

# HCAHPS PATIENT SURVEY

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HOSPITAL CONSUMER ASSESSMENT OF HEALTHCARE PROVIDERS AND SYSTEMS

CREATED BY,  
**ABDUL BASITH K**

A stethoscope is positioned diagonally across the frame, resting on a medical chart with a grid and a line graph. The background is a dark, muted blue-grey color.

# OVERVIEW

- Introduction
- Problem Statement
- Data set overview
- Objectives
- Tools Used
- Process
- Insights
- Answers to the Problem Statement
- Solutions & Recommendations

# INTRODUCTION

## HCAHPS Patient Survey

National & state-level scores from 2013 to 2022 for the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey, a national, standardized survey of hospital patients about their experiences during a recent inpatient hospital stay in United States.

This project is part of Maven Analytics' Data challenge and data sets are downloaded from their site.



# PROBLEM STATEMENT

- Have hospitals made improvements in their quality of care over the past 9 years?
- Are there any specific areas where hospitals have made more progress than others?
- Are there still any major areas of opportunity?
- What recommendations can you make to hospitals to help them further improve the patient experience?

# DATA SET OVERVIEW

7 No. of Data sets are provided in this project;

1. Reports: These are the survey reports generated in each year from 2013 to 2022.
2. States: Details of US states including region.
3. Measures: Categorization of questions. Measures are created from specific questions on the HCAHPS survey.
4. Questions: Survey Questions. 19 Questions are in the survey.
5. National Results: Results of the survey in national level.
6. State Results: Results of the survey in states level.
7. Responses: Details of the facilities from all states including no. of completed surveys and response rate (%).

# OBJECTIVES

- Cleaning and preparing the given datasets for analysis and creating data models and measures for calculations.
- Investigating the data to uncover notable trends and patterns related to the hospital's performance.
- Creating compelling visualizations to effectively communicate the key findings and insights from the patient survey analysis.
- Formulating actionable solutions based on the identified patterns and trends to address specific challenges highlighted in the project.



TOOLS USED

MS Excel

Power Query

Power Pivot



# PROCESS



Data Cleaning and  
preparing



Data Modelling



Defining measures  
and calculated  
columns



Exploratory data  
analysis for insights



Data Visualizations



Providing  
Recommendations &  
Solutions



A stethoscope is visible in the background, partially obscured by the text and a vertical line. The stethoscope has a silver-colored chest piece and a black tube.

# PROCESS

## Data Cleaning and preparing

Data are structured and not much cleaning required. Although, the following changes have been made using MS Power Query.

- Adjusted the column data types to achieve uniformity and consistency.
- Removed errors and blank values for better analysis.
- Replaced some text values into whole numbers for uniformity and accurate result.

# PROCESS

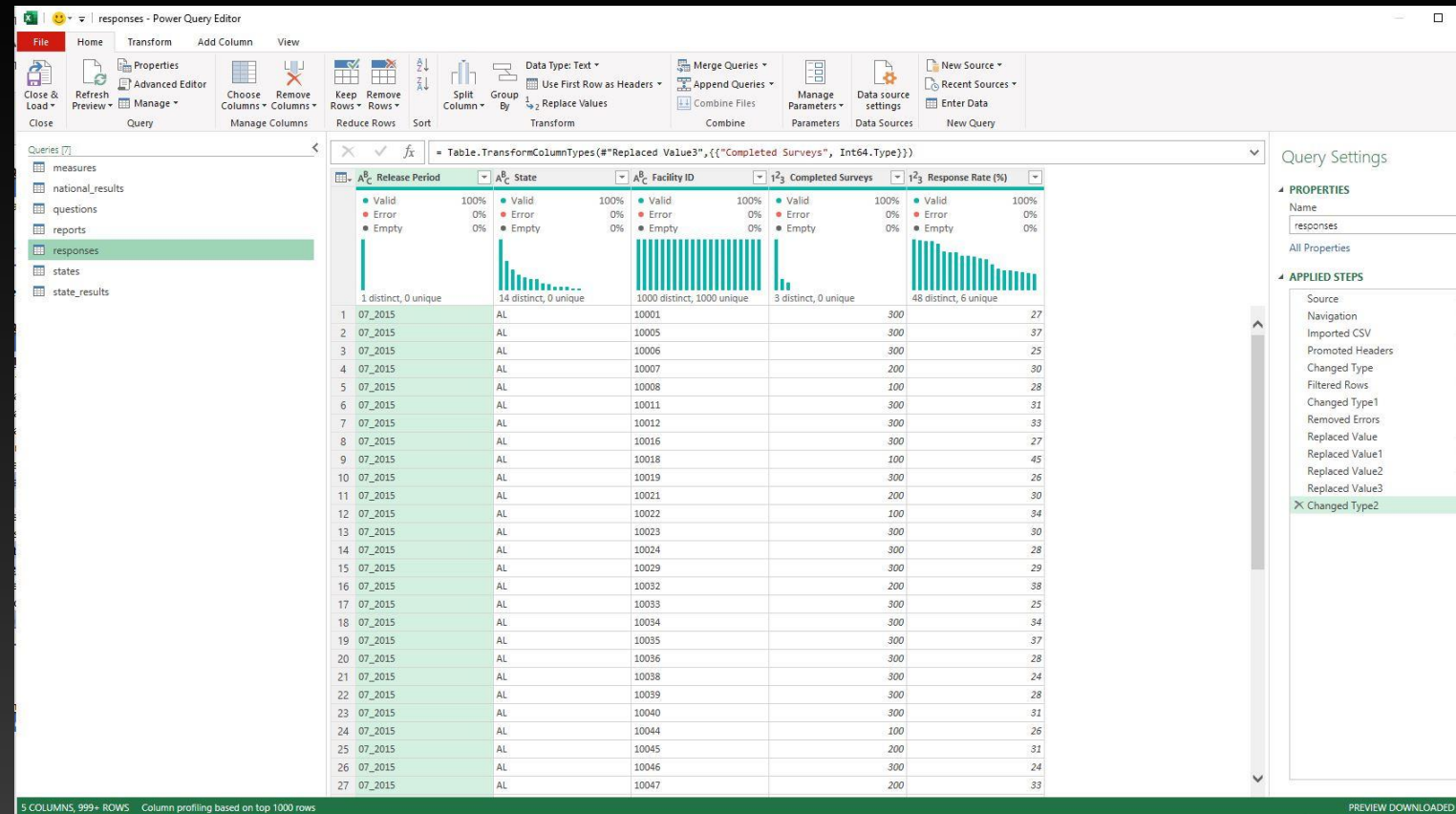
## Data Cleaning and preparing

Replaced the text values in the column named 'completed surveys' in the table named 'responses' as shown below, changing the column to whole number type.

Value to be changed	Replaced into	Remarks
300 or more	300	Changed to whole number
Between 100 and 299	200	Changed to whole number
Fewer than 100	100	Changed to whole number
Fewer than 50	50	Changed to whole number

