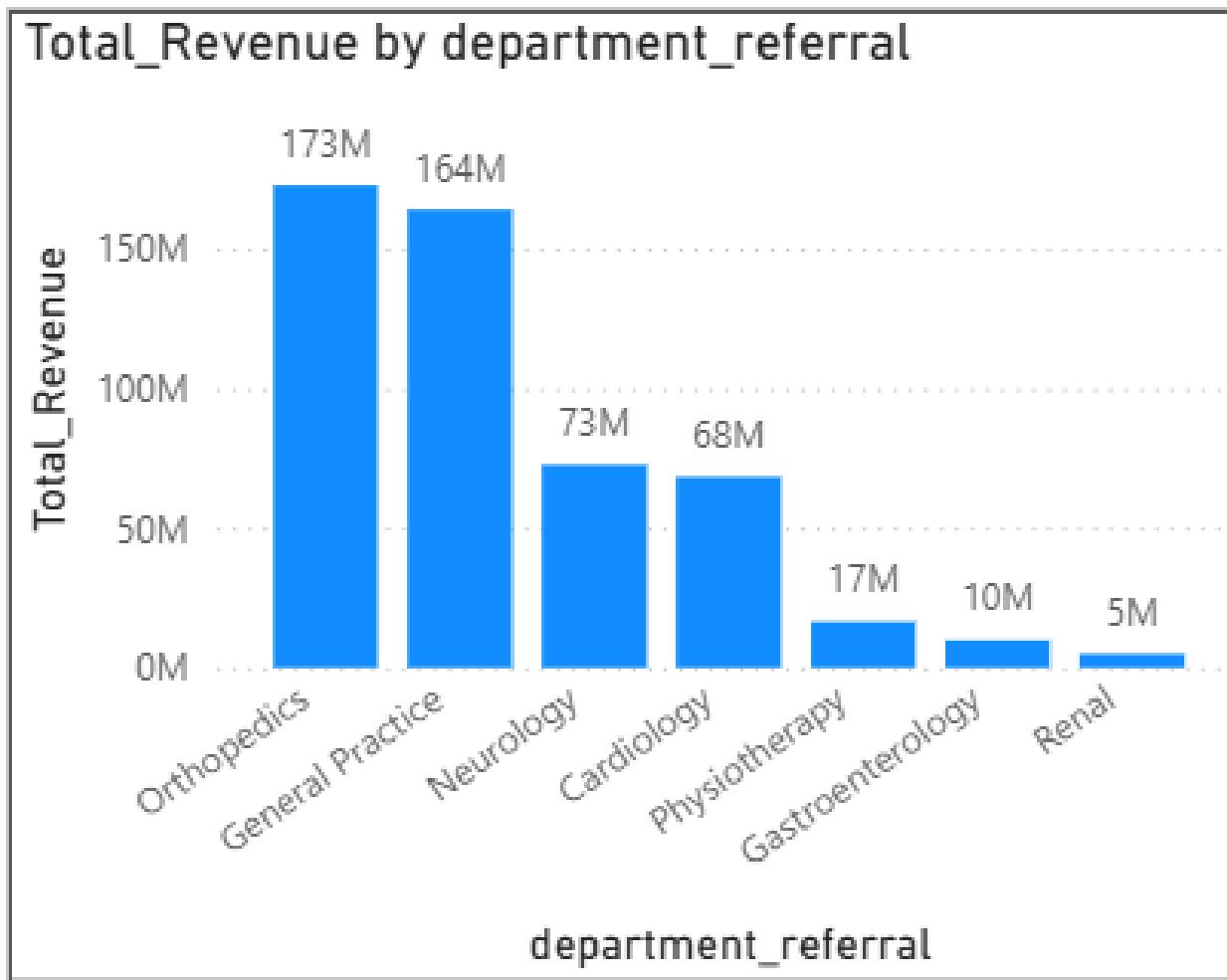
Data Methodology

- **Date:** This column contains date and time information without specifying AM or PM. The format is **DD-MM-YYYY HH:MM**.
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Database Schema

