



Optimizing City General Hospital

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Problem Statement

The inspiration behind this City General hospital is rooted in the need for hospital data to be analyzed due to

- ▶ the hospital facing unpredictable patient surges, leading to overcrowding and poor capacity planning.
- ▶ bed allocation not matching actual patient demographics, causing bottlenecks and delays in care.
- ▶ doctor workloads unevenly distributed, resulting in burnout for some staff and underutilization of others.
- ▶ medication inventory being mismanaged, with essential drugs running out while unused stock expires.
- ▶ the hospital is losing money due to billing inefficiencies, insurance issues, and repeated lab tests, despite high patient volume.

Objectives

The objective is to uncover insights that can improve patient care, operational efficiency, and financial management

- ▶ **Demographic Variation:** exploring the distribution of patients by age, gender, and blood type etc
- ▶ **Medical Condition and Treatment Patterns:** To examine the frequency and distribution of medical conditions across patients, assess relationships between medical conditions, prescribed medications, and test results
- ▶ **Admission and Discharge Insights:** Analyze trends in admission types (Elective vs Emergency), calculate average length of hospital stay yearly patterns in hospitalization rates.
- ▶ **Financial and Billing Analysis:** Evaluate billing amounts to determine cost patterns across patients, identify high-cost cases and also to analyze insurance provider distribution and its relationship with billing amounts.



Overview of data

- The data consist of **55500** rows and **17** columns which is clean without duplicates and empty spaces except for creating new conditional columns
- Dataset main columns include: **Patient ID, Age, Gender, Blood type, Hospital, Room number, Admission type, Medication, Insurance Provider, Billing Amount, Admission Date, Discharge Date, Medical Condition, Doctor, and Test Results.**
- I also used the **Admission Date** and **Discharge Date** to determine the admission period which I grouped



Implementation Outline

- ▶ To analyze this dataset, I followed the **PMAVM** process (Prepare, Model, Analyze, Visualize, Manage). Each step is discussed below.
- ▶ The tool I used for the entire analysis process is Microsoft Excel



Data Preparation

- ▶ I deployed the **OMG-C** method in the data preparation step. Objectives, Measures, Get and Clean the data.
 - ▶ Objectives
 - ▶ Measures
 - ▶ Get
 - ▶ Clean

Data Preparation

➤ **I created the age range using conditional formatting**

For ages <=19, "Teenagers",
age<=29, "Young adults",
age<=39, "Early Middle age",
age<=49, "Mid-Middle age",
age<=59, "Mature Adults",
age<=69, "Early Seniors",
age<=79, "Older Seniors"
Age >79 "Elderly")