# PROCESS

## Data Cleaning and preparing





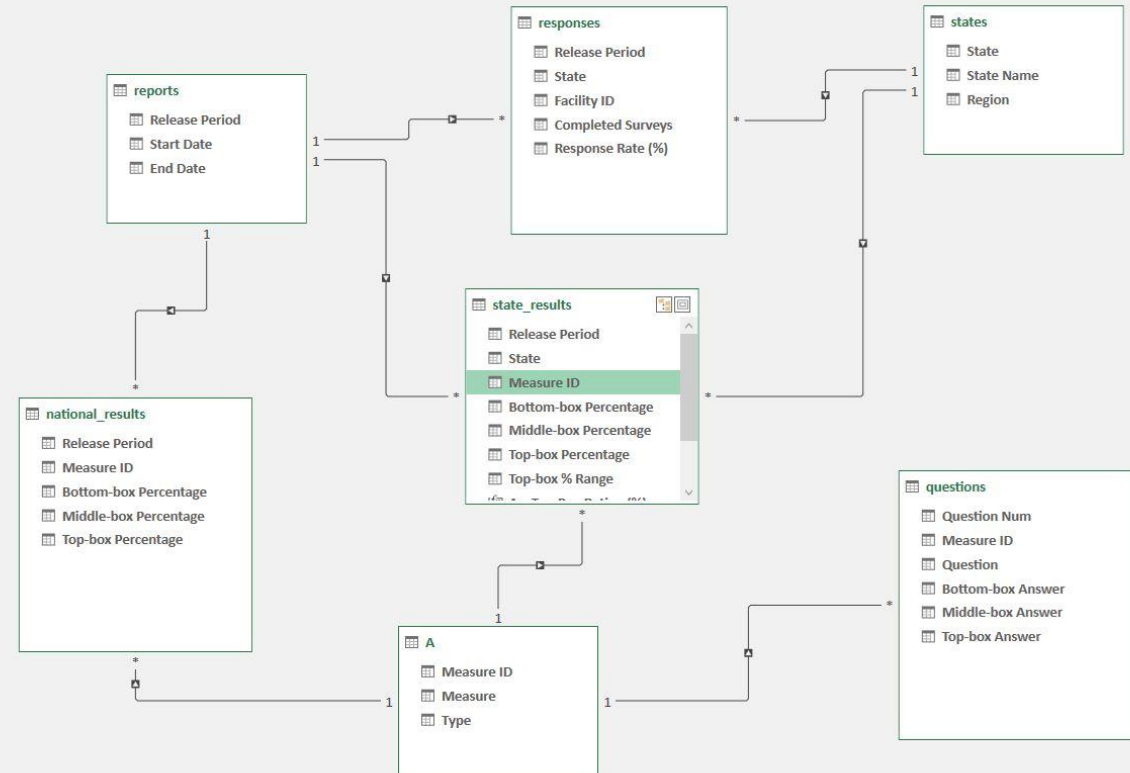
# PROCESS

## Data Modelling

- Data modelling has done using Excel's Power Pivot tool.
- All 7 data sets has loaded into data model from power query.
- Created relationships between tables using primary key and foreign keys.
- Created pivot table from the data model.

# PROCESS

## Data Modelling



# PROCESS

## Defining measures and calculated columns

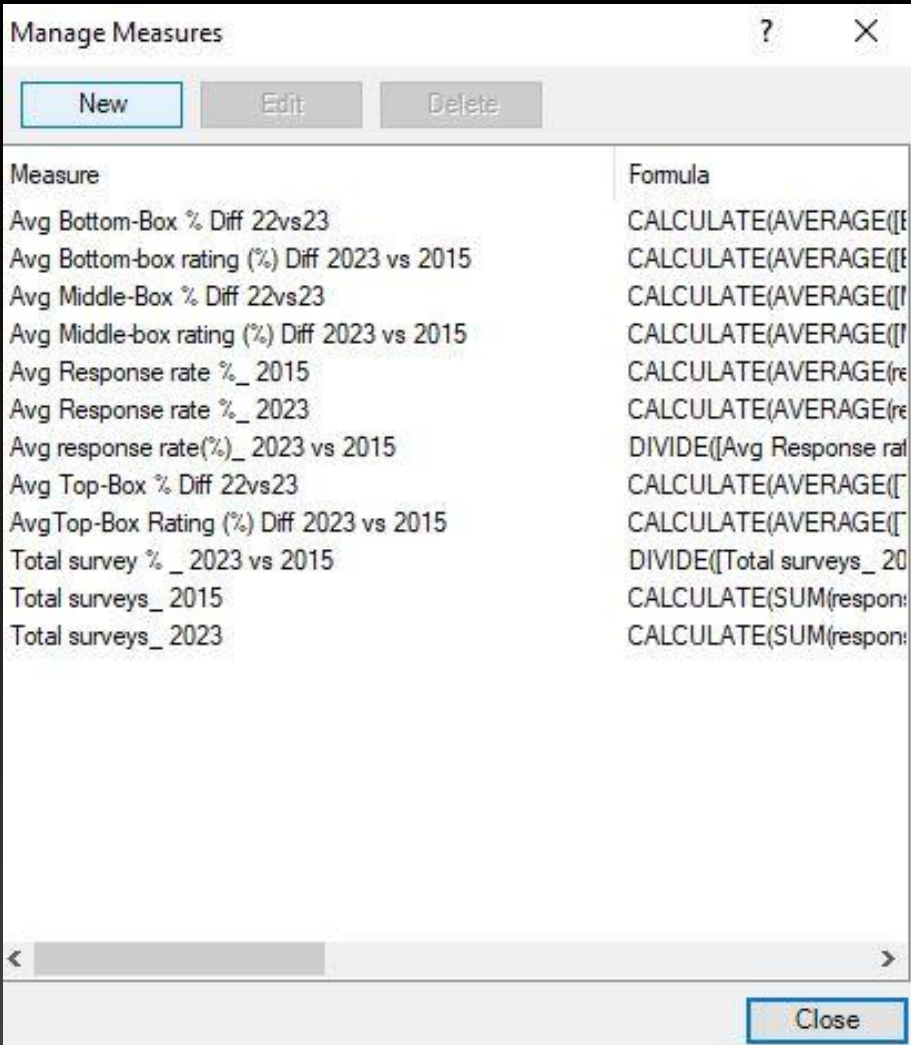
Following are the measures created using Power Pivot's DAX language to find out the changes in different factors over time.

- To understand the rating trend from 9 years back until latest, calculated the difference of average of Top-box, Middle-box & Bottom-box ratings between report release years 2015 and 2023.
- To understand the last year trend, calculated the difference of average of Top-box, Middle-box & Bottom-box ratings between report release years 2022 and 2023.
- To get the percentage of changes between total completed surveys in 2015 and 2023.
- To know the percentage of changes between average response rate (%) in 2015 and 2023.



# PROCESS

## Defining measures and calculated columns



Measure	Formula
Avg Bottom-Box % Diff 22vs23	CALCULATE(AVERAGE([
Avg Bottom-box rating (%) Diff 2023 vs 2015	CALCULATE(AVERAGE([
Avg Middle-Box % Diff 22vs23	CALCULATE(AVERAGE([
Avg Middle-box rating (%) Diff 2023 vs 2015	CALCULATE(AVERAGE([
Avg Response rate %_ 2015	CALCULATE(AVERAGE(re
Avg Response rate %_ 2023	CALCULATE(AVERAGE(re
Avg response rate(%)_ 2023 vs 2015	DIVIDE([Avg Response ral
Avg Top-Box % Diff 22vs23	CALCULATE(AVERAGE([
Avg Top-Box Rating (%) Diff 2023 vs 2015	CALCULATE(AVERAGE([
Total survey % _ 2023 vs 2015	DIVIDE([Total surveys_ 20
Total surveys_ 2015	CALCULATE(SUM(respon:
Total surveys_ 2023	CALCULATE(SUM(respon:



# PROCESS

## Exploratory data analysis for insights

- Analyzed the survey reports from 9 consecutive years 2015 to 2013 (The survey starts from Oct 2013 to Sep 2022).
- Created different Pivot tables from the data model for exploratory data analysis.
- 19 Survey Questions are categorized into 10 measures.
- 6 measures are composite measures, 2 measures are global item and the rest 2 are Individual item.

"Composite measures" are made up of more than 1 survey question, while "Individual Items" and "Global Items" are tied to a single question

# PROCESS

## Exploratory data analysis for insights

- Out of 19 questions, 15 lies under composite measures, 2 in global items and 2 in individual items.
- For each question, there are Top-box, Middle-box, and Bottom-box answers. We have the percentage of each answer for every question from each hospital and released the report for 9 years.
- National level and state level results are available for analysis.
- Details of responses from each hospital also available including No. of surveys completed and rate of response (%)

"Composite measures" are made up of more than 1 survey question, while "Individual Items" and "Global Items" are tied to a single question



# PROCESS

## Data Visualization

- Used MS Excel for the exploratory data analysis and data visualizations.
- Excel charts like bar chart and column chart are used for visualization.
- Also, conditional formatting and slicers are used as part of the data visualization.

