

## **Project Overview**

This project aims to create a comprehensive Key Performance Indicator (KPI) report for the leadership team at Massachusetts General Hospital (MGH). The report will act as a strategic tool, addressing crucial questions about the hospital's performance and operations. By analyzing recent data, the report will provide stakeholders with a clear and concise summary of MGH's achievements and areas for improvement.

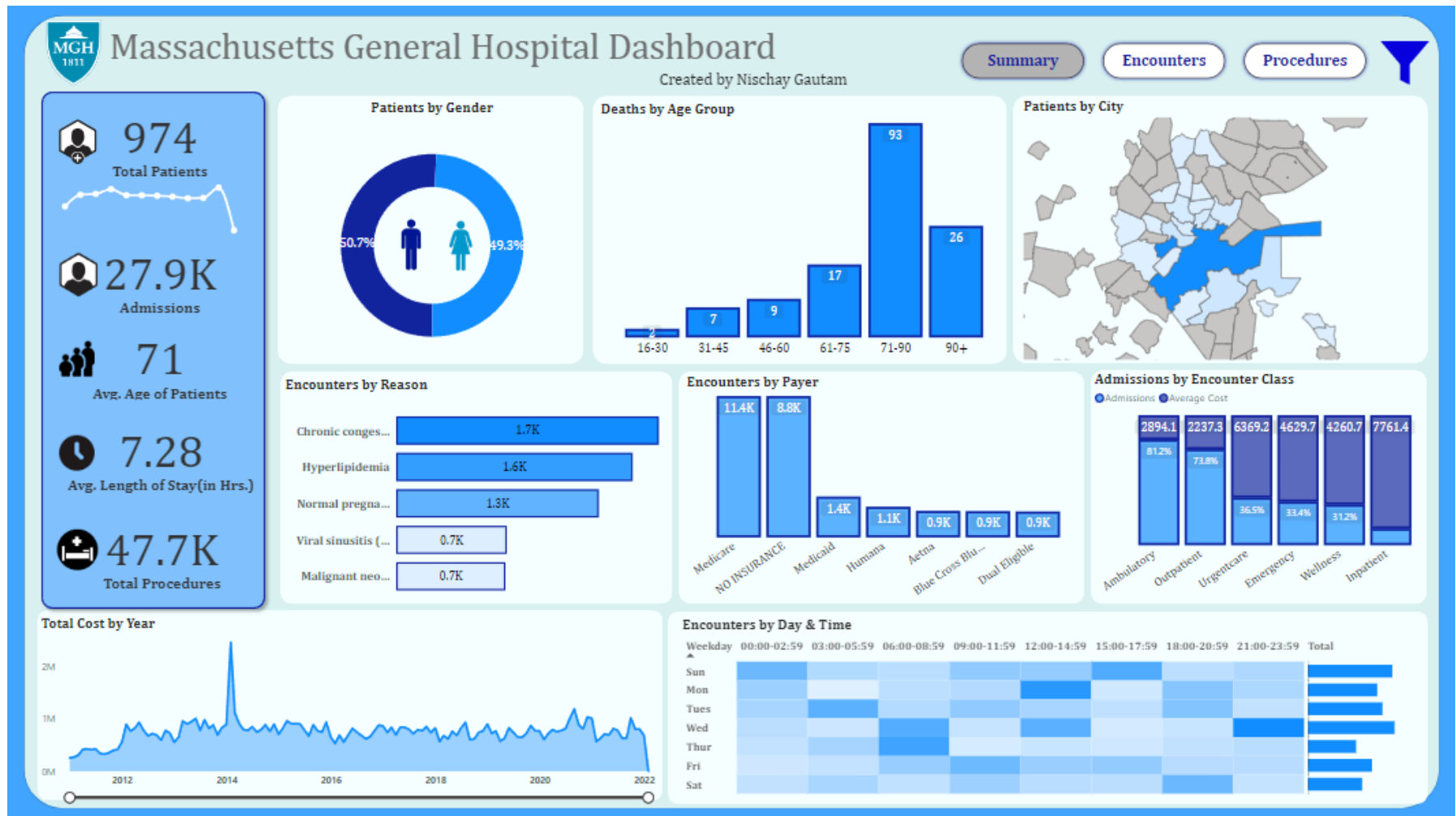
### **Business Needs:**

- Track the number of patient admissions and readmissions over time.
- Calculate the average length of stay for patients in the hospital.
- Determine the average cost per patient visit.
- Show the number of procedures covered by insurance.

### **Dashboard Overview:**

#### **a) KPI (Cards):**

- Total Patients: Displays the total number of patients who visited the hospital.
- Admissions: Shows the number of patient admissions.
- Readmissions: Shows the number of patient readmissions.
- Procedures: Total number of procedures performed during the period.
- Procedures Covered by Insurance: Indicates the number of procedures covered by insurance.
- Avg. Length of Stay: Shows the average duration of patient stays.
- Avg. Cost Per Visit: Displays the average cost per patient visit.
- Revenue: Shows the total revenue generated by the hospital.