➤ **I created the admission range using conditional formatting**

1-5days
6-10days
11-15days
16-20days
21-25days
26-30days

Get and Clean Data.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
	Patient	Age	Gender	Blood Type	Medical Condition	Date of Admission	Doctor	Hospital	Insurance Provider	Billing Amount	Room Number	Admission Type	Discharge Date	Medication	Test Results	Hospital Latitude	Hospital Longitude
1	ID-2621	64	Female	A+	Hypertension	3/3/2020	Jessica Marshall	Houston Methodist Hospitals	Medicare	43913.98374	353	Elective	3/6/2020	Ibuprofen	Abnormal	29.709541	-95.398605
2	ID-2623	18	Female	A+	Hypertension	9/12/2022	Sean Jimenez	Houston Methodist Hospitals	Medicare	21146.04893	457	Elective	9/23/2022	Ibuprofen	Abnormal	29.709541	-95.398605
3	ID-2624	57	Female	A+	Hypertension	2/26/2022	Jennifer Crawford	Houston Methodist Hospitals	Medicare	47946.86128	200	Elective	3/25/2022	Ibuprofen	Abnormal	29.709541	-95.398605
4	ID-2634	77	Female	A+	Hypertension	12/11/2020	Tiffany Ramirez	Houston Methodist Hospitals	Medicare	13385.07791	238	Elective	12/26/2020	Ibuprofen	Abnormal	29.709541	-95.398605
5	ID-2720	81	Female	A+	Hypertension	9/19/2019	Peter Roberts	Houston Methodist Hospitals	Medicare	32984.99368	317	Elective	9/25/2019	Ibuprofen	Abnormal	29.709541	-95.398605
6	ID-2731	79	Female	A+	Hypertension	7/31/2021	Tina Ramirez	Houston Methodist Hospitals	Medicare	42232.81794	139	Elective	8/9/2021	Ibuprofen	Abnormal	29.709541	-95.398605
7	ID-2820	23	Female	A+	Hypertension	9/7/2022	Erica Cortez	Houston Methodist Hospitals	Medicare	358.7678519	250	Elective	10/6/2022	Ibuprofen	Abnormal	29.709541	-95.398605
8	ID-2831	76	Female	A+	Hypertension	8/17/2023	Andre Kim	Houston Methodist Hospitals	Medicare	29539.89044	290	Elective	9/14/2023	Ibuprofen	Abnormal	29.709541	-95.398605
9	ID-2833	34	Female	A+	Hypertension	4/4/2021	Erik Stewart	Houston Methodist Hospitals	Medicare	41335.69403	316	Elective	4/8/2021	Ibuprofen	Abnormal	29.709541	-95.398605
10	ID-2834	52	Female	A+	Hypertension	3/26/2023	Kenneth Holloway	Houston Methodist Hospitals	Medicare	5506.470597	203	Elective	4/16/2023	Ibuprofen	Abnormal	29.709541	-95.398605
11	ID-2930	56	Female	A+	Hypertension	5/1/2024	Frederick Harris	Houston Methodist Hospitals	Medicare	40009.81314	198	Elective	5/22/2024	Ibuprofen	Abnormal	29.709541	-95.398605
12	ID-2932	80	Female	A+	Hypertension	1/23/2020	Lisa Walker	Houston Methodist Hospitals	Medicare	26848.32029	407	Elective	1/30/2020	Ibuprofen	Abnormal	29.709541	-95.398605
13	ID-3024	84	Female	A+	Hypertension	10/13/2021	Michelle Madden	Houston Methodist Hospitals	Medicare	43400.07126	467	Elective	1/4/2021	Ibuprofen	Abnormal	29.709541	-95.398605
14	ID-3031	54	Female	A+	Hypertension	3/7/2020	Elizabeth Thompson	Houston Methodist Hospitals	Medicare	8858.456293	282	Elective	3/23/2020	Ibuprofen	Abnormal	29.709541	-95.398605
15	ID-3130	58	Female	A+	Hypertension	9/28/2021	Jeremy Thompson	Houston Methodist Hospitals	Medicare	14783.10223	326	Elective	10/17/2021	Ibuprofen	Abnormal	29.709541	-95.398605
16	ID-3131	78	Female	A+	Hypertension	4/8/2020	Brandy Orozco	Houston Methodist Hospitals	Medicare	33988.16523	273	Elective	4/28/2020	Ibuprofen	Abnormal	29.709541	-95.398605
17	ID-3133	27	Female	A+	Hypertension	7/18/2020	Hannah Wang	Houston Methodist Hospitals	Medicare	32976.935	364	Elective	7/21/2020	Ibuprofen	Abnormal	29.709541	-95.398605
18	ID-3134	76	Female	A+	Hypertension	9/16/2023	Mathew Nunez	Houston Methodist Hospitals	Medicare	14532.91609	460	Elective	9/30/2023	Ibuprofen	Abnormal	29.709541	-95.398605
19	ID-3220	64	Female	A+	Hypertension	2/29/2020	Harold Fields	Houston Methodist Hospitals	Medicare	39739.75248	380	Elective	3/6/2020	Ibuprofen	Abnormal	29.709541	-95.398605
20	ID-3222	40	Female	A+	Hypertension	6/27/2021	Christine Hernandez	Houston Methodist Hospitals	Medicare	5148.125605	341	Elective	7/7/2021	Ibuprofen	Abnormal	29.709541	-95.398605
21	ID-3233	61	Female	A+	Hypertension	1/16/2020	Ruben Lynn	Houston Methodist Hospitals	Medicare	12959.21611	260	Elective	12/15/2020	Ibuprofen	Abnormal	29.709541	-95.398605
22	ID-3234	23	Female	A+	Hypertension	2/2/2023	Jessica Davis	Houston Methodist Hospitals	Medicare	18789.20693	258	Elective	2/17/2023	Ibuprofen	Abnormal	29.709541	-95.398605
23	ID-3320	76	Female	A+	Hypertension	12/4/2023	Heather Li	Houston Methodist Hospitals	Medicare	39961.75336	106	Elective	12/14/2023	Ibuprofen	Abnormal	29.709541	-95.398605