# PROCESS

## Providing Recommendations & Solutions

- This phase involves offering strategic recommendations and actionable solutions based on the insights gained from the data analysis.
- This helps stakeholders to make informed decisions that positively impact patient care, operational efficiency, and overall healthcare quality.



A hand holding a silver pen points at a line graph on a tablet screen. The screen displays various financial data, including a candlestick chart on the left and a line graph with a red shaded area in the center. The background is dark with blue and green light reflections.

INSIGHTS



# INSIGHTS

## General Insights

Count of Facilities

4805

No. of States

51

No. of Regions

9

No. of Surveys Completed

23.40M

### Total No. of completed surveys by year

Release Period	Total Completed Surveys
07_2015	1.05M
07_2016	3.11M
07_2017	3.08M
07_2018	2.96M
07_2019	2.85M
07_2020	2.86M
07_2021	2.80M
07_2022	2.45M
07_2023	2.23M
Grand Total	23.40M

Facilities are the hospitals that participated in the HCAHPS patient survey.

States are the 50 US States (plus DC - District of Columbia)

Regions are the groups of states as defined by the United States Census Bureau

# INSIGHTS

## Remarks

- Other than 51 states, the survey responses list contains the details from the below mentioned locations also; But the survey results does not show these areas.
- GU: Guam
  - MP: Northern Mariana Islands
  - AS: American Samoa
  - PR: Puerto Rico
  - VI: U.S. Virgin Islands
- These are not the states of USA.
  - So, out of 4805 facilities, 12 are from these locations and those are not shown in the ratings list of states.
  - Ratings obtained from 4793 facilities only.

No. of facilities and Average response rate (%) by states

State	No. of Facilities	Avg Response Rate (%)
Texas	399	23.23
California	345	22.84
Florida	191	23.16
Illinois	182	26.34
New York	177	23.77
Pennsylvania	174	31.59
Ohio	172	28.35
Georgia	141	21.14
Michigan	132	30.59
Kansas	131	32.84
Wisconsin	129	35.12
Oklahoma	126	25.62
Indiana	126	28.47
Minnesota	123	34.47
Louisiana	118	24.23
Iowa	115	33.66
North Carolina	112	23.78
Tennessee	111	25.76
Missouri	111	28.22
Kentucky	97	24.65
Mississippi	95	22.73
Alabama	93	25.73
Washington	91	25.67
Virginia	87	24.40
Nebraska	86	36.30
Arizona	84	27.60
Colorado	83	27.21
Arkansas	77	24.97
South Carolina	67	23.43
New Jersey	65	21.43
Massachusetts	61	25.84
Oregon	61	26.37
South Dakota	60	33.20
West Virginia	53	26.34
Montana	53	30.86
Utah	49	26.64
Maryland	48	22.08
New Mexico	45	20.76
Idaho	44	31.01
North Dakota	42	33.58
Nevada	38	22.60
Maine	35	27.87
Connecticut	30	25.12
Wyoming	29	28.10
New Hampshire	26	27.18
Alaska	21	21.76
Hawaii	16	25.60
Vermont	15	29.55
Rhode Island	12	27.87
District of Columbia	8	20.61
Delaware	7	23.14
<b>Grand Total</b>	<b>4793</b>	<b>26.61</b>

# INSIGHTS

## No. of Survey Questions by each Measure

Measures	No. of Question
<b>Composite Measure</b>	
Care Transition	3
Communication about Medicines	2
Communication with Doctors	3
Communication with Nurses	3
Discharge Information	2
Responsiveness of Hospital Staff	2
<b>Composite Measure Total</b>	<b>15</b>
<b>Global Item</b>	
Overall Hospital Rating	1
Willingness to Recommend the Hospital	1
<b>Global Item Total</b>	<b>2</b>
<b>Individual Item</b>	
Cleanliness of Hospital Environment	1
Quietness of Hospital Environment	1
<b>Individual Item Total</b>	<b>2</b>
<b>Grand Total</b>	<b>19</b>

## No. of Survey Questions by each Measure type

Measure type	No. of Question
Composite Measure	15
Global Item	2
Individual Item	2
<b>Grand Total</b>	<b>19</b>

The survey questions and their answer categories are shown in next page.

# INSIGHTS

## Survey Questions & Answer category

#	Question	Bottom-box Answer	Middle-box Answer	Top-box Answer
1	During this hospital stay, how often did nurses treat you with courtesy and respect?	Sometimes or never	Usually	Always
2	During this hospital stay, how often did nurses listen carefully to you?	Sometimes or never	Usually	Always
3	During this hospital stay, how often did nurses explain things in a way you could understand?	Sometimes or never	Usually	Always
4	During this hospital stay, after you pressed the call button, how often did you get help as soon as you wanted it?	Sometimes or never	Usually	Always
5	During this hospital stay, how often did doctors treat you with courtesy and respect?	Sometimes or never	Usually	Always
6	During this hospital stay, how often did doctors listen carefully to you?	Sometimes or never	Usually	Always
7	During this hospital stay, how often did doctors explain things in a way you could understand?	Sometimes or never	Usually	Always
8	During this hospital stay, how often were your room and bathroom kept clean?	Sometimes or never	Usually	Always
9	During this hospital stay, how often was the area around your room quiet at night?	Sometimes or never	Usually	Always
10	How often did you get help in getting to the bathroom or in using a bedpan as soon as you wanted?	Sometimes or never	Usually	Always
11	Before giving you any new medicine, how often did hospital staff tell you what the medicine was for?	Sometimes or never	Usually	Always
12	Before giving you any new medicine, how often did hospital staff describe possible side effects in a way you could understand?	Sometimes or never	Usually	Always
13	During this hospital stay, did doctors, nurses or other hospital staff talk with you about whether you would have the help you needed when you left the hospital?	No		Yes
14	During this hospital stay, did you get information in writing about what symptoms or health problems to look out for after you left the hospital?	No		Yes
15	Using any number from 0 to 10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital during your stay?	0 to 6	7 or 8	9 or 10
16	Would you recommend this hospital to your friends and family?	Probably no or definitely no	Probably yes	Definitely yes
17	During this hospital stay, staff took my preferences and those of my family or caregiver into account in deciding what my health care needs would be when I left.	Disagree or strongly disagree	Agree	Strongly Agree
18	When I left the hospital, I had a good understanding of the things I was responsible for in managing my health.	Disagree or strongly disagree	Agree	Strongly Agree
19	When I left the hospital, I clearly understood the purpose for taking each of my medications.	Disagree or strongly disagree	Agree	Strongly Agree