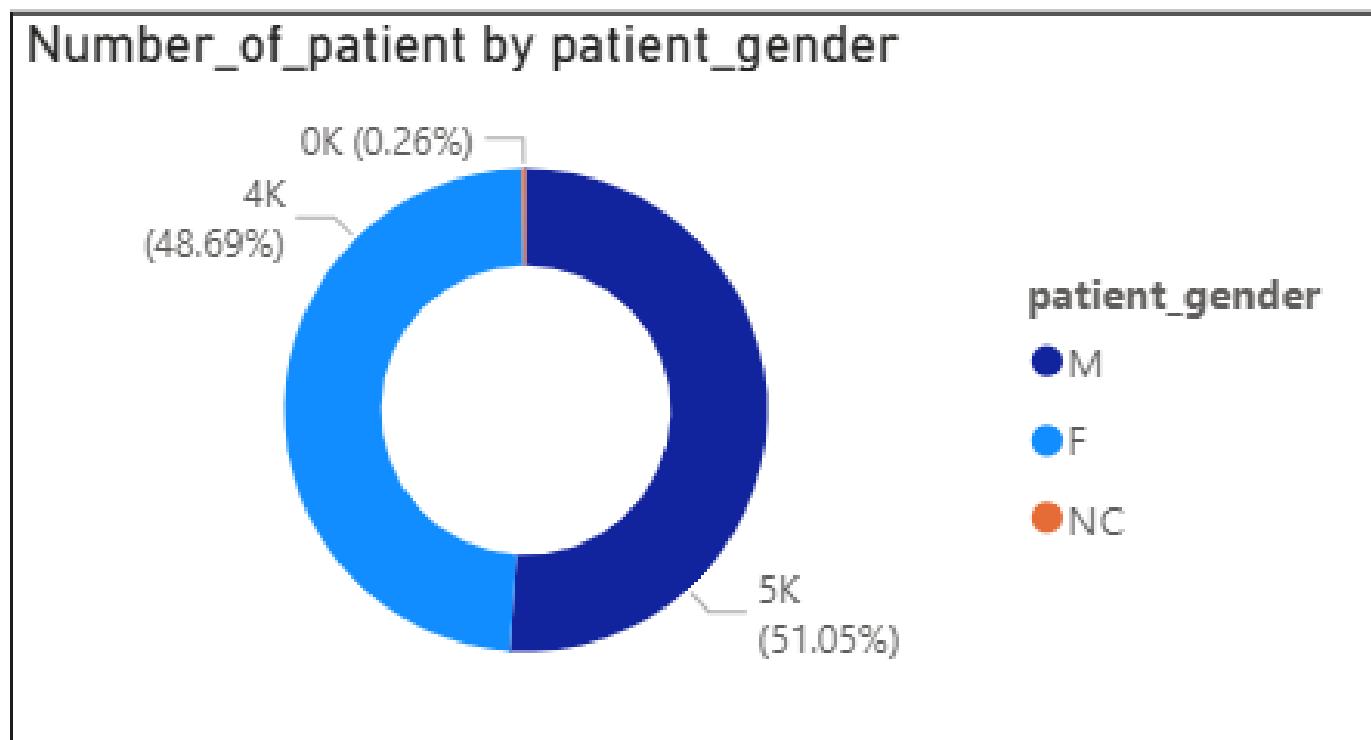


Department-wise Revenue Analysis



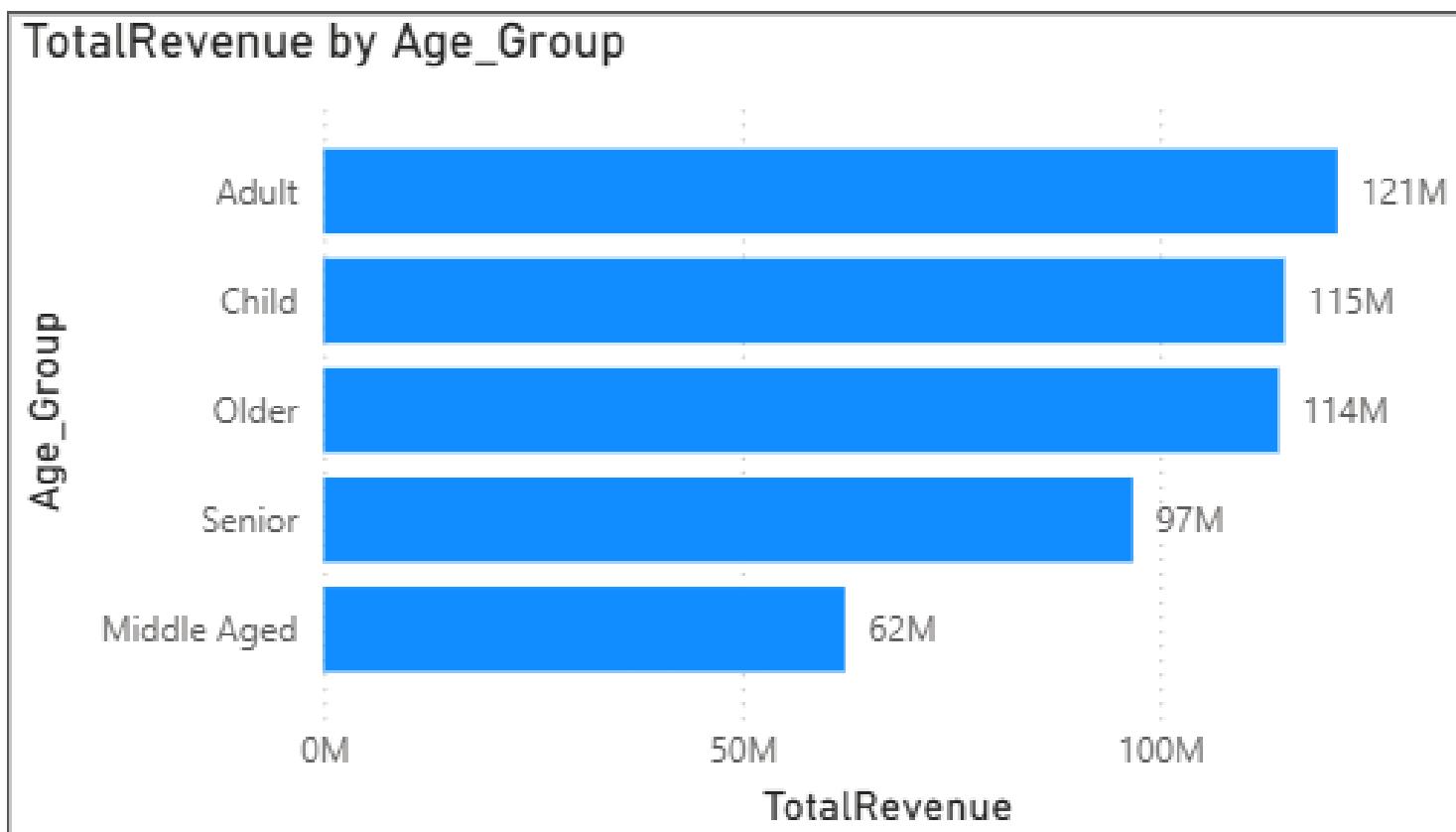
- Orthopedics and General Practice emerge as the highest revenue-generating (173M and 163M respectively) departments, contributing significantly to the hospital's overall financial health.
- Physiotherapy, Gastroenterology, and Renal departments have the lowest revenue (17M, 10M and 5M respectively) contributions reflecting limited patient volumes, lower-cost services, or underutilization of available resources

Number of patients by gender



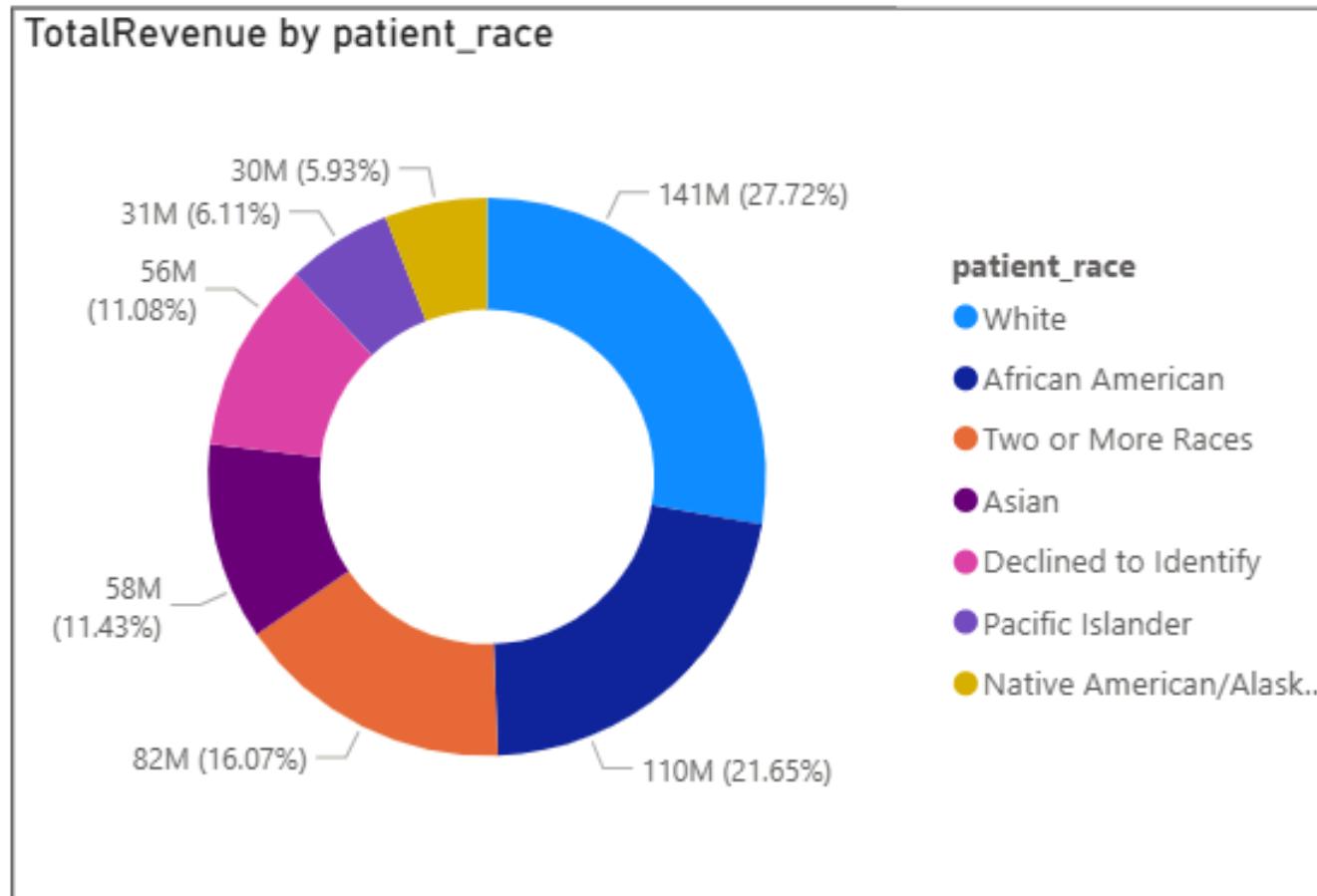
- Patient visits are nearly evenly split between males (51.05%) and females (48.69%), indicating no strong gender bias in hospital visitation rates.
- A minimal proportion of visits (0.26%) fall under the "Not Categorized" (NC) group.
- The donut chart effectively illustrates the close parity between male and female patient visits.