24	ID-3321	32	Female	A+	Hypertension	3/23/2022	Sabrina Khan	Houston Methodist Hospitals	Medicare	9827.867172	271	Elective	4/2/2022	Ibuprofen	Abnormal	29.709541	-95.398605
25	ID-3322	60	Female	A+	Hypertension	5/16/2023	Sarah Patel	Houston Methodist Hospitals	Medicare	37456.51905	425	Elective	5/28/2023	Ibuprofen	Abnormal	29.709541	-95.398605
26	ID-3330	44	Female	A+	Hypertension	4/23/2022	Vanessa Smith	Houston Methodist Hospitals	Medicare	7836.229611	294	Elective	5/7/2022	Ibuprofen	Abnormal	29.709541	-95.398605
27	ID-3332	80	Female	A+	Hypertension	1/19/2021	Linda Houston	Houston Methodist Hospitals	Medicare	38858.32302	116	Elective	12/6/2021	Ibuprofen	Abnormal	29.709541	-95.398605
28	ID-3333	70	Female	A+	Hypertension	6/20/2020	Walter Mitchell	Houston Methodist Hospitals	Medicare	9783.610747	324	Elective	7/15/2020	Ibuprofen	Abnormal	29.709541	-95.398605
29	ID-3334	38	Female	A+	Hypertension	1/27/2023	Sandra King	Houston Methodist Hospitals	Medicare	2242.773719	133	Elective	1/29/2023	Ibuprofen	Abnormal	29.709541	-95.398605
30	ID-3422	84	Female	A+	Hypertension	10/1/2021	Kari Hood	Houston Methodist Hospitals	Medicare	44436.62322	200	Elective	10/20/2021	Ibuprofen	Abnormal	29.709541	-95.398605
31	ID-3424	60	Female	A+	Hypertension	1/7/2022	Ronald White	Houston Methodist Hospitals	Medicare	8705.343238	262	Elective	2/16/2022	Ibuprofen	Abnormal	29.709541	-95.398605
32	ID-3430	39	Female	A+	Hypertension	2/12/2021	Jacob White	Houston Methodist Hospitals	Medicare	43687.4318	357	Elective	3/6/2021	Ibuprofen	Abnormal	29.709541	-95.398605
33	ID-3431	28	Female	A+	Hypertension	7/17/2022	Terri Roman	Houston Methodist Hospitals	Medicare	2369.980109	280	Elective	7/30/2022	Ibuprofen	Abnormal	29.709541	-95.398605
34	ID-3520	58	Female	A+	Hypertension	1/13/2020	Laura Campbell	Houston Methodist Hospitals	Medicare	40660.23913	497	Elective	1/15/2020	Ibuprofen	Abnormal	29.709541	-95.398605
35	ID-3530	82	Female	A+	Hypertension	1/5/2022	Fernando Zamora	Houston Methodist Hospitals	Medicare	21832.57319	473	Elective	2/1/2022	Ibuprofen	Abnormal	29.709541	-95.398605
36	ID-3533	66	Female	A+	Hypertension	6/5/2022	Tommy Murray	Houston Methodist Hospitals	Medicare	39787.70225	341	Elective	6/19/2022	Ibuprofen	Abnormal	29.709541	-95.398605
37	ID-3620	66	Female	A+	Hypertension	1/28/2019	Ryan Howard	Houston Methodist Hospitals	Medicare	19872.57029	306	Elective	12/27/2019	Ibuprofen	Abnormal	29.709541	-95.398605
38	ID-3631	35	Female	A+	Hypertension	3/21/2023	Alexander Hunt	Houston Methodist Hospitals	Medicare	30751.15376	351	Elective	3/28/2023	Ibuprofen	Abnormal	29.709541	-95.398605
39	ID-3720	79	Female	A+	Hypertension	1/12/2019	Sean Garcia	Houston Methodist Hospitals	Medicare	47750.69524	293	Elective	12/16/2019	Ibuprofen	Abnormal	29.709541	-95.398605
40	ID-3722	33	Female	A+	Hypertension	8/14/2023	Kathryn Moody	Houston Methodist Hospitals	Medicare	31147.32618	281	Elective	8/28/2023	Ibuprofen	Abnormal	29.709541	-95.398605
41	ID-3724	22	Female	A+	Hypertension	9/29/2023	Miss Amy Contreras PhD	Houston Methodist Hospitals	Medicare	34804.1552	214	Elective	9/30/2023	Ibuprofen	Abnormal	29.709541	-95.398605
42	ID-3733	33	Female	A+	Hypertension	9/29/2022	Shane Wade	Houston Methodist Hospitals	Medicare	3514.212933	462	Elective	10/28/2022	Ibuprofen	Abnormal	29.709541	-95.398605
43	ID-3734	23	Female	A+	Hypertension	6/9/2021	Mary James	Houston Methodist Hospitals	Medicare	29680.8484	386	Elective	6/28/2021	Ibuprofen	Abnormal	29.709541	-95.398605
44	ID-3821	64	Female	A+	Hypertension	1/13/2022	Mrs. Whitney McLaughlin	Houston Methodist Hospitals	Medicare	19522.86188	485	Elective	12/30/2022	Ibuprofen	Abnormal	29.709541	-95.398605
45	ID-3822	31	Female	A+	Hypertension	6/26/2022	Robin Bradshaw	Houston Methodist Hospitals	Medicare	22843.97029	346	Elective	7/12/2022	Ibuprofen	Abnormal	29.709541	-95.398605
46	ID-3824	50	Female	A+	Hypertension	5/19/2023	Diamond Foster	Houston Methodist Hospitals	Medicare	5329.000896	194	Elective	5/25/2023	Ibuprofen	Abnormal	29.709541	-95.398605
47	ID-3930	32	Female	A+	Hypertension	9/13/2020	Rebecca Trevino	Houston Methodist Hospitals	Medicare	40126.61069	148	Elective	10/12/2020	Ibuprofen	Abnormal	29.709541	-95.398605
48	ID-3931	83	Female	A+	Hypertension	8/23/2020	Annela McDonald	Houston Methodist Hospitals	Medicare	44567.15368	354	Elective	8/12/2020	Ibuprofen	Abnormal	29.709541	-95.398605