# INSIGHTS

## Survey Questions with measures

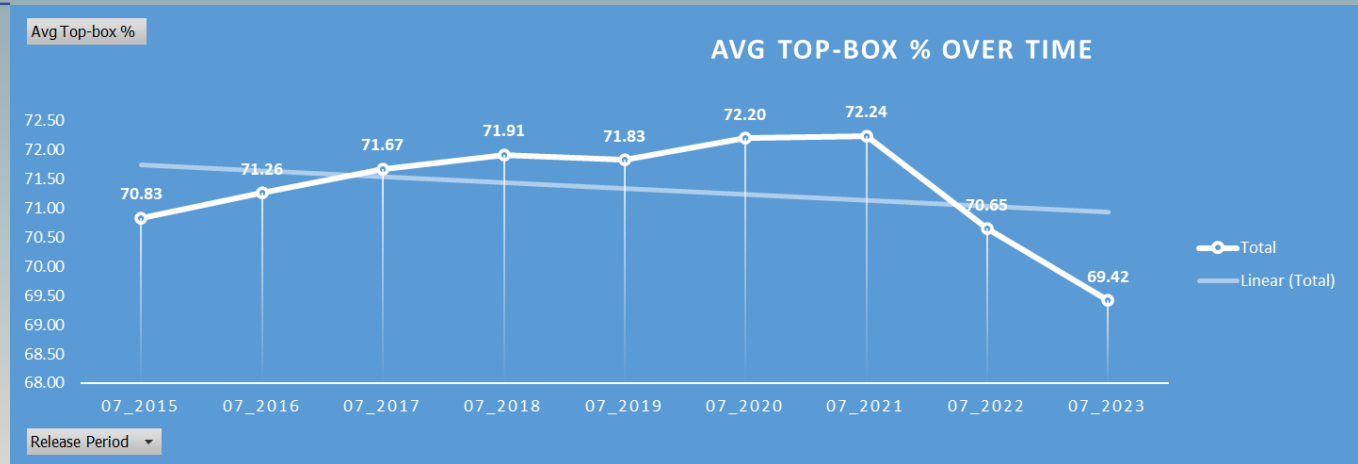
Question	Measure	Measure Type
During this hospital stay, how often did nurses treat you with courtesy and respect?	Communication with Nurses	Composite Measure
During this hospital stay, how often did nurses listen carefully to you?	Communication with Nurses	Composite Measure
During this hospital stay, how often did nurses explain things in a way you could understand?	Communication with Nurses	Composite Measure
During this hospital stay, after you pressed the call button, how often did you get help as soon as you wanted it?	Responsiveness of Hospital Staff	Composite Measure
During this hospital stay, how often did doctors treat you with courtesy and respect?	Communication with Doctors	Composite Measure
During this hospital stay, how often did doctors listen carefully to you?	Communication with Doctors	Composite Measure
During this hospital stay, how often did doctors explain things in a way you could understand?	Communication with Doctors	Composite Measure
During this hospital stay, how often were your room and bathroom kept clean?	Cleanliness of Hospital Environment	Individual Item
During this hospital stay, how often was the area around your room quiet at night?	Quietness of Hospital Environment	Individual Item
How often did you get help in getting to the bathroom or in using a bedpan as soon as you wanted?	Responsiveness of Hospital Staff	Composite Measure
Before giving you any new medicine, how often did hospital staff tell you what the medicine was for?	Communication about Medicines	Composite Measure
Before giving you any new medicine, how often did hospital staff describe possible side effects in a way you could understand?	Communication about Medicines	Composite Measure
During this hospital stay, did doctors, nurses or other hospital staff talk with you about whether you would have the help you needed when you left the hospital?	Discharge Information	Composite Measure
During this hospital stay, did you get information in writing about what symptoms or health problems to look out for after you left the hospital?	Discharge Information	Composite Measure
Using any number from 0 to 10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital during your stay?	Overall Hospital Rating	Global Item
Would you recommend this hospital to your friends and family?	Willingness to Recommend the Hospital	Global Item
During this hospital stay, staff took my preferences and those of my family or caregiver into account in deciding what my health care needs would be when I left.	Care Transition	Composite Measure
When I left the hospital, I had a good understanding of the things I was responsible for in managing my health.	Care Transition	Composite Measure
When I left the hospital, I clearly understood the purpose for taking each of my medications.	Care Transition	Composite Measure

# INSIGHTS

## Rating of average Top-box answers over time

Average Top-box % by each year

Release Period	Avg Top-box %
07_2015	70.83
07_2016	71.26
07_2017	71.67
07_2018	71.91
07_2019	71.83
07_2020	72.20
07_2021	72.24
07_2022	70.65
07_2023	69.42
Grand Total	71.33



# INSIGHTS

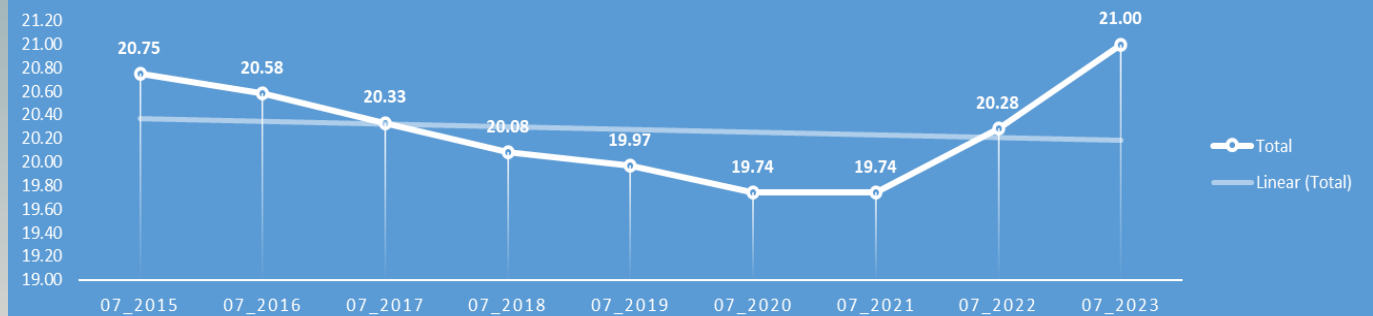
Average Middle-box % by each year

Release Period	Avg Middle-box %
07_2015	20.75
07_2016	20.58
07_2017	20.33
07_2018	20.08
07_2019	19.97
07_2020	19.74
07_2021	19.74
07_2022	20.28
07_2023	21.00
Grand Total	20.27

## Rating of average Middle-box answers over time

Avg Middle-box %

### AVG MIDDLE-BOX % OVER TIME



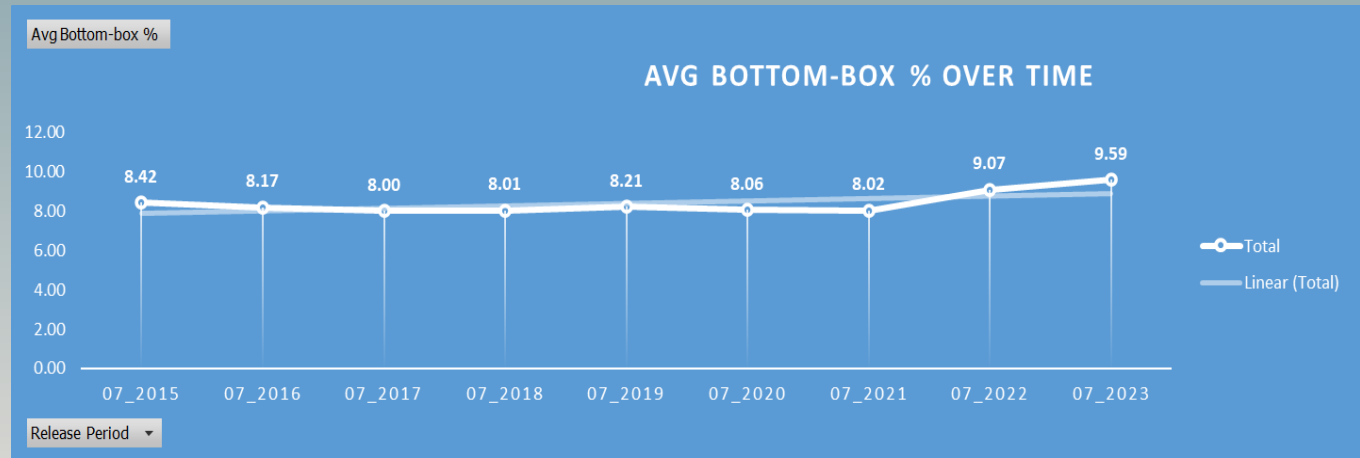
Release Period

# INSIGHTS

Average Bottom-box % by each year

Release Period	Avg Bottom-box %
07_2015	8.42
07_2016	8.17
07_2017	8.00
07_2018	8.01
07_2019	8.21
07_2020	8.06
07_2021	8.02
07_2022	9.07
07_2023	9.59
Grand Total	8.39

## Rating of average Bottom-box answers over time





# INSIGHTS

## Release Period 2021 Marks a Decline in Top-Box Ratings and continues: COVID Effects

- Up until 2021, there has been a consistent increase in the Average Top-box percentage, a corresponding decrease in the Average Middle-box percentage, while the Average Bottom-box percentage has remained steady.