Revenue distribution by age group



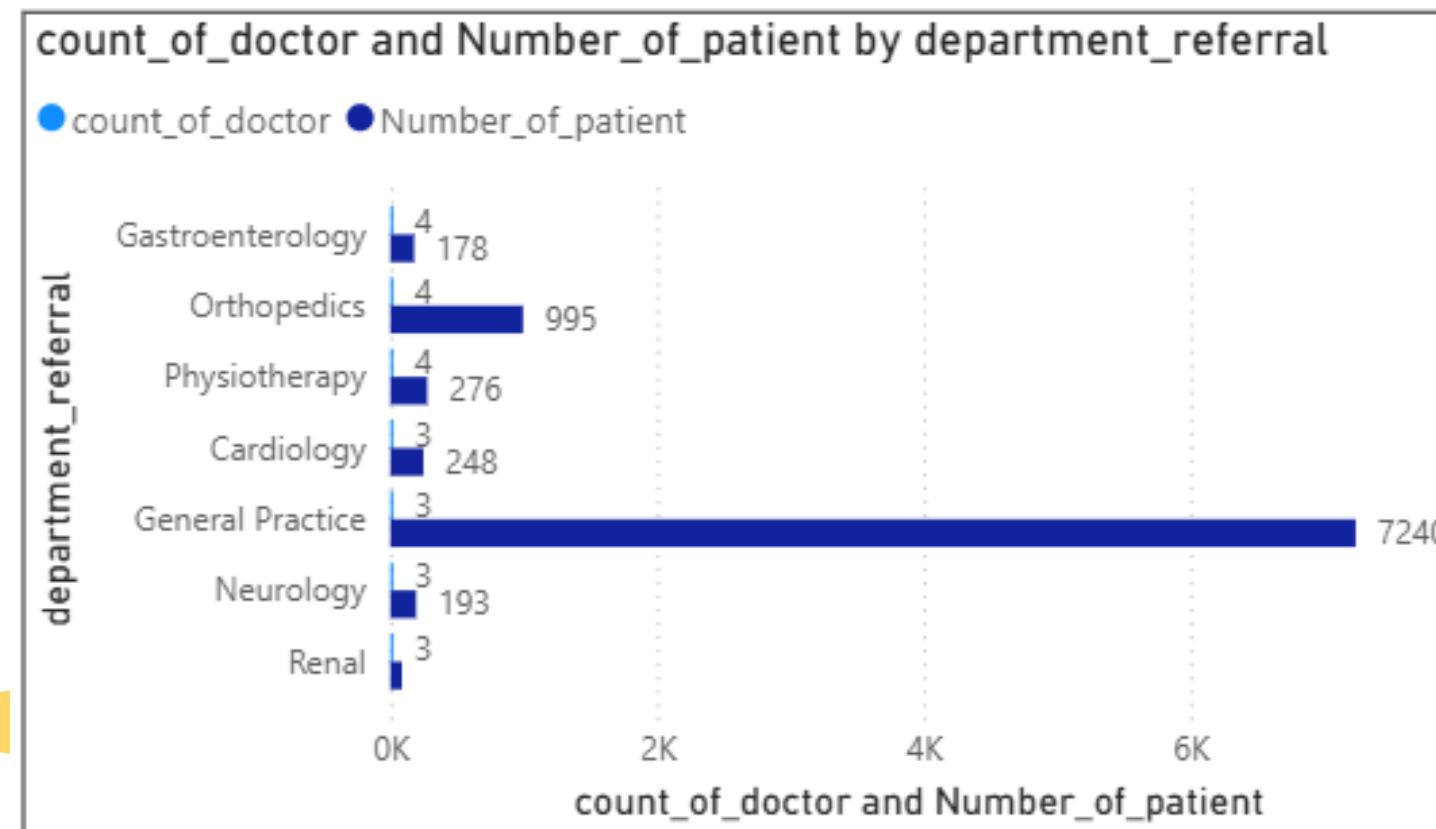
- Adults , Child, and Older people are top contributors to revenue.
- This age-wise revenue distribution underscores the importance of focusing on middle aged and senior care services for financial sustainability.