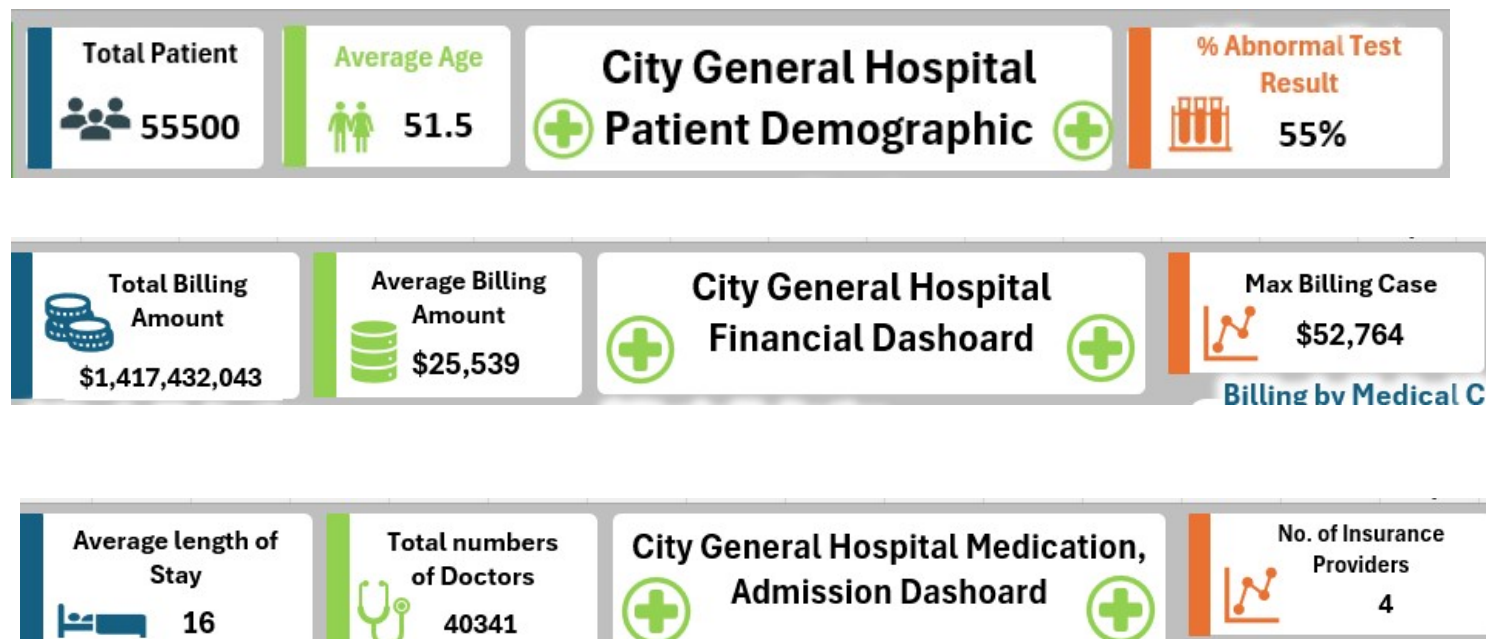
Dirty Data

Get and Clean Data.

