

Hospital Inpatient Operations & Financial KPI Dashboard (2024)

Dataset Description

This dataset contains 1,048,576 inpatient discharge records for calendar year 2024. Each record represents a complete hospital inpatient stay and includes patient demographics, admission details, clinical classifications, and financial information. The dataset supports enterprise-level hospital operational and financial performance analysis.

Hospital Executive KPIs

1. **Total Discharges (Admissions Proxy):** Count of patient records
2. **Total Charges:** Sum of Total Charges
3. **Total Costs:** Sum of Total Costs
4. **Average Length of Stay:** Average of Length of Stay
5. **Top DRGs by Volume:** Count by APR DRG Description
6. **Top Procedures by Volume:** Count by CCSR Procedure Description
7. **Payer Mix:** Distribution by Payment Typology
8. **Discharges by Hospital:** Count by Facility Name
9. **Regional Volume:** Count by Health Service Area

Business Problem

Hospitals require executive-level operational and financial KPIs to monitor patient volume, utilization, and performance. This analysis evaluates inpatient discharge data to support hospital leadership with actionable insights for capacity planning, financial management, and care delivery optimization.

Business Questions

1. What are total hospital discharges and trends over time?
2. Which hospitals have the highest inpatient volume?
3. Which diagnoses and procedures drive the most discharges?
4. What is the average length of stay?

5. Which payers represent the largest share of admissions?
6. What is the financial impact of high-volume DRGs?

Data Cleaning Actions Performed

The dataset was audited and cleaned following healthcare data quality standards.

Missing Values

- Replaced 112 blank values in Payment Typology 1 with "Unknown"
- Replaced 579,909 blank values in Payment Typology 2 with "Unknown"

Duplicates

- Removed 877 duplicate records across all columns

Validation

- Age Group category "70 or Older" retained as valid hospital reporting grouping
- Gender values (M, F, U) validated as standard hospital registration values
- Length of Stay grouped value "120+" retained as valid long-stay reporting bucket
- Payment typology values validated including Misc/Other and Unknown

Final Dataset Status

The cleaned dataset is approved for KPI analysis and dashboard development.

KPI	Definition	Why It Matters
Total Discharges	Total patient discharges	Measures hospital volume
Total Charges	Sum of all hospital charges	Revenue indicator
Total Costs	Sum of hospital costs	Expense indicator
Avg Length of Stay	Avg inpatient days	Efficiency metric
Case Mix (DRGs)	Distribution of diagnoses	Complexity & specialization
Payer Mix	Insurance breakdown	Revenue risk

KPI	Definition	Why It Matters
Admission Type	Emergency vs Elective	Capacity planning

Executive Summary

This analysis evaluates hospital inpatient discharges across New York State for the 2024 discharge year, based on over one million patient records. The objective of this report is to assess hospital volume trends, service line demand, procedure performance, and revenue drivers in order to support hospital operations, financial planning, and capacity management.

Key findings indicate that patient volume is concentrated among a small group of high-volume hospitals and health service areas. Chronic disease-related diagnoses and high-volume surgical procedures represent the largest share of inpatient discharges. Revenue is primarily driven by a subset of high-complexity Diagnosis Related Groups (DRGs), while payer mix analysis highlights a strong reliance on government and managed care reimbursement.

These insights provide hospital leadership with a data-driven foundation for staffing optimization, service line planning, and financial performance improvement initiatives.

Hospital Volume Trends

The highest patient volumes are concentrated among Mount Sinai, NYU Langone, and North Shore University Hospital, indicating a significant operational load on a limited number of facilities. These hospitals represent the primary drivers of inpatient capacity utilization across the state and should be prioritized for staffing, infrastructure, and patient flow optimization initiatives.

Regional Demand Trends

Patient demand is concentrated within New York City and Long Island, highlighting regional disparities in inpatient utilization. These regions represent the highest demand markets and require focused resource planning to ensure sufficient bed capacity and workforce coverage.

Growth Signals (Diagnosis Volume)

The most common inpatient diagnoses are driven primarily by liveborn deliveries and septicemia. These service lines represent the core demand drivers for inpatient care and

indicate sustained growth opportunities for specialty programs, maternal health services, and chronic disease management initiatives.

Procedure Performance

High-volume procedures such as spontaneous vaginal delivery and cesarean section represent a significant share of inpatient utilization and are associated with increased length of stay and cost profiles. These procedures drive both operational workload and financial performance, making them key targets for clinical efficiency and care pathway optimization initiatives.

Revenue Drivers

Hospital revenue is concentrated within a subset of high-complexity DRGs. Septicemia and disseminated infections, along with heart failure, represent the primary financial drivers of inpatient operations and should be prioritized for margin optimization, reimbursement strategy, and cost management initiatives.

Payer Mix & Revenue Risk

The payer mix demonstrates a strong dependence on government and managed care programs, particularly Medicare and Medicaid. This highlights potential reimbursement risk exposure and underscores the importance of revenue cycle optimization and payer contract management.

Admission Flow

Elective and emergency admissions represent a substantial portion of inpatient volume, indicating ongoing demand pressure on emergency departments and inpatient capacity. These patterns support continued investment in emergency department throughput optimization and inpatient bed management.