**Scenario: To reduce wait time in emergency department of a hospital**

**Step 1: Understanding the Business Goal**

**Business Goal:**

A local hospital wants to reduce patient wait times in the emergency department by 30% over the next 6 months - Recovery Hospital

**Key Objectives:**

**>**Identifying the rates of emergency cases

>Understanding the need for increase in equipment

>Understanding the need for professionals –nurses and doctors

>Collecting the data on time for individual tasks like –check in, treatment and checkout

>To prioritize different cases efficiently to reduce delays

>Develop a dashboard to monitor KPI’s in peak hours

>collect feedback from patients, staff and monitor the progress

>Make sure you keep a track on work to make implicit changes whenever needed

**Step 2: Q&A b/w Data Analyst vs Client**

|  |  |
| --- | --- |
| **Data Analyst** | **Client** |
| 1)What is the current average wait time in the emergency department? | Our average wait time is 45 minutes, measured from check-in to seeing a doctor. |
| 2) When do you experience the highest patient volume, and how does this affect wait times? | Wait times are highest on weekends and evenings, especially during the winter months. |
| 3)What is the staffing situation like during peak hours, and is there flexibility in schedules? | We have limited staff during peak periods and rely on part-time staff, which can be inconsistent. |
| 4)Do you have any current initiatives in place to reduce wait times, and have they been effective? | We’ve tried streamlining triage, but it hasn't significantly reduced wait times." |
| 5) What are the main barriers to reducing wait times (e.g., budget, staffing, technology)? | The biggest barriers are budget constraints and a shortage of skilled medical staff. |
| 6) What types of cases contribute most to longer wait times, and how are they managed? | Non-urgent cases contribute to delays, and we are considering improving the triage system to prioritize critical cases. |
|  |  |

**Step 3: Sample Data Collection**

**Table 1: Wait Times and Patient Volume**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Time Period** | **Average Wait Time (min)** | |  | | --- | | **Peak Patient Volume** | | **Day of Week** | **Month (Season**) |
| Weekdays | 45 | 150 | Monday | winter |
| Weekends | 60 | 200 | Saturday | winter |
| Evening | 55 | 100 | Any | winter |
| Off peak | 30 | 80 | Thursday | spring |

**Table 2: Staffing Levels During Peak Hours**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Shift Type** | **Staffing(doc)** | **Staffing(nurse)** | **Staffing(others)** | **Staffing issues** |
| Day | 3 | 5 | 2 | yes |
| Evening | 2 | 4 | 1 | yes |
| Night | 1 | 3 | 1 | yes |

**Table 3: Types of Cases and Their Impact on Wait Times**

|  |  |  |  |
| --- | --- | --- | --- |
| **Case Type** | **No.of cases** | **AVG wait time** | **Impact on wait times** |
| Non-urgent | 40 | 50 | High |
| Urgent | 25 | 30 | Medium |
| Critical | 10 | 15 | Low |

**Step 4: Next Steps**

>data cleaning

>EDA

>feature engineering

>Building insights