	Age	Gender	Blood Type	Medical Condition	Date of Admission	Doctor	Hospital	Insurance Provider	Billing Amount	Room Number	Admission Type	Discharge	Medication	Test Results	Hospital Location	Total Length of Stay	Number of Sessions	Session Dates
1	64	Female	A+	Hypertension	3/3/2020	Jessica Marshall	ston Methodist Hos	Medicare	\$ 43,913.98	353	Elective	3/6/2020	Ibuprofen	Abnormal	29.709541	-95.399	3	1-5days
2	18	Female	A+	Hypertension	9/12/2022	Sean Jimenez	ston Methodist Hos	Medicare	\$ 21,146.05	457	Elective	9/29/2022	Ibuprofen	Abnormal	29.709541	-95.399	17	16-20days
3	57	Female	A+	Hypertension	2/26/2022	Jennifer Crawford	ston Methodist Hos	Medicare	\$ 17,946.86	200	Elective	3/25/2022	Ibuprofen	Abnormal	29.709541	-95.399	27	26-30days
4	77	Female	A+	Hypertension	12/11/2020	Tiffany Ramirez	ston Methodist Hos	Medicare	\$ 13,385.08	238	Elective	12/26/2020	Ibuprofen	Abnormal	29.709541	-95.399	15	11-15days
5	81	Female	A+	Hypertension	9/19/2019	Peter Roberts	ston Methodist Hos	Medicare	\$ 32,984.89	317	Elective	9/26/2019	Ibuprofen	Abnormal	29.709541	-95.399	7	6-10days
6	79	Female	A+	Hypertension	7/7/2021	Tina Ramirez	ston Methodist Hos	Medicare	\$ 42,232.82	139	Elective	8/9/2021	Ibuprofen	Abnormal	29.709541	-95.399	9	6-10days
7	23	Female	A+	Hypertension	9/7/2022	Erica Cortez	ston Methodist Hos	Medicare	\$ 358.77	250	Elective	10/6/2022	Ibuprofen	Abnormal	29.709541	-95.399	29	26-30days
8	76	Female	A+	Hypertension	9/17/2023	Andre Kim	ston Methodist Hos	Medicare	\$ 29,539.89	290	Elective	9/14/2023	Ibuprofen	Abnormal	29.709541	-95.399	28	26-30days
9	34	Female	A+	Hypertension	4/4/2021	Erik Stewart	ston Methodist Hos	Medicare	\$ 41,335.69	316	Elective	4/6/2021	Ibuprofen	Abnormal	29.709541	-95.399	4	1-5days
10	52	Female	A+	Hypertension	3/25/2023	Kenneth Holloway	ston Methodist Hos	Medicare	\$ 5,506.47	203	Elective	4/16/2023	Ibuprofen	Abnormal	29.709541	-95.399	21	21-25days
11	56	Female	A+	Hypertension	5/1/2024	Frederick Harris	ston Methodist Hos	Medicare	\$ 40,009.81	198	Elective	5/22/2024	Ibuprofen	Abnormal	29.709541	-95.399	21	21-25days
12	80	Female	A+	Hypertension	1/23/2020	Lisa Walker	ston Methodist Hos	Medicare	\$ 26,848.32	407	Elective	1/30/2020	Ibuprofen	Abnormal	29.709541	-95.399	7	6-10days
13	84	Female	A+	Hypertension	10/13/2021	Michelle Madden	ston Methodist Hos	Medicare	\$ 43,400.07	467	Elective	11/4/2021	Ibuprofen	Abnormal	29.709541	-95.399	22	21-25days
14	54	Female	A+	Hypertension	3/7/2020	Elizabeth Thompson	ston Methodist Hos	Medicare	\$ 8,658.46	282	Elective	3/23/2020	Ibuprofen	Abnormal	29.709541	-95.399	16	16-20days
15	58	Female	A+	Hypertension	9/28/2021	Jeremy Thompson	ston Methodist Hos	Medicare	\$ 14,783.10	326	Elective	10/17/2021	Ibuprofen	Abnormal	29.709541	-95.399	19	16-20days
16	78	Female	A+	Hypertension	4/9/2020	Brandy Orozco	ston Methodist Hos	Medicare	\$ 33,988.17	273	Elective	4/23/2020	Ibuprofen	Abnormal	29.709541	-95.399	20	16-20days
17	27	Female	A+	Hypertension	7/18/2020	Hannah Wang	ston Methodist Hos	Medicare	\$ 32,976.94	364	Elective	7/2/2020	Ibuprofen	Abnormal	29.709541	-95.399	3	1-5days
18	76	Female	A+	Hypertension	9/16/2023	Mathew Nunez	ston Methodist Hos	Medicare	\$ 14,532.92	460	Elective	9/30/2023	Ibuprofen	Abnormal	29.709541	-95.399	14	11-15days
19	64	Female	A+	Hypertension	2/29/2020	Harold Fields	ston Methodist Hos	Medicare	\$ 39,739.75	380	Elective	3/6/2020	Ibuprofen	Abnormal	29.709541	-95.399	6	6-10days
20	40	Female	A+	Hypertension	6/27/2021	Christine Hernandez	ston Methodist Hos	Medicare	\$ 5,148.13	341	Elective	7/7/2021	Ibuprofen	Abnormal	29.709541	-95.399	10	6-10days
21	61	Female	A+	Hypertension	1/16/2020	Ruben Lynn	ston Methodist Hos	Medicare	\$ 12,959.22	260	Elective	12/15/2020	Ibuprofen	Abnormal	29.709541	-95.399	29	26-30days
22	23	Female	A+	Hypertension	2/2/2023	Jessica Davis	ston Methodist Hos	Medicare	\$ 18,783.21	258	Elective	2/17/2023	Ibuprofen	Abnormal	29.709541	-95.399	15	11-15days
23	76	Female	A+	Hypertension	12/4/2023	Heather Li	ston Methodist Hos	Medicare	\$ 39,961.75	106	Elective	12/14/2023	Ibuprofen	Abnormal	29.709541	-95.399	10	6-10days
24	32	Female	A+	Hypertension	3/23/2022	Sabrina Khan	ston Methodist Hos	Medicare	\$ 9,827.87	271	Elective	4/2/2022	Ibuprofen	Abnormal	29.709541	-95.399	29	26-30days
25	60	Female	A+	Hypertension	5/16/2023	Sarah Patel	ston Methodist Hos	Medicare	\$ 37,456.52	425	Elective	5/28/2023	Ibuprofen	Abnormal	29.709541	-95.399	12	11-15days
26	44	Female	A+	Hypertension	4/23/2022	Vanessa Smith	ston Methodist Hos	Medicare	\$ 7,836.23	234	Elective	5/7/2022	Ibuprofen	Abnormal	29.709541	-95.399	14	11-15days
27	80	Female	A+	Hypertension	1/19/2021	Linda Houston	ston Methodist Hos	Medicare	\$ 38,898.32	116	Elective	12/6/2021	Ibuprofen	Abnormal	29.709541	-95.399	27	26-30days
28	70	Female	A+	Hypertension	6/20/2020	Walter Mitchell	ston Methodist Hos	Medicare	\$ 9,763.61	324	Elective	7/15/2020	Ibuprofen	Abnormal	29.709541	-95.399	25	21-25days
29	38	Female	A+	Hypertension	1/27/2023	Sandra King	ston Methodist Hos	Medicare	\$ 2,242.77	133	Elective	1/29/2023	Ibuprofen	Abnormal	29.709541	-95.399	2	1-5days
30	84	Female	A+	Hypertension	10/1/2021	Kari Hood	ston Methodist Hos	Medicare	\$ 44,436.62	200	Elective	10/20/2021	Ibuprofen	Abnormal	29.709541	-95.399	19	16-20days
31	60	Female	A+	Hypertension	1/17/2022	Ronald White	ston Methodist Hos	Medicare	\$ 8,705.34	262	Elective	2/16/2022	Ibuprofen	Abnormal	29.709541	-95.399	30	26-30days
32	39	Female	A+	Hypertension	2/12/2021	Jacob White	ston Methodist Hos	Medicare	\$ 43,687.43	357	Elective	3/6/2021	Ibuprofen	Abnormal	29.709541	-95.399	22	21-25days
33	28	Female	A+	Hypertension	7/17/2022	Terri Floman	ston Methodist Hos	Medicare	\$ 2,369.98	280	Elective	7/30/2022	Ibuprofen	Abnormal	29.709541	-95.399	13	11-15days
34	58	Female	A+	Hypertension	1/13/2020	Laura Campbell	ston Methodist Hos	Medicare	\$ 40,660.24	437	Elective	1/15/2020	Ibuprofen	Abnormal	29.709541	-95.399	2	1-5days
35	82	Female	A+	Hypertension	1/5/2020	Fernando Zamora	ston Methodist Hos	Medicare	\$ 21,832.57	473	Elective	2/1/2020	Ibuprofen	Abnormal	29.709541	-95.399	27	26-30days
36	66	Female	A+	Hypertension	6/5/2022	Tommy Murray	ston Methodist Hos	Medicare	\$ 39,787.70	341	Elective	6/19/2022	Ibuprofen	Abnormal	29.709541	-95.399	14	11-15days
37	66	Female	A+	Hypertension	1/28/2019	Ryan Howard	ston Methodist Hos	Medicare	\$ 19,872.57	306	Elective	12/27/2019	Ibuprofen	Abnormal	29.709541	-95.399	29	26-30days
38	35	Female	A+	Hypertension	3/21/2023	Alexander Hunt	ston Methodist Hos	Medicare	\$ 30,751.15	351	Elective	3/28/2023	Ibuprofen	Abnormal	29.709541	-95.399	7	6-10days
39	79	Female	A+	Hypertension	1/12/2019	Sean Garcia	ston Methodist Hos	Medicare	\$ 47,750.70	293	Elective	12/16/2019	Ibuprofen	Abnormal	29.709541	-95.399	25	21-25days
40	33	Female	A+	Hypertension	9/14/2023	Kathryn Moody	ston Methodist Hos	Medicare	\$ 21,147.33	281	Elective	9/20/2023	Ibuprofen	Abnormal	29.709541	-95.399	14	11-15days
41	22	Female	A+	Hypertension	9/20/2023	Miss Amy Contreras PhD	ston Methodist Hos	Medicare	\$ 34,804.16	214	Elective	9/30/2023	Ibuprofen	Abnormal	29.709541	-95.399	10	6-10days
42	33	Female	A+	Hypertension	9/29/2022	Shane Wade	ston Methodist Hos	Medicare	\$ 3,514.21	462	Elective	10/28/2022	Ibuprofen	Abnormal	29.709541	-95.399	29	26-30days
43	23	Female	A+	Hypertension	6/9/2021	Mary James	ston Methodist Hos	Medicare	\$ 29,680.85	386	Elective	6/28/2021	Ibuprofen	Abnormal	29.709541	-95.399	19	16-20days
44	64	Female	A+	Hypertension	1/13/2022	Mrs. Whitney Mclaughlin	ston Methodist Hos	Medicare	\$ 19,522.86	485	Elective	12/30/2022	Ibuprofen	Abnormal	29.709541	-95.399	30	26-30days

