

# CITY HOSPITAL ANALYSIS

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# Project Summary

City General Hospital is experiencing severe operational issues: ER overcrowding, bed misallocation, staff burnout, medication mismanagement, financial losses, and high lab retest rates. This project analyzes available hospital data and produces an interactive Excel dashboard with actionable recommendations.

# Objectives

1. Patient Demographics: Distribution of patients by Age groups, gender etc.
2. Admissions Trend: which day of the week is the busiest ?
3. Billing & Insurance: Revenue generated by each insurance provider
4. Doctor Performance: Doctor to patient ratio - which doctors are working more and why?
5. Medication Utilization: How do we stop running out of essential drugs while others expire?
6. Admission Types: When do unexpected emergency spikes happen?
7. Test Result Quality: Why are some of laboratory tests inconclusive?

# Dataset Overview

City Hospital.xlsx\*\* — patient\_id, age, gender, date\_of\_admmision, department, billing\_amount

New column added: age\_group, doctor\_to\_patient\_ratio, billing\_category, admission\_days

# KPIs

- Total number of patients
- Average age of patients
- Total income
- Average admission days
- Average income

# Dashboard Insights

- Majority of ER visits are from patients that are 40yrs and above → contributes to bed shortages
- Tuesdays and Thursdays have the highest number of patient visits
- 90% of lab tests flagged for retest, increasing workload and delays
- Less than 1% of total doctors attend to more than 10 patients each

## Dashboard Insights contd

- Inventory mismatch: critical drugs short while others near expiry
- Average emergency cases are 33% all round the year
- Tests are normal for only Arthritis condition
- Revenue leakage from unpaid insurance claims and billing gaps

# Recommendations

1. Reallocate beds and triage protocols based on age-group trends
2. Rebalance staff shifts using workload analytics and consider cross-training
3. Implement automated stock monitoring & FIFO for medications
4. Tighten lab QC processes to reduce retests (target <5%)
5. Audit billing and implement a claims follow-up workflow to reduce unpaid claims
6. Monitor KPIs weekly and run a monthly operational review with stakeholders

# Conclusion

Be assured that this dashboard provides a clear analysis on the existing problem and recommends data-driven strategies to improve overall workflow and increase revenue.

Thank you for your time