Revenue Analysis by Patient Race



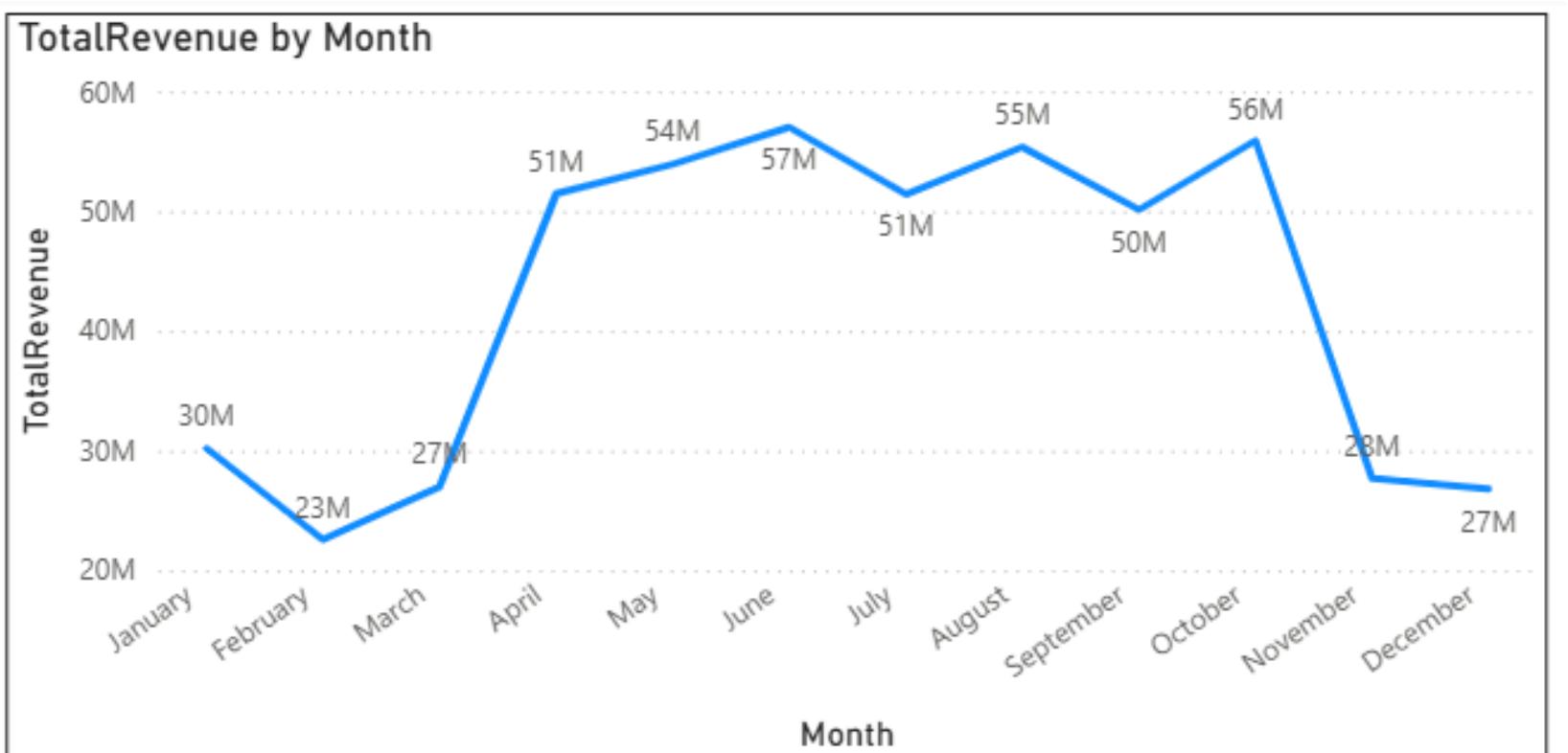
- White patients generate the highest (**141M**) total revenue, followed by African American (**110M**) and Two or More Races .
- Lower Revenue generation from Native American/Alaska Native (**30M**) and Pacific Islander (**31M**) reflects either smaller patient volumes or lower bill sizes.

Department Staffing Analysis: Doctor-Patient Ratio



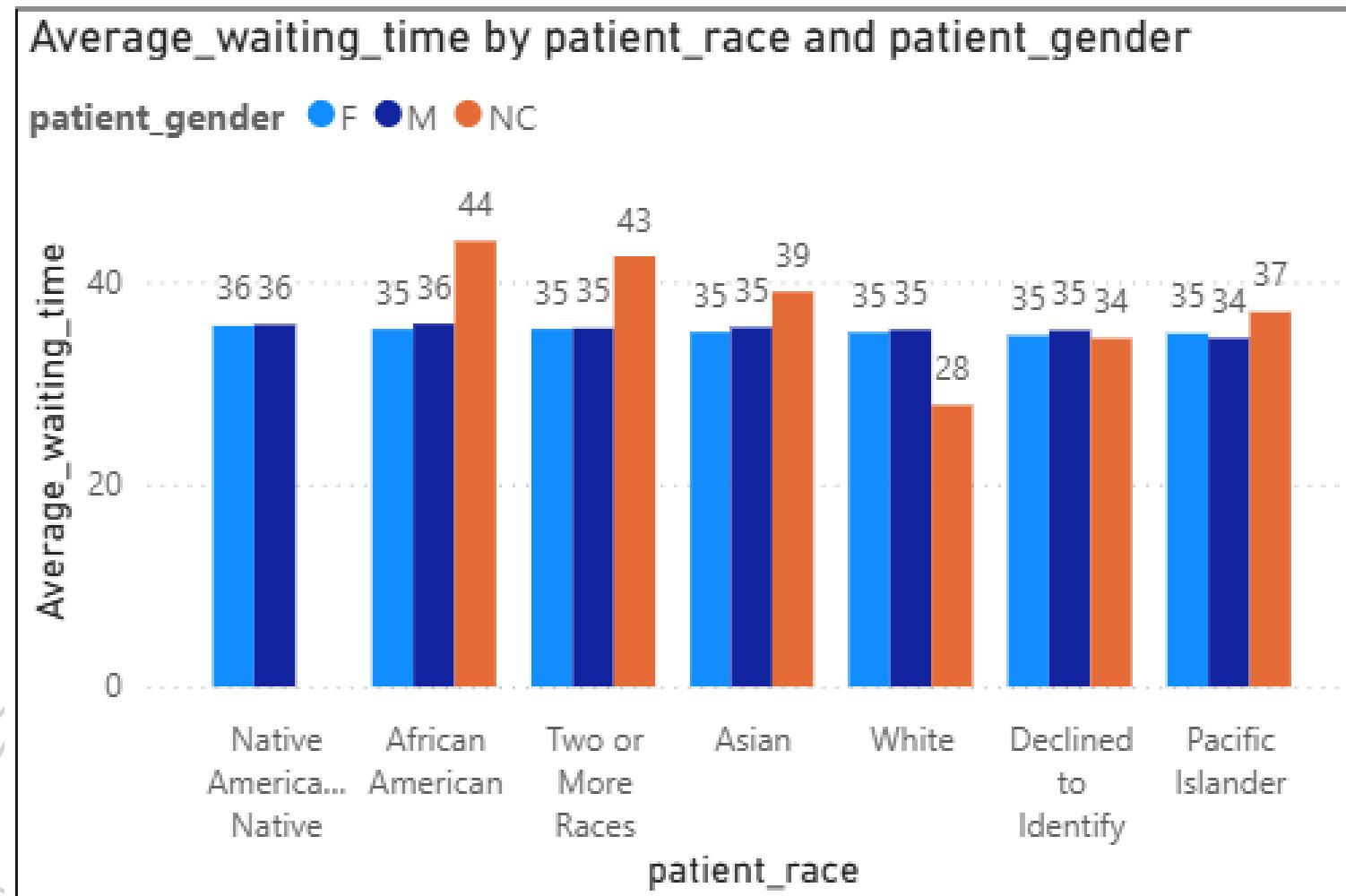
- General Practice has the highest patient volume (7,240) with only 3 doctors – a very high workload per doctor with orthopedics in second with 4 doctors, also indicating a heavy load.
- Physiotherapy, Cardiology, Renal, Gastroenterology, Neurology have lower volumes and no immediate staffing.

Monthly Revenue Trend



- Profit trends show strong peaks between April and October, with highest values (~₹54M–₹56M) in May and October.
- A sharp dip in profit is evident during January–March and November–December, suggesting seasonal fluctuations in patient volumes or billing.
- The consistent mid-year peak may reflect higher elective procedures, preventive care initiatives, or annual check-up trends

Discrimination Analysis by Gender and Race



- Each people from different gender are having the same waiting time while visiting ti the doctors. Hence no discrimination is seen based on gender.
- And people from different race are also having almost same waiting time. So no discrimination in found on the basis of race

Main Tab



9216

Count_of_Patient

22

count_of_doctor

509M

TotalRevenue

35.26

Average_waiting_time

patient_gender, patient_race, .