Cleaned Data

KPI

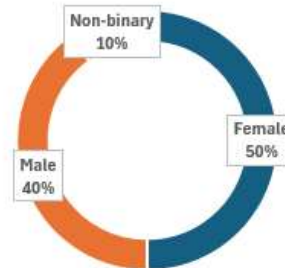


ANALYSIS AND VISUALS

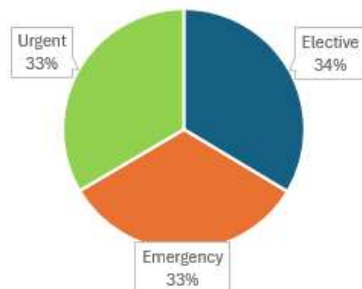
Medication Frequency



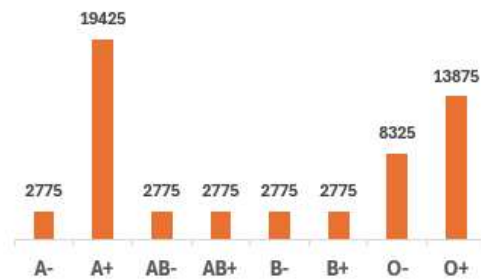
Gender



% Admission type

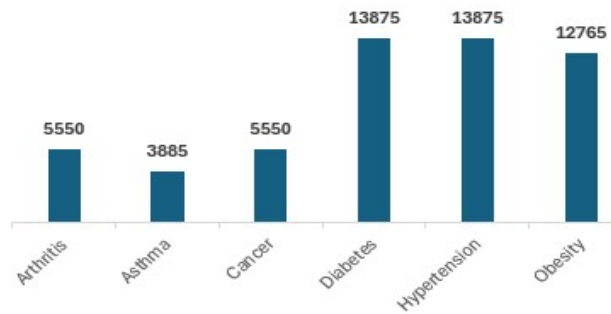


Blood Type

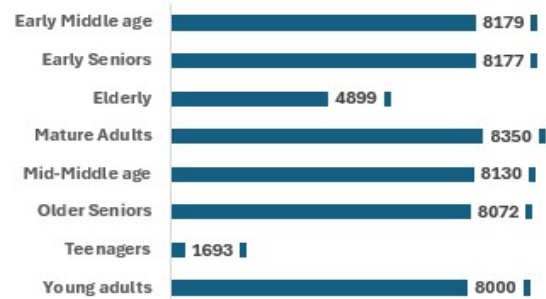


ANALYSIS AND VISUALS

Medical Condition

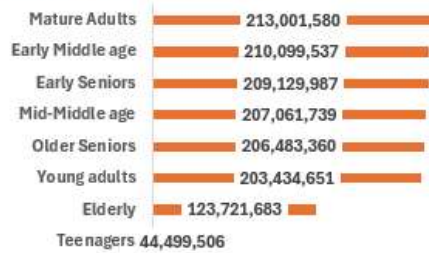


Age Range

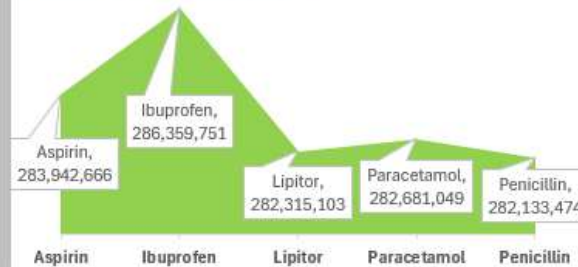


ANALYSIS AND VISUALS (con't)

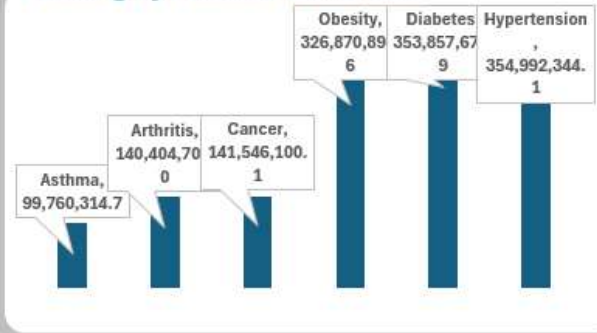
Billing by Age group



Billing by Medication

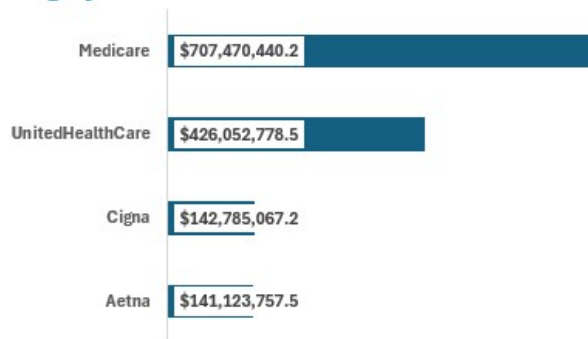


Billing by Medical Condition

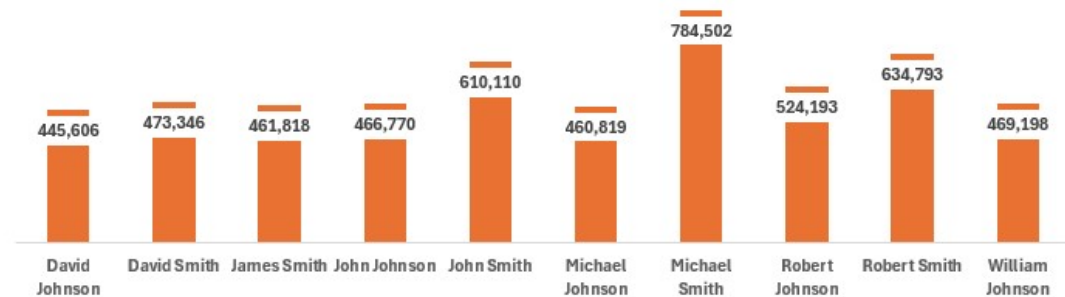


ANALYSIS AND VISUALS (con't)

Billing by Insurance Provider

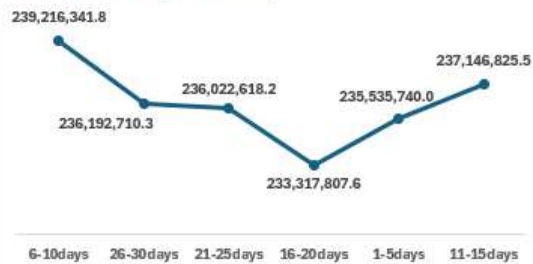


Billing by Top 10 Doctors

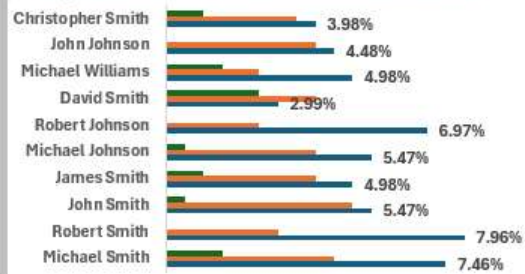


ANALYSIS AND VISUALS (cont)

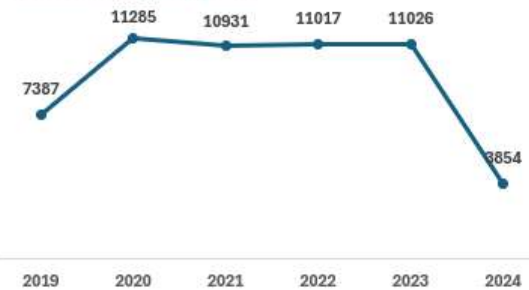
Billing by Length of Stay



Top 10 Doctors with Abnormal Results

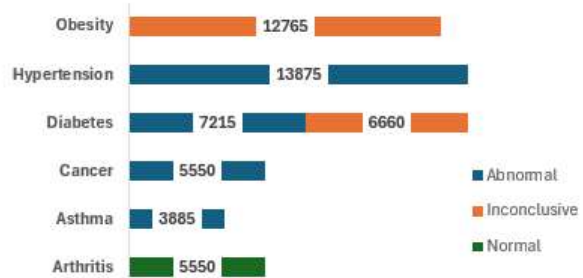


Admission by year

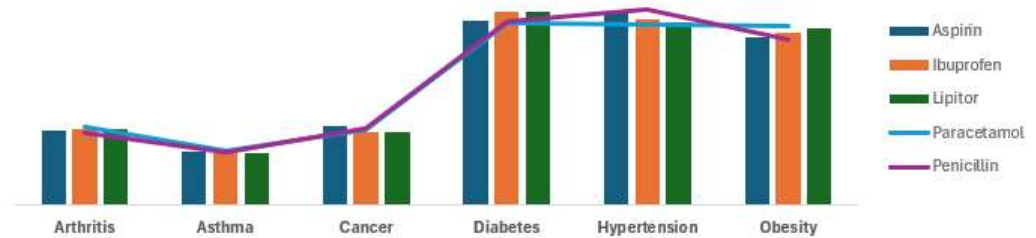


ANALYSIS AND VISUALS (cont)