- From 2021 to 2023, there has been a notable decrease in the Average Top-box percentage, accompanied by a significant increase in the Average Middle-box percentage. Additionally, the Average Bottom-box percentage has experienced a slight increase during this period.

- Amid the challenges posed by the COVID-19 pandemic in 2020 and 2021, survey ratings took a hit. The Top-box percentage declined during this period, along with a slight increase in the Bottom-box ratings. However, the Bottom-box ratings has increased.

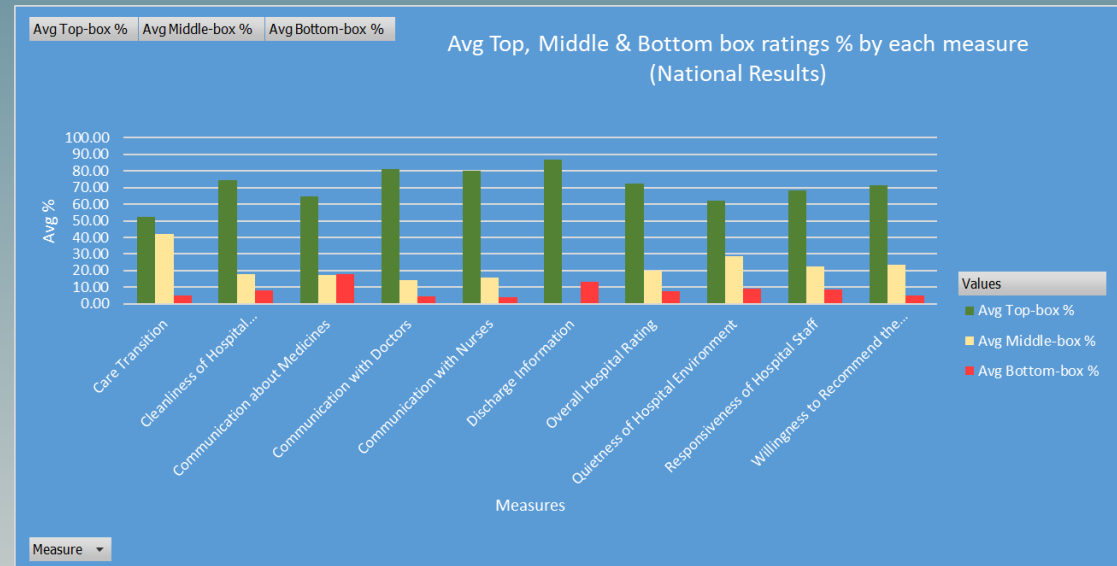
# INSIGHTS

## National Level Results

**National Results Average Ratings by each Measure**

Measures	Avg Top-box %	Avg Middle-box %	Avg Bottom-box %
Care Transition	52.56	42.22	5.22
Cleanliness of Hospital Environment	74.33	17.67	8.00
Communication about Medicines	64.78	17.44	17.78
Communication with Doctors	81.33	14.22	4.44
Communication with Nurses	80.11	15.67	4.22
Discharge Information	86.67	0.00	13.33
Overall Hospital Rating	72.22	20.00	7.78
Quietness of Hospital Environment	62.22	28.44	9.33
Responsiveness of Hospital Staff	68.56	22.67	8.78
Willingness to Recommend the Hospital	71.33	23.44	5.22
<b>Grand Total</b>	<b>71.41</b>	<b>20.18</b>	<b>8.41</b>

INSIGHTS		
Top-Box Rating		
Discharge Information	86.67	Highest Top-box rating
Care Transition	52.56	Lowest Top-Box rating
Bottom-Box Rating		
Communication about Medicines	17.78	Highest Bottom-box rating
Communication with Nurses	4.22	Lowest Bottom-box rating



# INSIGHTS

## National Level Results

- Release Period 2021 marks the highest Top-box % (72.30%) and lowest Bottom-box % (7.90%)

- The Average Top-Box % until 2021 has been increasing. But from release period 2021 until 2023, the average Top-Box % has declined.

- Release Period 2021 marks the highest Top-box % (72.30%) and lowest Bottom-box % (7.90%)

### Measures with significant decrease (Almost 2%) in Avg Top-Box 2015 vs 2023

Cleanliness of Hospital Environment  
Communication about Medicines  
Communication with Doctors  
Responsiveness of Hospital Staff  
Willingness to Recommend the Hospital

### Measures with significant increase (Almost 2%) in Avg Bottom-Box 2015 vs 2023

Cleanliness of Hospital Environment  
Communication about Medicines  
Responsiveness of Hospital Staff

# INSIGHTS

## State Level Results

State Results Average Ratings by each Measure

Measures	Avg Top-box %	Avg Middle-box %	Avg Bottom-box %
Discharge Information	86.76	0.00	13.24
Communication with Doctors	81.38	14.15	4.48
Communication with Nurses	80.14	15.58	4.28
Cleanliness of Hospital Environment	74.15	17.66	8.19
Overall Hospital Rating	71.83	20.39	7.78
Willingness to Recommend the Hospital	71.29	23.64	5.08
Responsiveness of Hospital Staff	68.74	22.56	8.71
Communication about Medicines	64.83	17.70	17.47
Quietness of Hospital Environment	61.56	28.95	9.49
Care Transition	52.65	42.12	5.24
<b>Grand Total</b>	<b>71.33</b>	<b>20.27</b>	<b>8.39</b>

Top 3 measure with most rating of Top-box answers is

1. Discharge Information
2. Communication with Doctors
3. Communication with Nurses

The measure with least Top-box % is 'Care transition'. But most of the survey takers (42 %) voted in middle-box.

Top 2 measures with most rating of Bottom-box answers are

1. Communication about medicines
2. Discharge Information



# INSIGHTS

## State and Region ratings

Average Ratings for all measures by Regions

Region	Avg Top-box %	Avg Middle-box %	Avg Bottom-box %	No. of Facilities	Avg Response Rate (%)
West North Central	74.89	18.82	6.28	668	33.03
West South Central	73.70	18.33	7.96	720	24.00
East North Central	72.38	20.12	7.50	741	29.48
East South Central	72.36	19.03	8.61	396	24.79
New England	71.17	20.67	8.16	179	26.76
Mountain	71.15	20.55	8.30	425	27.02
Pacific	69.95	21.41	8.64	534	23.78
South Atlantic	68.82	21.10	10.08	714	23.19
Mid-Atlantic	67.30	22.30	10.40	416	26.61
<b>Grand Total</b>	<b>71.33</b>	<b>20.27</b>	<b>8.39</b>	<b>4793</b>	<b>26.61</b>