## b) Patient Demographics:

- Patients Distribution by Race: Column chart showing patient distribution across different races.
- Patients by Gender: Pie chart illustrating the gender distribution of patients.
- Avg. Length of Stay by Ethnicity: Pie chart showing the average length of stay by ethnicity.
- Total Patients by Age Bracket and Gender: Column chart showing the distribution of patients by age bracket and gender.



# Massachusetts General Hospital Dashboard

Created by Nischay Gautam

Summary

Encounters

Procedures



974

Total Patients



27.9K

Admissions



854

Readmissions



154

Deceased



15.8%

Mortality Rate



76

Avg Age of Patients



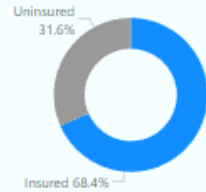
67



47.7K

Total Procedures

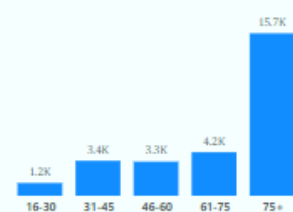
## Encounters by Insurance



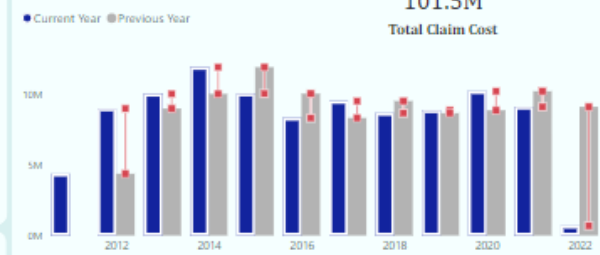
## Encounters by Insurance Name



## Readmissions by Age

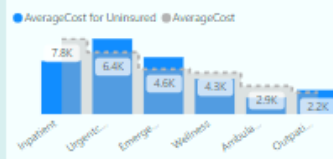


## Claim Cost by Year



REASON	ENCOUNTERS	ENCOUNTER CLASS	AVG COST	AVG STAY LENGTH
Acute bacterial sinusitis (disorder)	84	Ambulatory	87.68	0.32
Acute bronchitis (disorder)	352	Ambulatory	1,880.86	0.29
Acute Cholecystitis	2	Emergency	14,370.40	20.50
Acute viral pharyngitis (disorder)	400	Ambulatory	361.97	0.25
Alzheimer's disease (disorder)	164	Ambulatory	162.63	0.26
Alzheimer's disease (disorder)	19	Inpatient	0.00	24.00
Alzheimer's disease (disorder)	8	Wellness	0.00	0.13
Anemia (disorder)	61	Ambulatory	774.49	0.38
Anemia (disorder)	3	Inpatient	2,367.95	24.00
Appendicitis	2	Emergency	146.18	1.00
Appendicitis	2	Inpatient	17,178.73	84.00
Asthma	98	Ambulatory	142.58	0.31
Asthma	15	Emergency	146.18	1.00
Bleeding from anus	3	Ambulatory	85.55	1.00
Blighted ovum	9	Ambulatory	1,005.38	0.22
Bullet wound	3	Ambulatory	85.55	0.33
Cardiac Arrest	3	Wellness	0.00	0.33
Chronic congestive heart failure (disorder)	1668	Ambulatory	309.44	0.40
Chronic congestive heart failure (disorder)	33	Emergency	9,001.52	1.00
Chronic congestive heart failure (disorder)	31	Inpatient	3,871.41	28.68
Chronic congestive heart failure (disorder)	6	Wellness	0.00	0.17
Chronic intractable migraine without aura	3	Inpatient	288.25	24.00
Chronic pain	3	Inpatient	443.48	24.00
Closed fracture of hip	17	Ambulatory	85.55	0.18
Concussion with loss of consciousness	10	Ambulatory	85.55	0.20
Concussion with no loss of consciousness	78	Ambulatory	66.66	0.43

## Avg Cost for Uninsured and Avg by Encounter Class



## Avg Per Visit Claim Cost by Year



## Encounters by Day & Time

Weekday	00:00-02:59	03:00-05:59	06:00-08:59	09:00-11:59	12:00-14:59	15:00-17:59	18:00-20:59	21:00-23:59	Total
Sun	696	445	412	560	549	797	408	458	
Mon	521	284	406	436	939	340	600	464	
Tues	478	753	438	562	479	394	611	388	
Wed	410	350	783	371	756	320	363	1023	
Thur	380	486	853	315	363	337	388	418	
Fri	341	380	537	686	531	556	424	426	
Sat	387	476	393	515	421	410	698	376	

### c) Encounters:

- Admitted Patients: Bar chart showing the number of patients by encounter class and their average cost per visit.
- Avg. Length of Stay: Heatmap matrix showing the average stay duration by encounter class and age.