Medical Condition by Test result



Medical Condition by Medication





Key findings

- ▶ **Patient Demographics:** The hospital serves a wide age range of patients, with significant representation among elderly individuals. Female patients appear more frequently in the dataset. Blood type A+ is the most common.
- ▶ **Clinical Insights:** Hypertension is the most frequently occurring medical condition. Ibuprofen is the medication consistently used across the cases. A majority of patients recorded abnormal test results, indicating potential chronic or severe conditions or due to faulty test equipment and handling
- ▶ **Financial Insights:** Billing amounts vary widely, indicating differences in treatment complexity. Medicare appears as a major insurance provider for most patients with Aetna the Insurance provider with less finance generation
- ▶ **Operational Insights:** Certain doctors handle significantly more cases; workload distribution may need balancing. Data suggests potential inefficiencies in admission-to-discharge cycles.



CONCLUSION

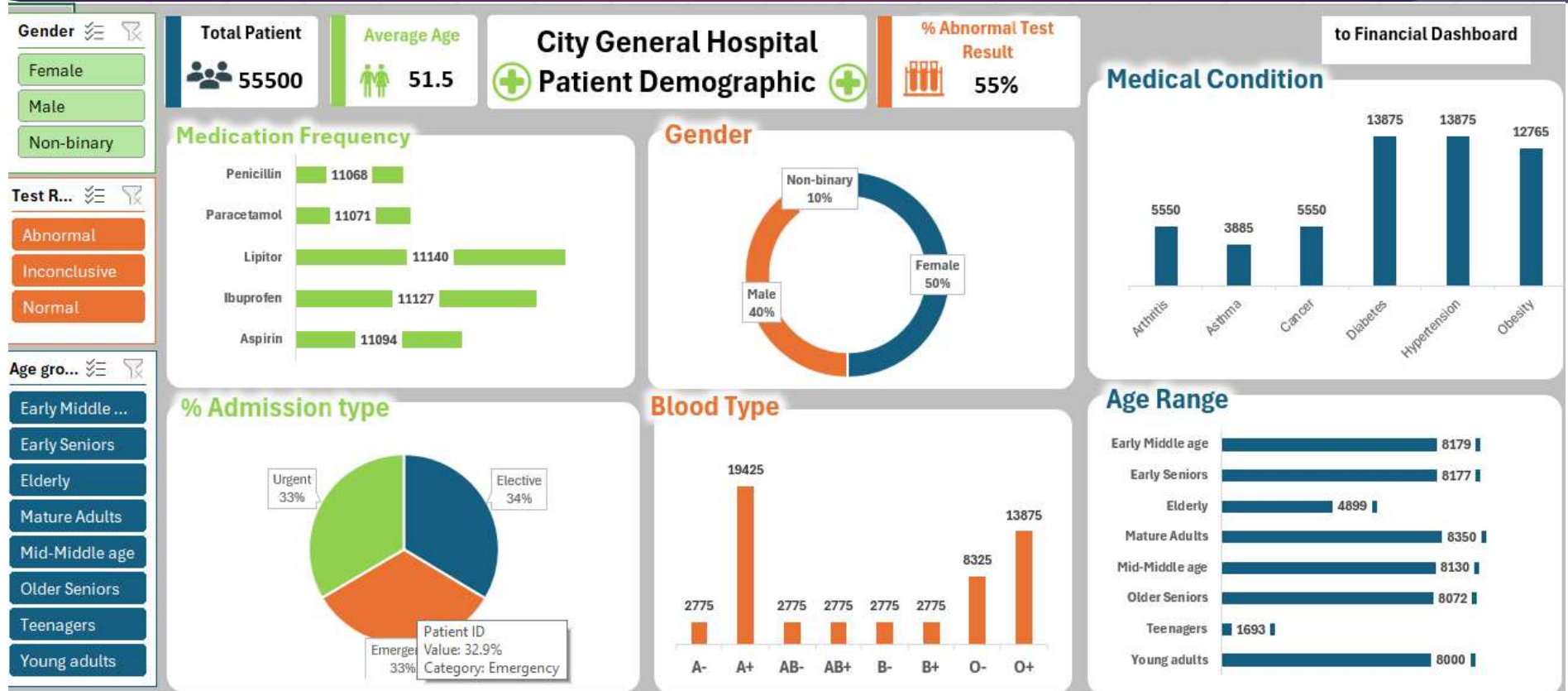
This presentation provides a solid foundation for understanding hospital operations. Using this excel dashboarding and analysis, we can streamline operations, track trends and predict needs, and improve over all Hospital service