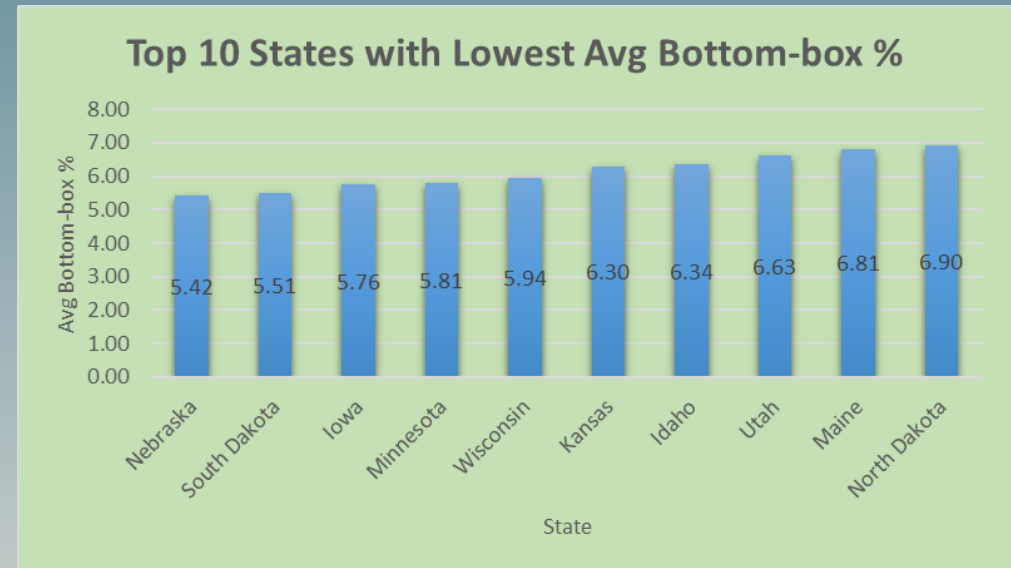
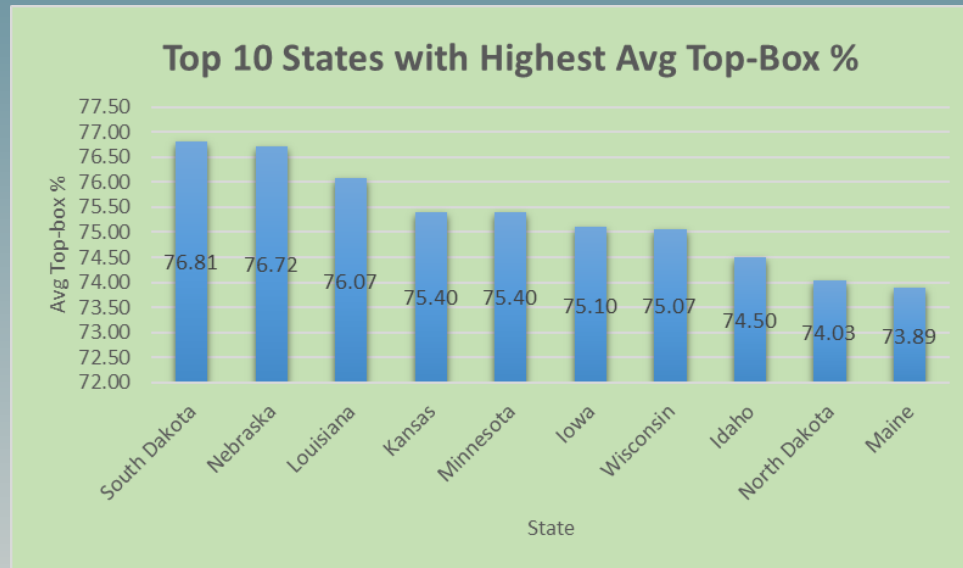
- The state with highest Average Top-box rating is 'South Dakota' and the least is 'District of Columbia'.
- The region with highest Average Top-box rating is 'West North Central' and the least is 'Mid-Atlantic'

Average Ratings for all measures by states

State	Avg Top-box %	Avg Middle-box %	Avg Bottom-box %	No. of Facilities	Avg Response Rate (%)
South Dakota	76.81	17.68	5.51	60	33.20
Nebraska	76.72	17.86	5.42	86	36.30
Louisiana	76.07	16.49	7.44	118	24.23
Kansas	75.40	18.30	6.30	131	32.84
Minnesota	75.40	18.79	5.81	123	34.47
Iowa	75.10	19.14	5.76	115	33.66
Wisconsin	75.07	18.99	5.94	129	35.12
Idaho	74.50	19.16	6.34	44	31.01
North Dakota	74.03	19.07	6.90	42	33.58
Maine	73.89	19.30	6.81	35	27.87
Utah	73.66	19.71	6.63	49	26.64
Colorado	73.47	19.42	7.11	83	27.21
Mississippi	73.39	17.90	8.71	95	22.73
Oklahoma	73.38	18.79	7.83	126	25.62
Texas	73.31	18.57	8.12	399	23.23
Alabama	72.67	18.64	8.69	93	25.73
Vermont	72.67	20.42	6.91	15	29.55
Wyoming	72.52	20.42	7.06	29	28.10
Indiana	72.34	20.18	7.48	126	28.47
Arkansas	72.06	19.49	8.46	77	24.97
Kentucky	72.00	19.78	8.22	97	24.65
New Hampshire	71.90	20.50	7.60	26	27.18
Ohio	71.80	20.60	7.60	172	28.35
Montana	71.72	20.33	7.94	53	30.86
Michigan	71.71	20.32	7.97	132	30.59
Oregon	71.64	21.02	7.33	61	26.37
South Carolina	71.39	19.62	8.99	67	23.43
Tennessee	71.38	19.79	8.83	111	25.76
North Carolina	71.04	20.31	8.64	112	23.78
Illinois	70.98	20.53	8.49	182	26.34
West Virginia	70.97	20.50	8.53	53	26.34
Missouri	70.79	20.92	8.29	111	28.22
Georgia	70.64	19.84	9.51	141	21.14
Hawaii	70.61	20.79	8.60	16	25.60
Washington	70.33	21.41	8.26	91	25.67
Rhode Island	70.28	20.67	9.06	12	27.87
Pennsylvania	70.19	21.17	8.64	174	31.59
Alaska	70.04	21.81	8.14	21	21.76
Virginia	70.01	21.10	8.89	87	24.40
Massachusetts	69.54	21.48	8.98	61	25.84
Delaware	69.02	21.67	9.31	7	23.14
Connecticut	68.73	21.68	9.59	30	25.12
New Mexico	68.59	21.48	9.93	45	20.76
Arizona	68.24	21.74	10.01	84	27.60
Florida	67.38	21.39	11.23	191	23.16
California	67.12	22.00	10.88	345	22.84
Nevada	66.53	22.10	11.37	38	22.60
Maryland	66.19	22.60	11.21	48	22.08
New York	66.13	22.81	11.06	177	23.77
New Jersey	65.57	22.92	11.51	65	21.43
District of Columbia	62.43	23.01	14.56	8	20.61
<b>Grand Total</b>	<b>71.33</b>	<b>20.27</b>	<b>8.39</b>	<b>4793</b>	<b>26.61</b>

