Emergency Room Admissions Analysis – Tableau Project Report

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🔗 LinkedIn | 🌐 GitHub Portfolio | 📊 Tableau Dashboard
RWFD source: Hospital ER Dataset

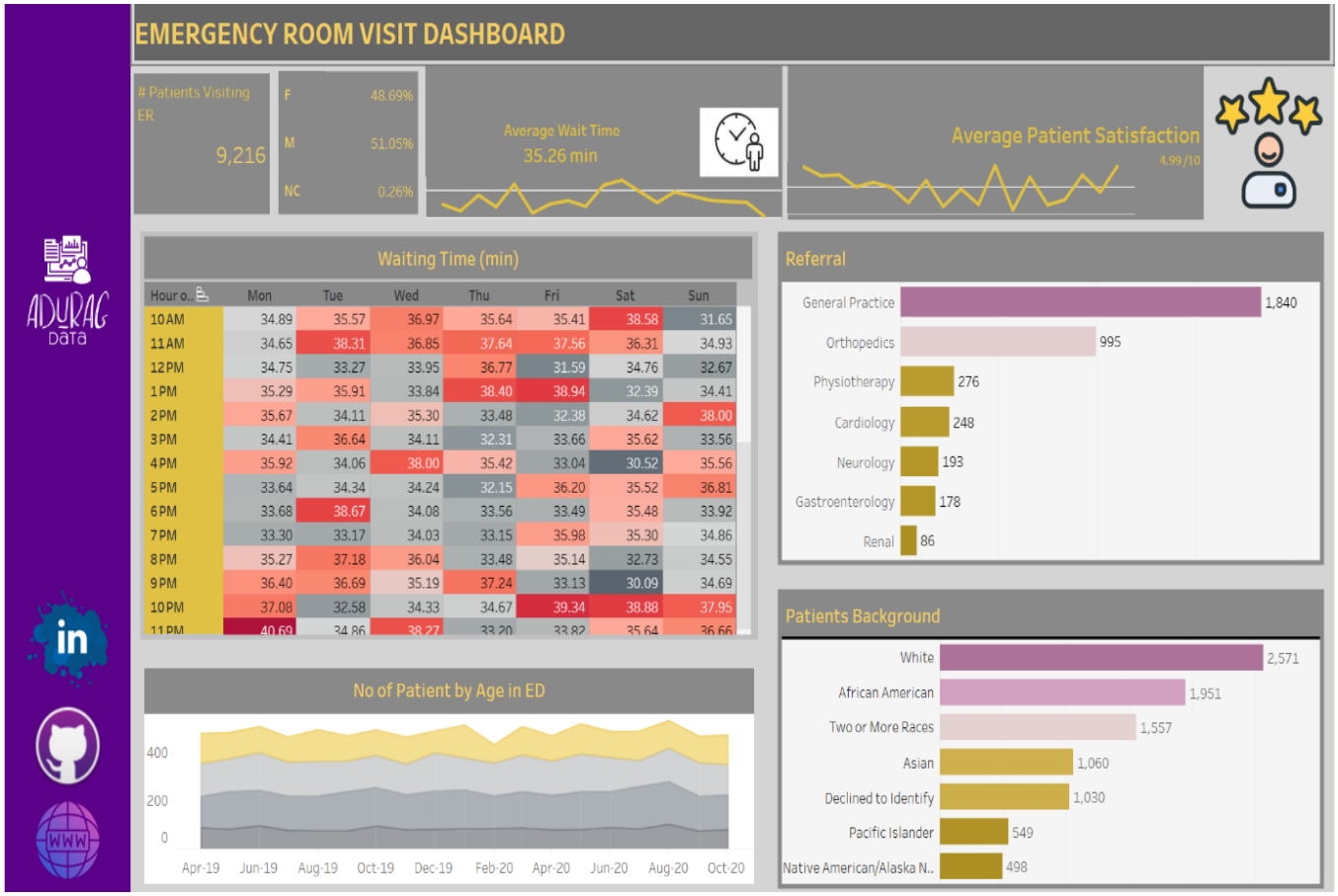
Introduction

This project analyzes emergency admission rates in a hospital using **real-world-inspired but fictional data**. The dataset has been created to simulate realistic hospital scenarios, allowing for meaningful insights without exposing real patient information. The data is taken from data world from Mark Bradbourne which is available to download or use the file from my GitHub under the same project.

The Emergency Room Tableau dashboard focuses on:

- Identifying the busiest times for emergency admissions.
- Highlighting periods with the longest patient waiting times. The time is
- Determining patient referral sources.
- Analyzing age and race demographics of patients.
- Displaying demographic percentages for deeper insight.

By leveraging Tableau's interactive capabilities, the project enables quick, intuitive exploration of the data — allowing users to uncover trends simply by clicking through visualizations.



Summary

The interactive Tableau dashboard provides hospital administrators and analysts with a clear, flexible overview of emergency room activity:

- **Busiest Times:** Peak admissions occur late nights (11 pm–3 am) on Mondays; mornings on Tuesdays; late nights through mornings on Wednesdays, Thursdays, Fridays, and Saturdays; and late nights on Sundays.
- **Waiting Times:** Average waiting times rise sharply in June–August and December–February, aligning with holiday periods. These trends suggest a need for increased staffing during these months.
- **Referral Sources:** Patients primarily arrive via GP clinics, walk-ins, ambulance services, and other medical sources.
- **Demographics:** The largest racial groups admitted are White and African American.
- **Age & Gender:** Most patients are aged 18–64, with 49% female and 51% male.
- **Satisfaction Rate:** The average satisfaction score is below 5 out of 10, highlighting the need for faster, more efficient admissions to improve patient safety and experience.

Cross-filter functionality allows decision-makers to combine factors. For example, viewing waiting times for a particular age group and referral source simultaneously.

Recommendations

If applied in a real hospital context, the following actions are advised:

1. **Optimize Staffing During Peak Periods**
    - Allocate more staff and treatment capacity during high-traffic hours to minimize wait times. Particularly when its market red in heat map on the visualisation marked, around midnight and early morning.
2. **Investigate Long-Wait Periods**
    - Identify operational issues causing delays and redesign workflows for faster patient throughout. Might be additional doctor or nurse as more than half hour waiting time for an emergency room could potentially decide patient safety.
3. **Community Outreach**
    - Focus on preventive healthcare initiatives in areas or referral sources with high admission rates. This could help the bottleneck admission and prevent cases before they become and emergency.
4. **Demographic-Driven Service Planning**
    - Provide culturally appropriate services and targeted programs based on the patient demographic data.
5. **Continuous Monitoring & Updates**

- Refresh the dashboard with updated data regularly to ensure ongoing performance tracking and timely interventions. Checks if this change has improved overall satisfaction

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Conclusion

This Tableau project demonstrates how a **realistic simulated dataset** can be transformed into an interactive, actionable dashboard for hospital emergency admissions. While the data is fictional, the analytical approach mirrors real-world healthcare needs and can help decision-makers:

- Predict and prepare for busy periods.
- Reduce patient waiting times.
- Tailor services to community demographics.

With actual hospital data, this dashboard could serve as a **powerful tool for evidence-based planning** and ultimately improve patient care outcomes.

Links

Source RWFD : https://data.world/markbradbourne/rwfd-real-world-fake-data/workspace/file?filename=Hospital+ER.csv

Emergency Room dashdoard : https://public.tableau.com/app/profile/ryazania.utami/viz/EmergencyRoomVisit_17549785398500/Dashboard1

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