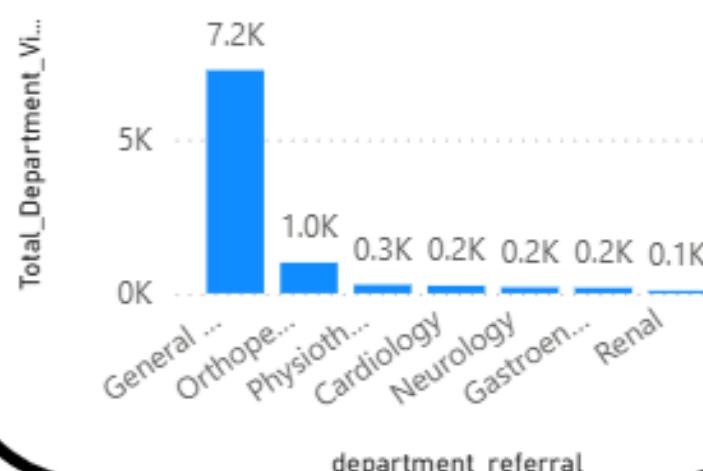
- ▼ F
- ▼ M
- ▼ NC

date

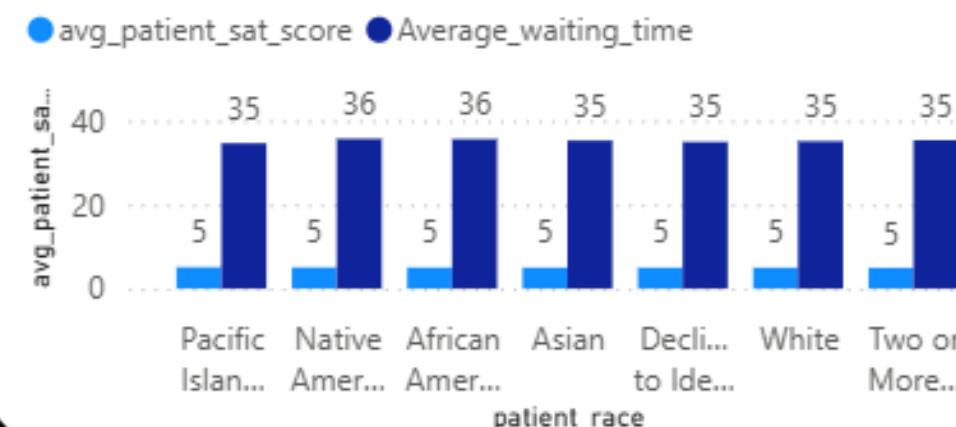
01-04-2019

30-10-2020

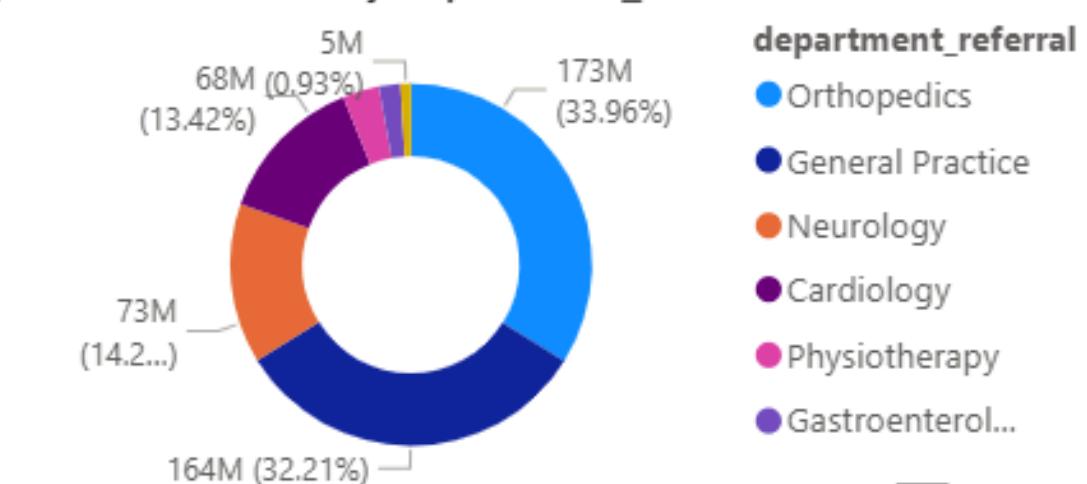
Total_Department_Visits by department_referral



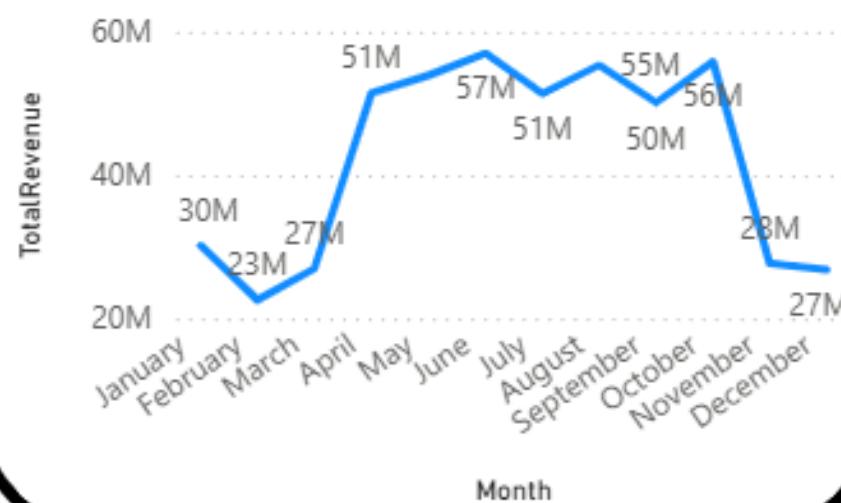
avg_patient_sat_score and Average_waiting_time by patient_race