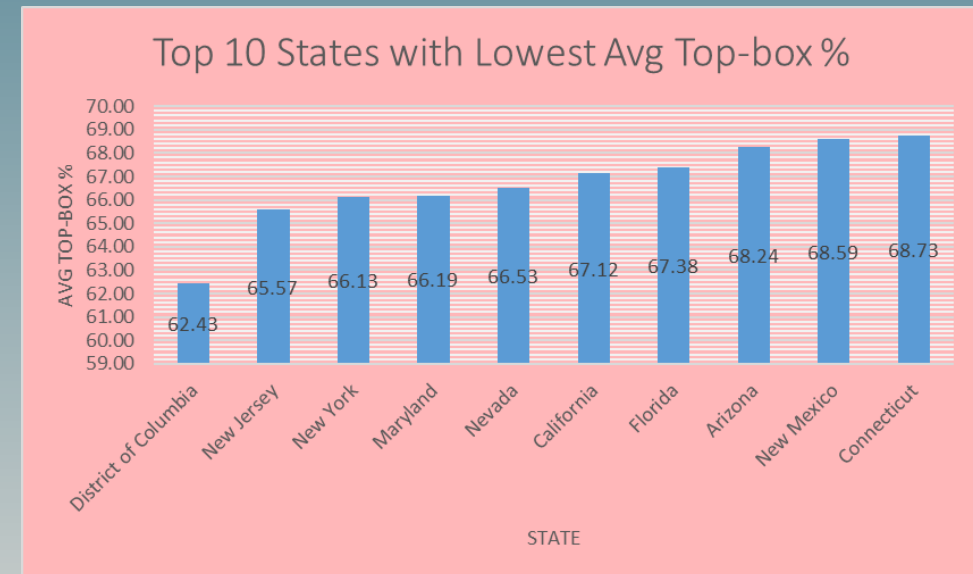
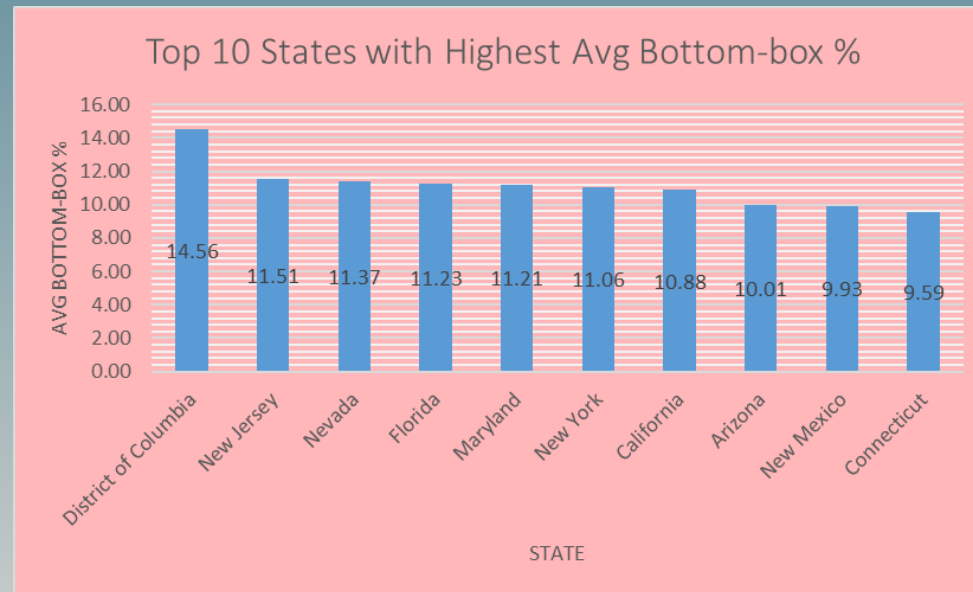
# INSIGHTS

## Top 10 States of Highest and lowest average Top- box ratings



# INSIGHTS

## Top 10 States of Highest and lowest average Bottom- box ratings



# INSIGHTS

## Difference between Average Ratings in 2023 and 2015

Difference of Avg Ratings 2023 vs 2015 by each Measure

Measures	AvgTop-Box Rating (%)	Avg Middle-box rating	Avg Bottom-box rating (%)
	Diff 2023 vs 2015	(%) Diff 2023 vs 2015	Diff 2023 vs 2015
Quietness of Hospital Environment	-0.08	-0.59	0.67
Communication with Nurses	-0.25	-0.25	0.51
Overall Hospital Rating	-0.39	-0.82	1.22
Discharge Information	-0.55	0.00	0.55
Care Transition	-0.98	0.18	0.80
Cleanliness of Hospital Environment	-1.84	0.24	1.61
Willingness to Recommend the Hospital	-1.96	0.78	1.18
Communication with Doctors	-2.00	1.00	1.00
Responsiveness of Hospital Staff	-2.63	0.92	1.71
Communication about Medicines	-3.43	1.04	2.39
Grand Total	-1.41	0.25	1.16

- Overall, for the past 9 years, Hospitals quality of care has been decreased.
- Top- box ratings has been decreased **-1.41%** average.
- Bottom-box ratings has been increased **1.16%** average.

- Considering the reports from 2015 to 2023, the overall Top-box rating has been **decreased** for all measures.
- The measure with least difference for Top-box is **‘Quietness of Hospital Environment’**, and the measure with highest difference for Top-box is **‘Communication about Medicines’**
- The measure with least difference for Bottom-box is **‘Quietness of Hospital Environment’**, and the measure with highest difference for Bottom-box is **‘Communication about Medicines’**



# INSIGHTS

## Difference between Average Ratings in 2023 and 2015

Difference of Avg Ratings 2023 vs 2015 by states			
State	AvgTop-Box Rating (%) Diff 2023 vs 2015	Avg Middle-box rating (%) Diff 2023 vs 2015	Avg Bottom-box rating (%) Diff 2023 vs 2015
North Dakota	3.30	-2.50	-0.80
Alaska	2.60	0.30	-2.90
Montana	1.80	-1.60	-0.20
Wyoming	1.40	-1.50	0.10
Nevada	0.90	-2.00	1.10
South Dakota	0.60	-0.40	-0.20
Arkansas	0.50	-0.80	0.30
Minnesota	0.40	-0.70	0.30
Utah	0.20	-1.40	1.20

Difference of Avg Ratings 2023 vs 2015 by states			
State	AvgTop-Box Rating (%) Diff 2023 vs 2015	Avg Middle-box rating (%) Diff 2023 vs 2015	Avg Bottom-box rating (%) Diff 2023 vs 2015
Alaska	2.60	0.30	-2.90
North Dakota	3.30	-2.50	-0.80
Montana	1.80	-1.60	-0.20
South Dakota	0.60	-0.40	-0.20

- Considering states for changes in Top-box ratings for the past 9 years, 9 states has witnessed **increment**.
- Considering the Bottom-box ratings changes for the past 9 years, 4 states has witnessed **decrease**.
- By analysing both the tables, the following states has been increased their health care quality, because they witnessed a positive change in Top-box rating and negative change in Bottom-box rating.
  - Alaska
  - North Dakota
  - Montana
  - South Dakota

# INSIGHTS

## Difference between Average Ratings in 2023 and 2022 (Last year)

Average Ratings difference 2022 vs 2023 by Measures			
Measures	Avg Top-Box % Diff 22vs23	Avg Middle-Box % Diff 22vs23	Avg Bottom-Box % Diff 22vs23
Discharge Information	-0.76	0.00	0.76
Communication with Doctors	-0.86	0.71	0.16
Quietness of Hospital Environment	-0.94	0.65	0.29
Cleanliness of Hospital Environment	-0.98	0.55	0.43
Communication with Nurses	-0.98	0.71	0.27
Care Transition	-1.10	0.92	0.18
Responsiveness of Hospital Staff	-1.47	0.98	0.49
Communication about Medicines	-1.53	0.39	1.14
Overall Hospital Rating	-1.80	0.92	0.88
Willingness to Recommend the Hospital	-1.86	1.33	0.53
Grand Total	-1.23	0.72	0.51

- Considering the change in last year, Hospitals quality of care has been decreased.
- Top- box ratings has been decreased **-1.23%** average.
- Bottom-box ratings has been increased **0.51%** average.
- Considering the report for the last year, the overall Top-box rating has been **decreased** for all measures.
- The measure with least difference for Top-box is '**Discharge Information**', and the measure with highest difference for Top-box is '**Willingness to recommend the hospital**'
- The measure with least difference for Bottom-box is '**Communication with Doctors**', and the measure with highest difference for Bottom-box is '**Communication about Medicines**'

# INSIGHTS

## Difference between Average Ratings in 2023 and 2022 (Last year)

### States with Increase in Average Top-box rating

State wise Average Ratings difference 2022 vs 2023			
States	Avg Top-Box % Diff 22vs23	Avg Middle-Box % Diff 22vs23	Avg Bottom-Box % Diff 22vs23
Alaska	1.10	-0.70	-0.40
Arkansas	0.80	-0.40	-0.40
Nevada	0.50	-0.20	-0.30
Montana	0.20	-0.40	0.20
Texas	0.20	0.00	-0.20

### States with Decrease in Average Bottom-box rating

State wise Average Ratings difference 2022 vs 2023			
States	Avg Top-Box % Diff 22vs23	Avg Middle-Box % Diff 22vs23	Avg Bottom-Box % Diff 22vs23
Hawaii	-0.30	1.60	-1.30
Arkansas	0.80	-0.40	-0.40
Alaska	1.10	-0.70	-0.40
Nevada	0.50	-0.20	-0.30
Texas	0.20	0.00	-0.20
Georgia	-0.30	0.40	-0.10
Wyoming	-0.10	0.20	-0.10
Mississippi	-0.70	0.80	-0.10