### d) Operational:

- Admission and Revenue by Year: Line chart showing trends in patient admissions and revenue generated per year.



# Massachusetts General Hospital Dashboard

Created by Nischay Gautam

Summary

Encounters

Procedures



47.7K

Total Procedures



41.2K

Covered by Insurance

\$105.5M

Total Cost

\$77.0M

Cost covered by Insurance

\$3.2M

Total Base Cost



154

Deceased



15.8%

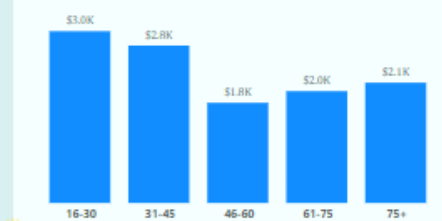
MortalityRate

## Admissions & Revenue by Year

Procedure Revenue Admissions



## Avg Procedure Cost by Age



## Procedures by Cost



## Patients Summary

NAME	AGE	GENDER	REASON	ENCOUNTERS	ENCOUNTER CLASS	Insured	Uninsured
						PAYER	AVG COST AVG STAY *
Arturo Cuellar	58	Male	Acute bacterial sinusitis (disorder)	1	Ambulatory	Humana	110.53 1.00
Buck Paucck	96	Male	Acute bacterial sinusitis (disorder)	1	Ambulatory	Dual Eligible	85.55 0.00
Buck Paucck	96	Male	Acute bacterial sinusitis (disorder)	3	Ambulatory	NO INSURANCE	85.55 0.00
Damian Terry	44	Male	Acute bacterial sinusitis (disorder)	1	Ambulatory	Anthem	85.55 0.00
Damian Terry	44	Male	Acute bacterial sinusitis (disorder)	2	Ambulatory	Cigna Health	89.24 0.00
Darrick McClure	37	Male	Acute bacterial sinusitis (disorder)	2	Ambulatory	NO INSURANCE	89.24 0.00
Darrick Nader	88	Male	Acute bacterial sinusitis (disorder)	1	Ambulatory	Medicare	92.93 0.00
Edgardo Oluneva	34	Male	Acute bacterial sinusitis (disorder)	3	Ambulatory	Blue Cross Blue Shield	88.01 1.00
Eric Weimann	51	Female	Acute bacterial sinusitis (disorder)	1	Ambulatory	UnitedHealthcare	85.55 0.00
Esmeralda Heller	88	Female	Acute bacterial sinusitis (disorder)	1	Ambulatory	Medicare	85.55 1.00
Ester Acevedo	63	Female	Acute bacterial sinusitis (disorder)	1	Ambulatory	NO INSURANCE	106.12 1.00
Fritz Jakubowski	50	Male	Acute bacterial sinusitis (disorder)	1	Ambulatory	Humana	107.96 0.00
Georgiana Effertz	56	Female	Acute bacterial sinusitis (disorder)	1	Ambulatory	NO INSURANCE	85.55 0.00
Georgiana Effertz	57	Female	Acute bacterial sinusitis (disorder)	3	Ambulatory	NO INSURANCE	85.55 0.00

## Diseased Patients- 154

Name	Gender	Insurance	Age	Reason
Abel Smitham	M	Insured	89	Atrial Fibrillation
Abel Smitham	M	Insured	89	Chronic congestive heart failure (disorder)
Abel Smitham	M	Insured	89	Chronic obstructive bronchitis (disorder)
Abraham Ruecker	M	Uninsured	86	Primary small cell malignant neoplasm of lung TNM stage 1 (disorder)
Alec Little	M	Insured	82	Laceration of thigh
Alejandro Heathcote	F	Insured	61	Acute bronchitis (disorder)
Alejandro Heathcote	F	Insured	61	Acute viral pharyngitis (disorder)
Alejandro Heathcote	F	Insured	61	Hypoxemia (disorder)
Alejandro Heathcote	F	Insured	61	Suspected COVID-19
Alexandria Heaney	F	Insured	65	Non-small cell carcinoma of lung TNM stage 1 (disorder)
Alexandria Heaney	F	Insured	65	Suspected lung cancer (situation)
Alexandria Heaney	F	Uninsured	65	Non-small cell carcinoma of lung TNM stage 1 (disorder)
Alexandria Heaney	F	Uninsured	65	Suspected lung cancer (situation)
Angelo Hermiston	F	Insured	69	Overlapping malignant neoplasm of colon
Angelo Hermiston	F	Insured	69	Polyp of colon

## e) Procedures:

- Procedure Table: Table displaying patient names, race, age, admission details, number of procedures, procedures covered by insurance, procedures covered by patients, average cost per visit, procedure cost, and procedure description.
- Most Expensive Procedures: Bar chart showing the most expensive procedures.

## f) Insurance:

- Insurance Matrix: Matrix showing payers, number of patient admissions, number of procedures, number of deceased patients, procedures covered by insurance, procedures covered by patients, and procedure costs.