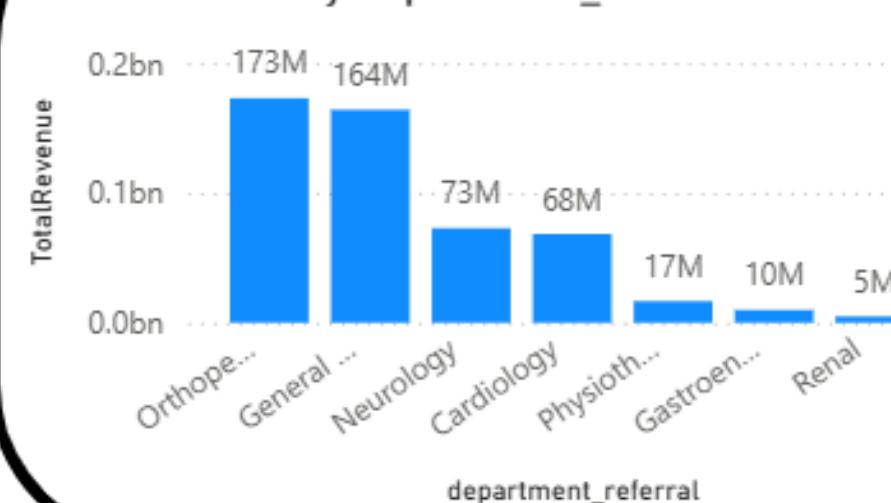
TotalRevenue by department_referral



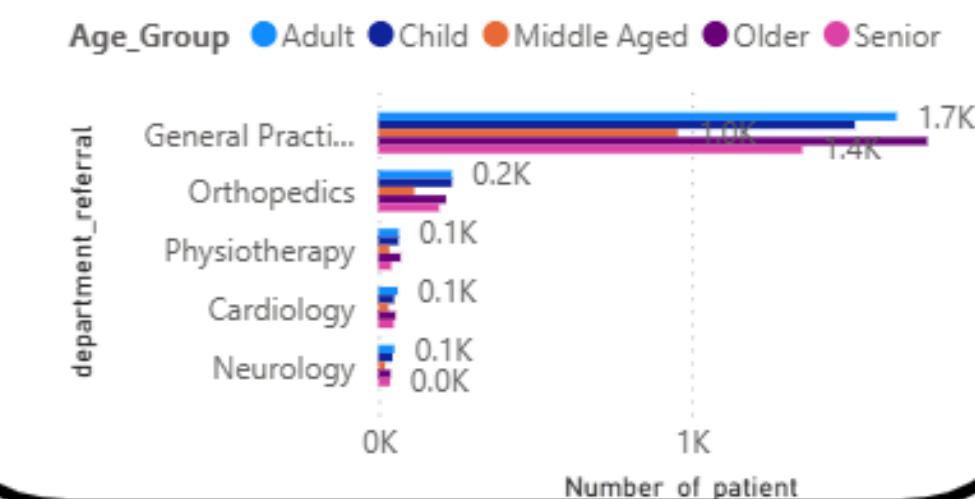
TotalRevenue by Month



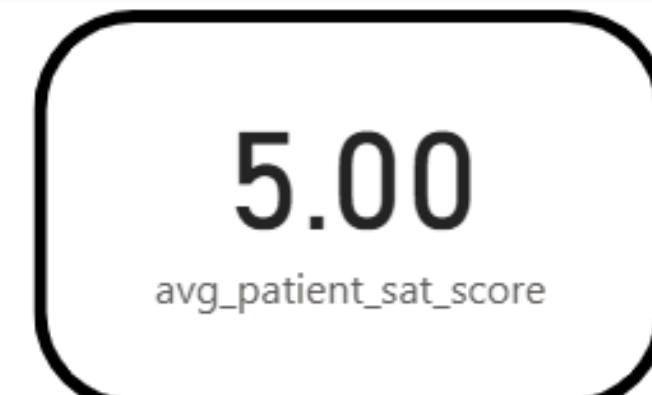
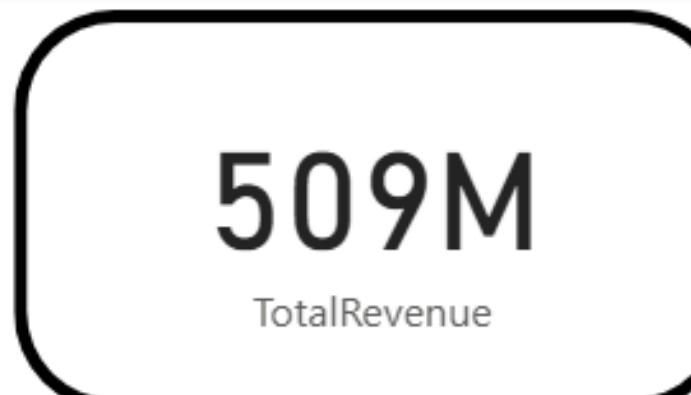
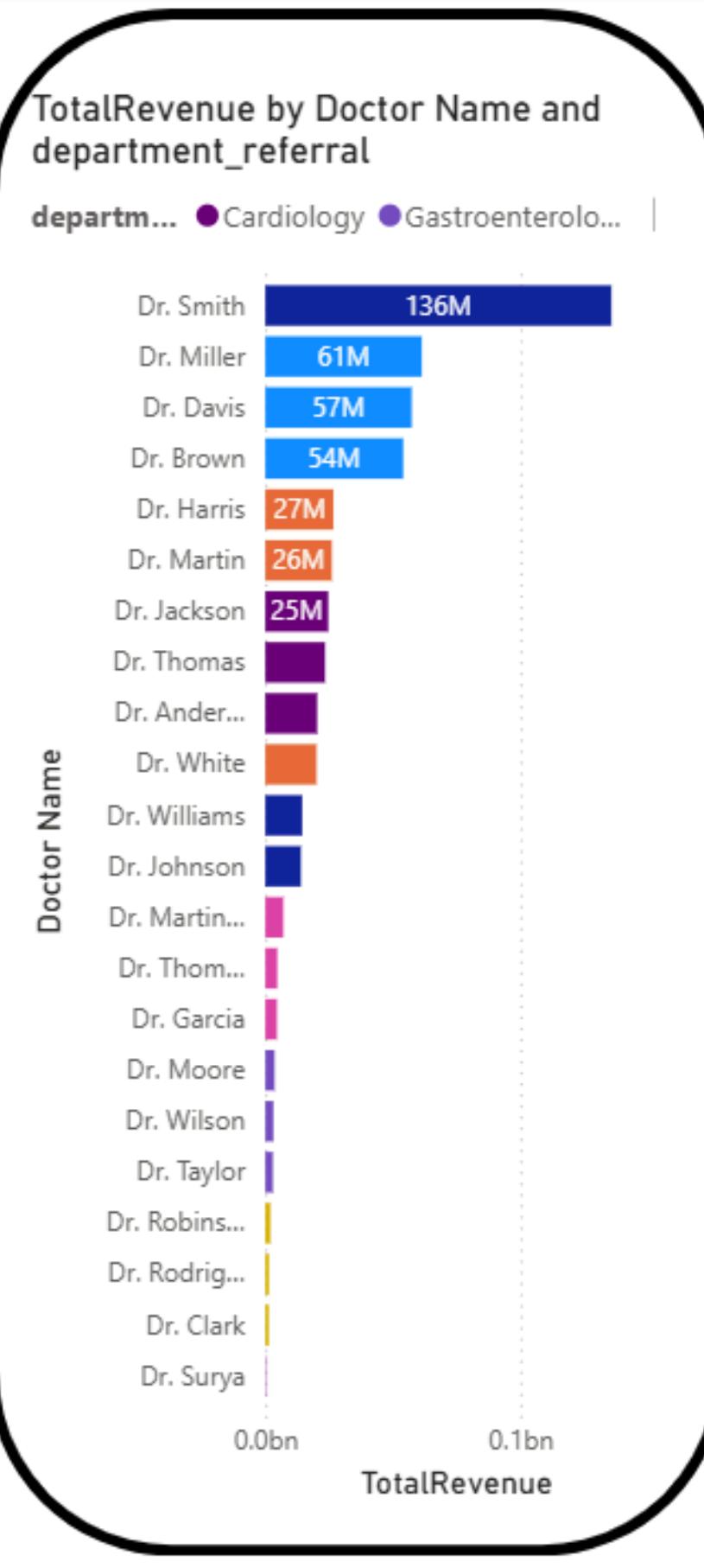
TotalRevenue by department_referral