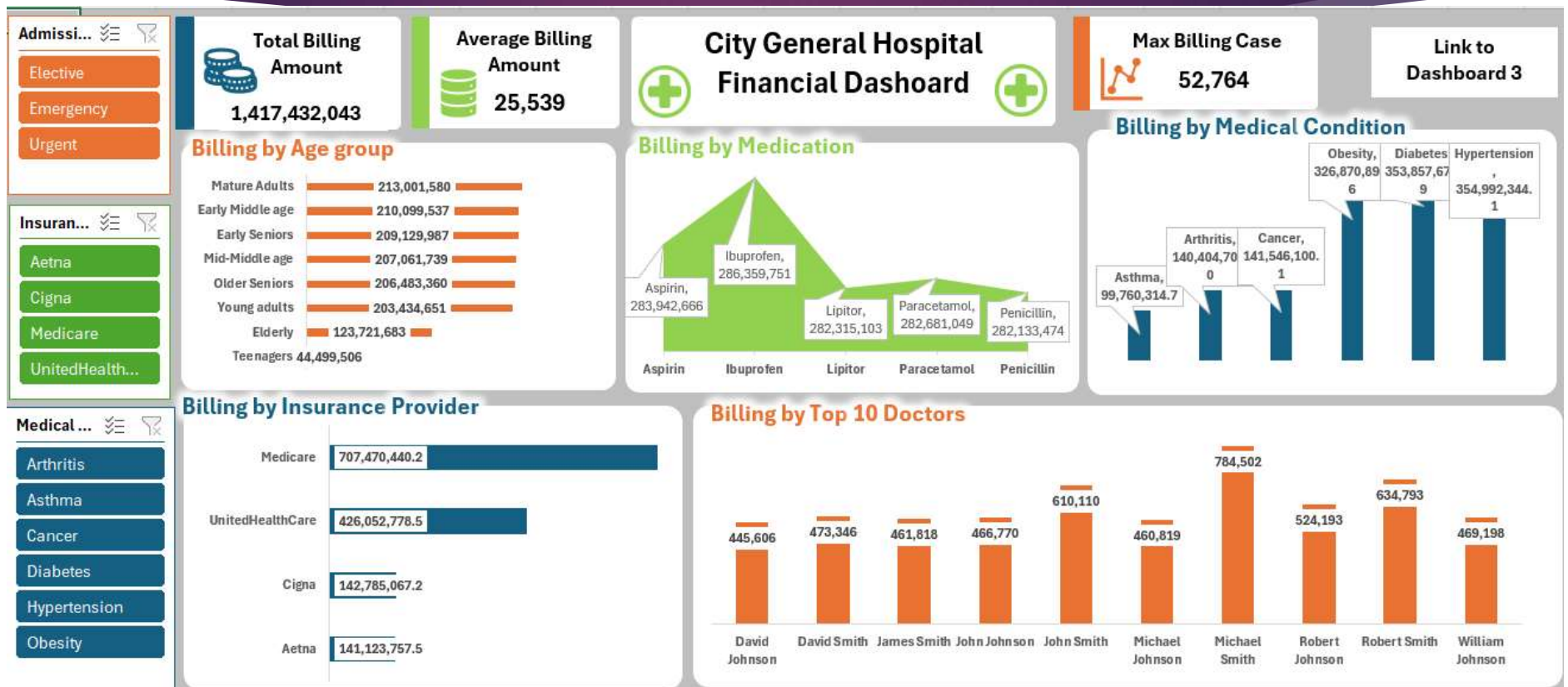
Recommendation

- ▶ **Review treatment protocols for conditions frequently associated with abnormal test results.**
- ▶ **Optimize billing estimation models using length-of-stay predictions.**
- ▶ **Prioritize Lipitor for restocking due to high usage and reduce Penicillin as it is the less used**
- ▶ **Develop targeted care programs for early middle age and early-senior female patients, the largest demographic group.**
- ▶ **Consider redistributing patients or providing additional support to prevent burnout and maintain quality of care.**
- ▶ **Train laboratory staff on proper testing procedures and handling to reduce inconclusive results**

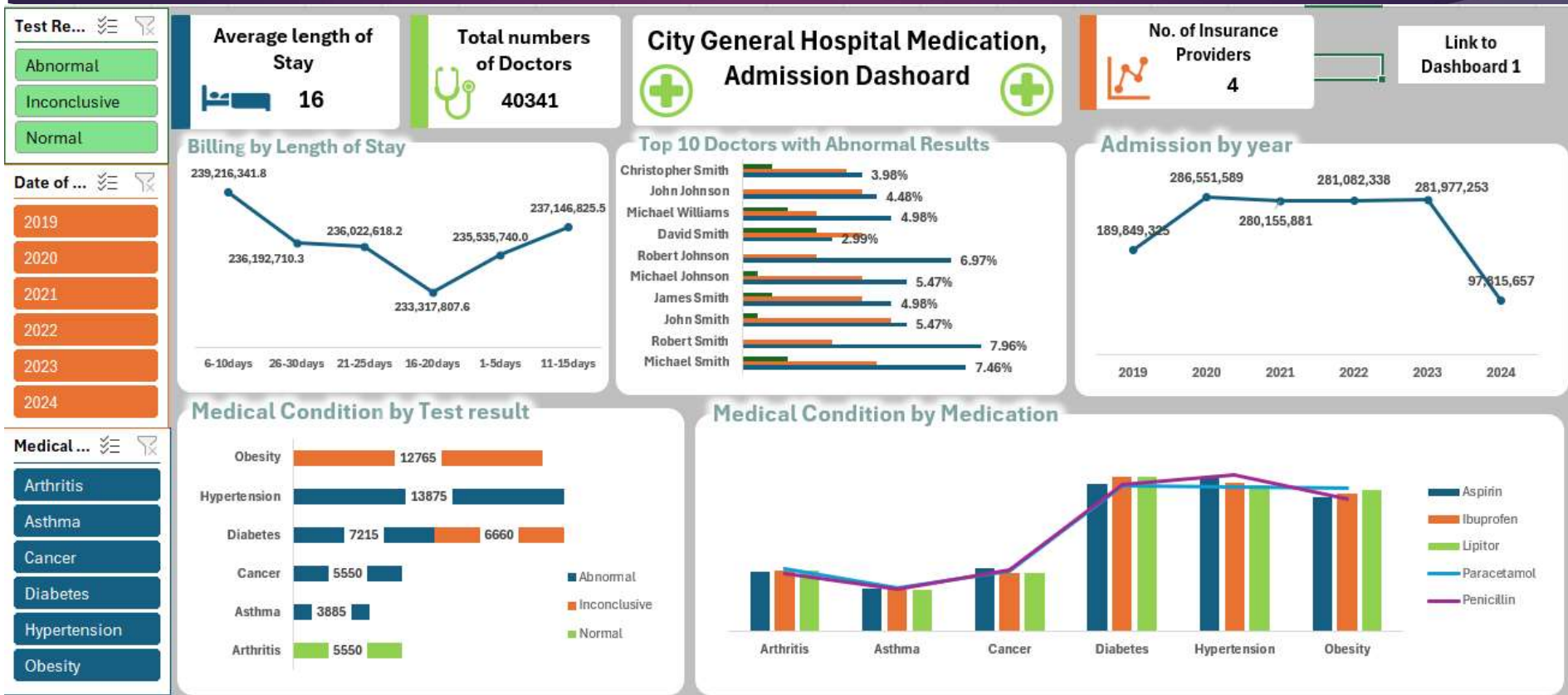
Dashboard 1



Dashboard 2



Dashboard 3





**You Can have 1000 problems in your
life until you have a health problem.....**

Then you only have one problem

Pay attention to your health

**THANK
YOU**