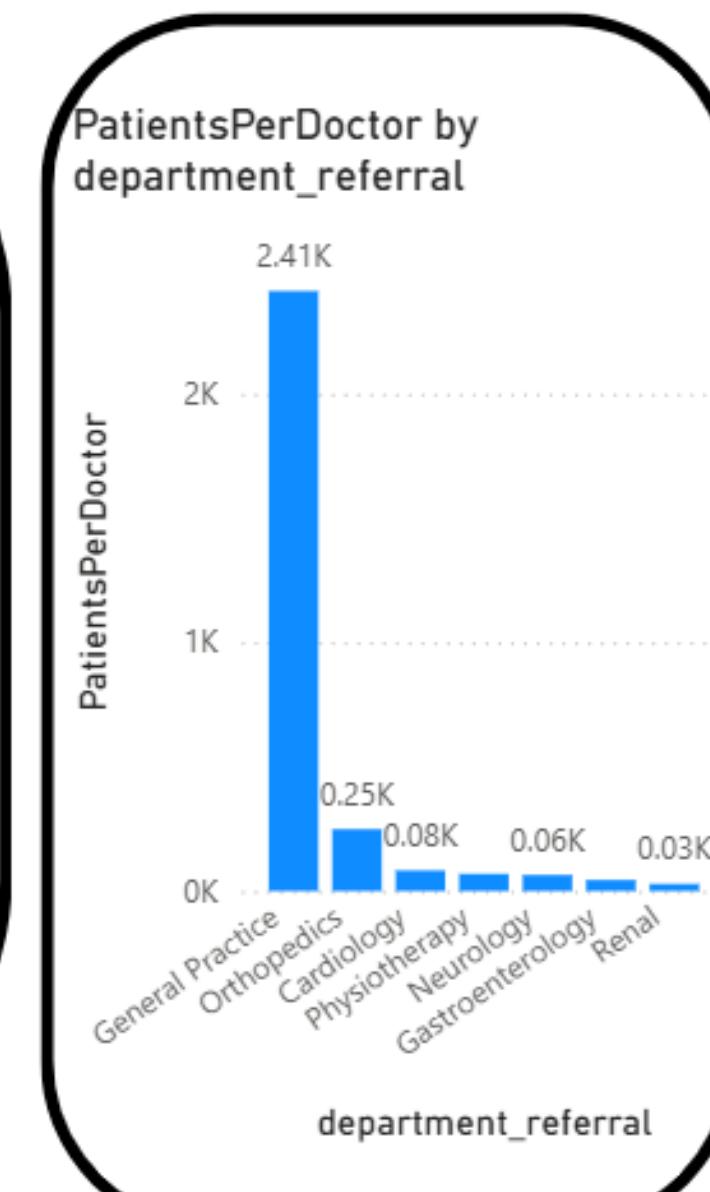
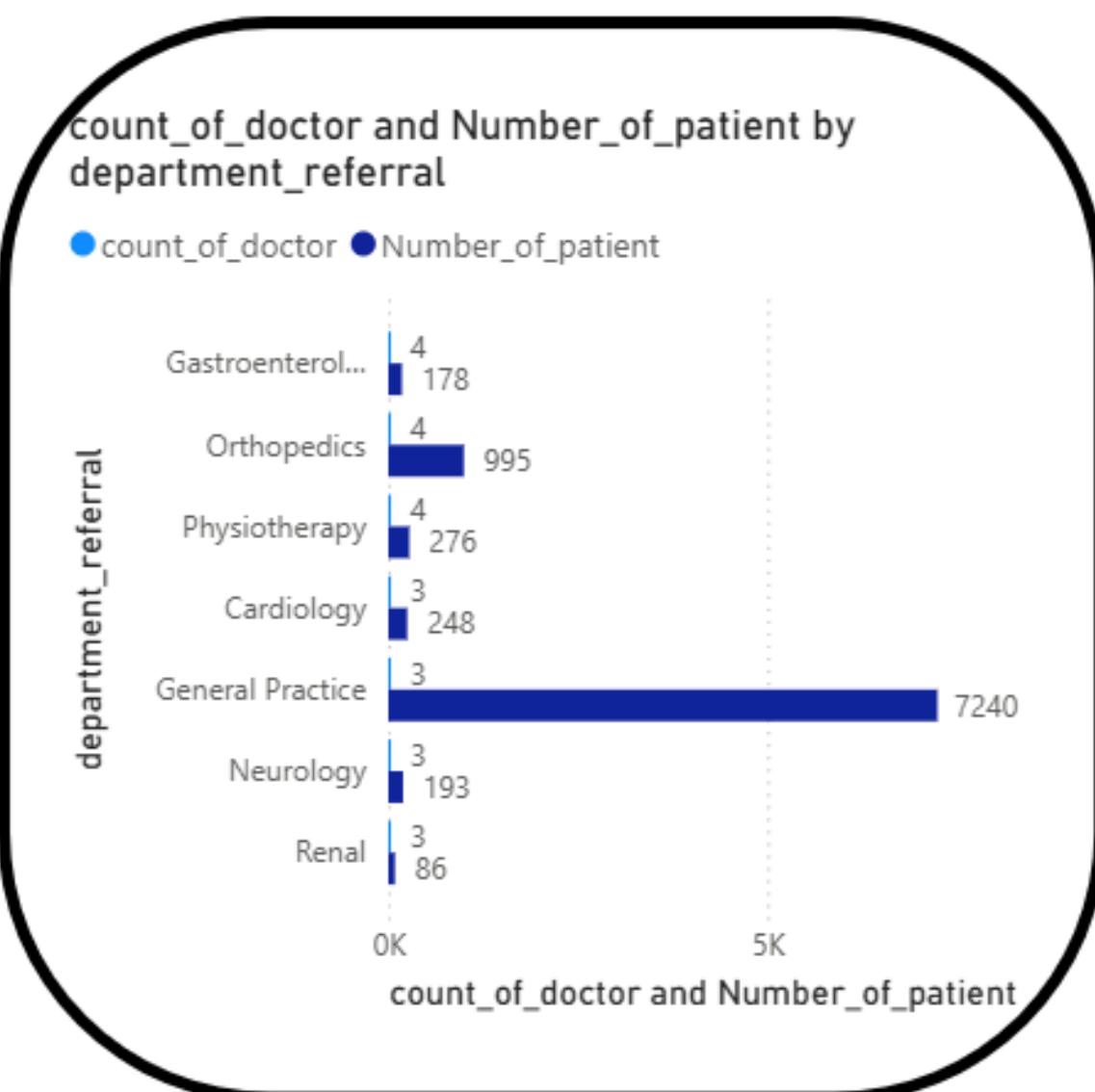
Number_of_patient by department_referral and Age_Group



Doctor's Tab



- Doctor Name
- Dr. Anderson
 - Dr. Brown
 - Dr. Clark
 - Dr. Davis
 - Dr. Garcia
 - Dr. Harris
 - Dr. Jackson
 - Dr. Johnson
 - Dr. Martin
 - Dr. Martinez
 - Dr. Miller
 - Dr. Moore
 - Dr. Robinson
 - Dr. Rodriguez
 - Dr. Smith
 - Dr. Surya
 - Dr. Taylor
 - Dr. Thomas
 - Dr. Thompson
 - Dr. White



Patient's Tab



9216

Number_of_patient

509M

TotalRevenue

35.26

Average_waiting_time

Average_waiting_time and avg_patient_sat_score correlation for department...

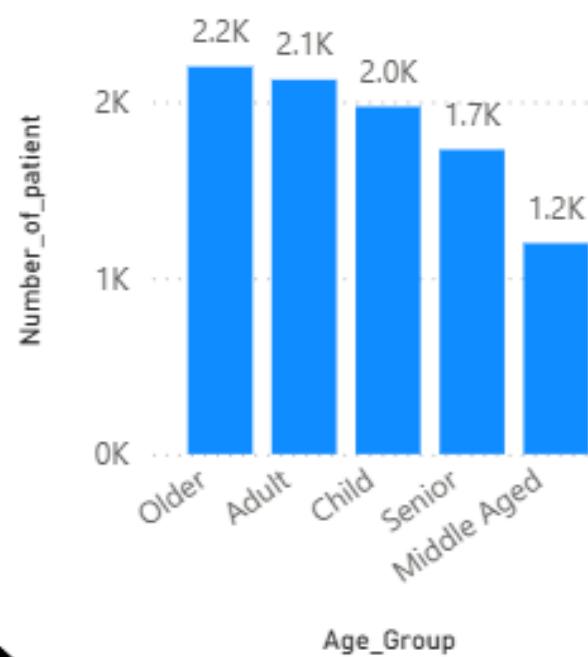
0.00 0.49 0.97

patient_id

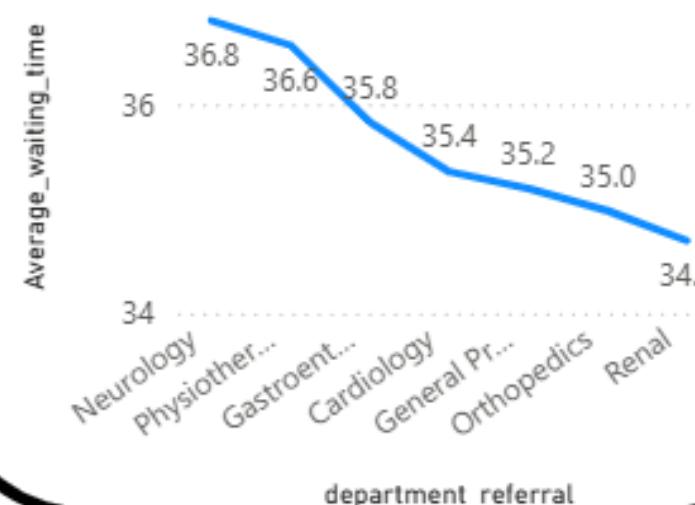
- 100-04-3993
- 100-17-5081
- 100-21-9648
- 100-34-6753
- 100-34-9587

patient_gender	Number_of_patient
F	4487
M	4705
NC	24
Total	9216

Number_of_patient by Age_Group



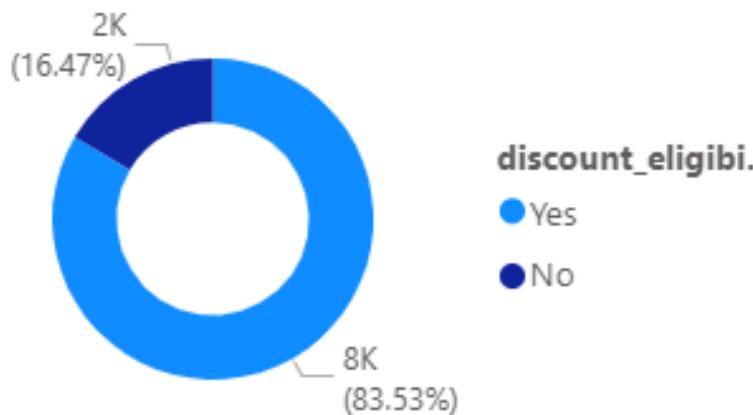
Average_waiting_time by department_referral



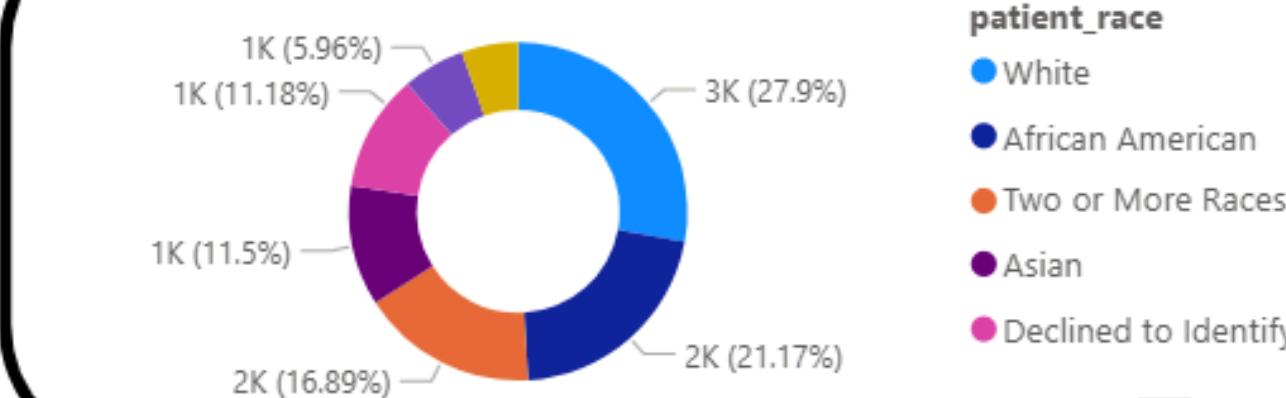
avg_patient_sat_score by patient_race and patient_gender



Number_of_patient by discount_eligibility



Number_of_patient by patient_race



Strategic Recommendation

Enhance High-Performing Departments & Services

- Continue investing in high-revenue departments like Orthopedics and General Practice by improving facilities, adding advanced treatment options, and strengthening patient follow-up programs.
- Promote specialized high-billing services (e.g., Cardiology, Neurology) to maximize revenue while maintaining quality and accessibility.

Optimize Underperforming Areas

- Investigate low-revenue or low-visit departments (e.g., Gastroenterology, Physiotherapy, Renal) to identify causes such as limited awareness, operational inefficiencies, or outdated service packages.
- Launch targeted outreach and marketing campaigns to improve visibility and encourage patient utilization in these areas.

Strengthen Operational Efficiency

- Analyze and manage departments with high waiting times; consider increasing staffing, optimizing scheduling, and adopting pre-appointment triaging to reduce delays and improve patient experiences.
- Monitor monthly workloads and adjust resources dynamically to balance capacity and avoid overburdening doctors.

Improve Revenue Diversification & Cross-Referrals

- Create bundled preventive care or family packages encouraging cross-department referrals, boosting volumes in specialized and low-performing services.
- Design tailored wellness programs to attract patients throughout the year, thereby smoothing seasonal revenue fluctuations.

Prioritize Patient-Centric Care

- Provide discounts or loyalty-based incentives for seniors, frequent visitors, and high-bill patients to improve accessibility and strengthen patient trust.
- Maintain equitable care by monitoring patient satisfaction across age groups, genders, and racial backgrounds, ensuring no demographic is underserved.

Department for New Hiring

- Focus on hiring more doctors in General Practice, which faces the highest patient volume and highest doctor workload.
- Support Orthopedics and Cardiology, where patient loads are high and additional staffing can prevent burnout.
- Monitor other departments proactively to ensure staffing aligns with future demand and maintains patient care quality.



THANK YOU !