- Considering states for changes in Top-box ratings for the last year, 5 states has witnessed **increment**.
- Considering the Bottom-box ratings changes for the past 9 years, 8 states has witnessed **decrease**.
- Considering last year's growth, the following states has been increased their health care quality, because they witnessed a positive change in Top-box rating and negative change in Bottom-box rating.
  - Alaska
  - Arkansas
  - Nevada
  - Texas

# INSIGHTS

## Percentage of Total no. of Surveys difference and Response rate difference\_ 2023 vs 2015

Average Ratings difference 2023 vs 2015 by Region		
Region	Avg response rate(%)_ 2023 vs 2015	Total survey % _ 2023 vs 2015
South Atlantic	-8.58	156.98%
Pacific	-8.34	143.22%
Mid-Atlantic	-8.03	136.72%
New England	-6.92	110.62%
East North Central	-7.94	105.33%
East South Central	-8.97	94.42%
Mountain	-9.78	87.86%
West South Central	-9.04	85.53%
West North Central	-5.69	65.09%
Grand Total	-8.10	112.77%

- Total no. of Surveys has been **increased by 113%** average for overall regions.
- But average response rate has been **decreased by 8 %** over the past 9 years.

The below regions has witnessed more than 100% survey growth.

1. South Atlantic
2. Pacific
3. Mid-Atlantic
4. New England
5. East North Central



# INSIGHTS

## Percentage of Total no. of Surveys difference \_ 2023 vs 2015

Average response rate and No. of survey difference 2023 vs 2015 by States		
State	Avg response rate(%)_ 2023 vs 2015	Total survey % _ 2023 vs 2015
Florida	-7.96	268.55%
District of Columbia	-10.14	244.14%
New Jersey	-7.01	241.22%
Maryland	-10.05	196.67%
Hawaii	-7.23	178.22%
California	-7.77	165.88%
Connecticut	-6.58	162.50%
Massachusetts	-7.82	150.77%
Alabama	-7.89	145.18%
Missouri	-7.32	139.09%

State	Avg response rate(%)_ 2023 vs 2015	Total survey % _ 2023 vs 2015
Alaska	-6.36	9.09%
Wyoming	-5.63	10.81%
North Dakota	-5.37	13.37%

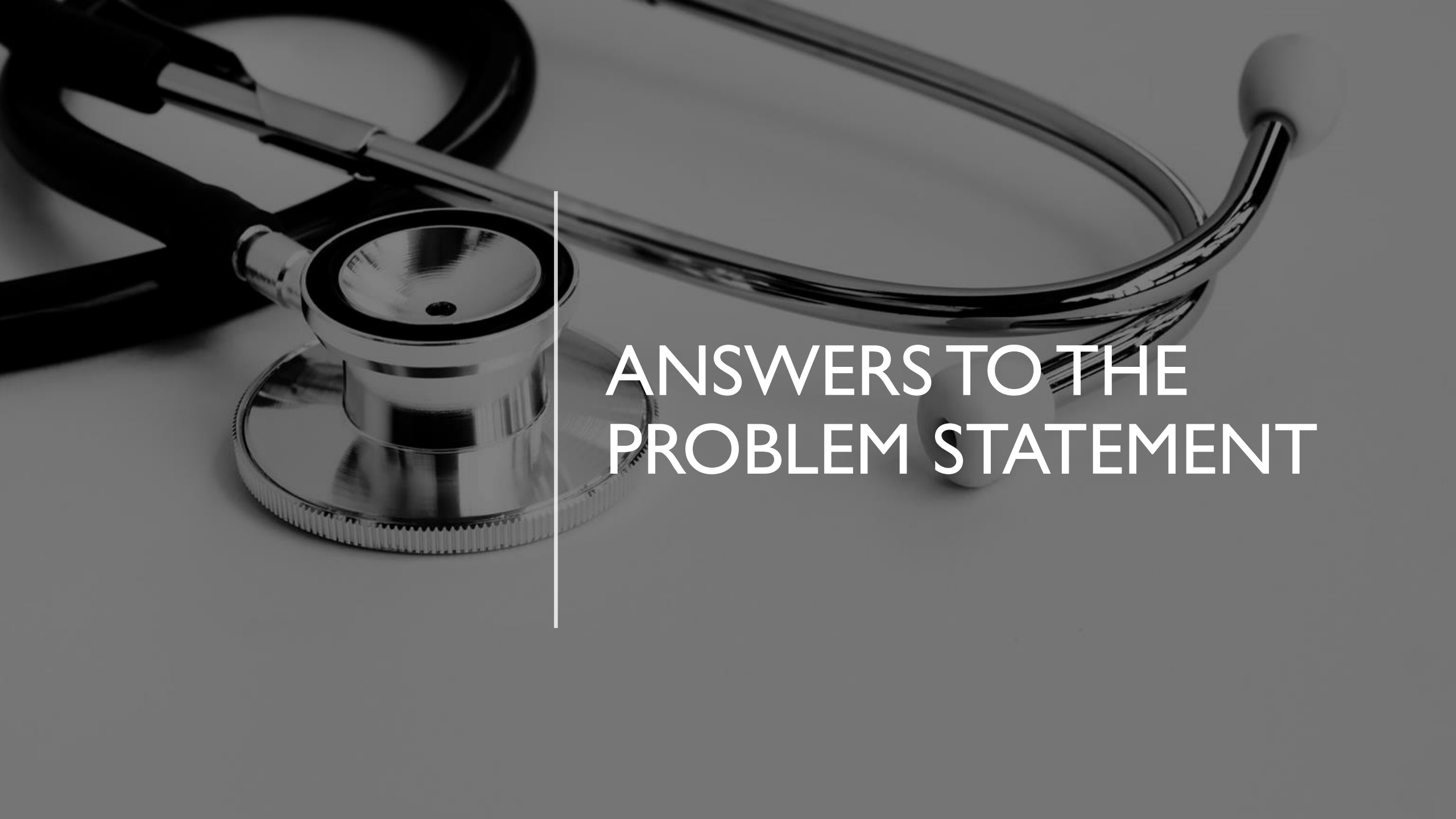
- Top 10 states with higher no. of survey growth % for the past 9 years are shown in the table below.
- **District of Columbia** is in the second top position with **244%** survey growth, but the average response rate has been **decreased by 10%**.
- **Maryland** has also witnessed a **197%** growth in survey, though the average response rate has **decreased by 10%**.
- **Alaska, Wyoming and North Dakota** are the 3 states with lowest growth (**below 20%**) of number of surveys for the past 9 years

# INSIGHTS

## Percentage of Response rate difference \_ 2023 vs 2015

Average response rate and No. of survey difference 2023 vs 2015 by States		
State	Avg response rate(%)_ 2023 vs 2015	Total survey % _ 2023 vs 2015
Utah	-15.72	134.25%
Idaho	-12.27	45.29%
Tennessee	-10.79	101.07%
South Carolina	-10.48	121.63%
Washington	-10.22	87.24%
Kentucky	-10.22	82.25%
District of Columbia	-10.14	244.14%
Maryland	-10.05	196.67%
Virginia	-9.98	105.50%
Oregon	-9.77	99.26%

- Bottom 10 states with ascending order of average response rate (%) difference has shown in the table for the past 9 years.
- All states has been witnessed increment in no. of completed surveys, but average response rate has been **decreased**.
- **Utah** has the **lowest decrease** of **15%** for average response rate (%), though **134%** growth in survey for the past 9 years.
- **Idaho (-12%)** is the second last state with average response rate difference, also a lower survey growth difference (**45%**) compared to others



# ANSWERS TO THE PROBLEM STATEMENT

# ANSWERS TO THE PROBLEM STATEMENT

- Have hospitals made improvements in their quality of care over the past 9 years?

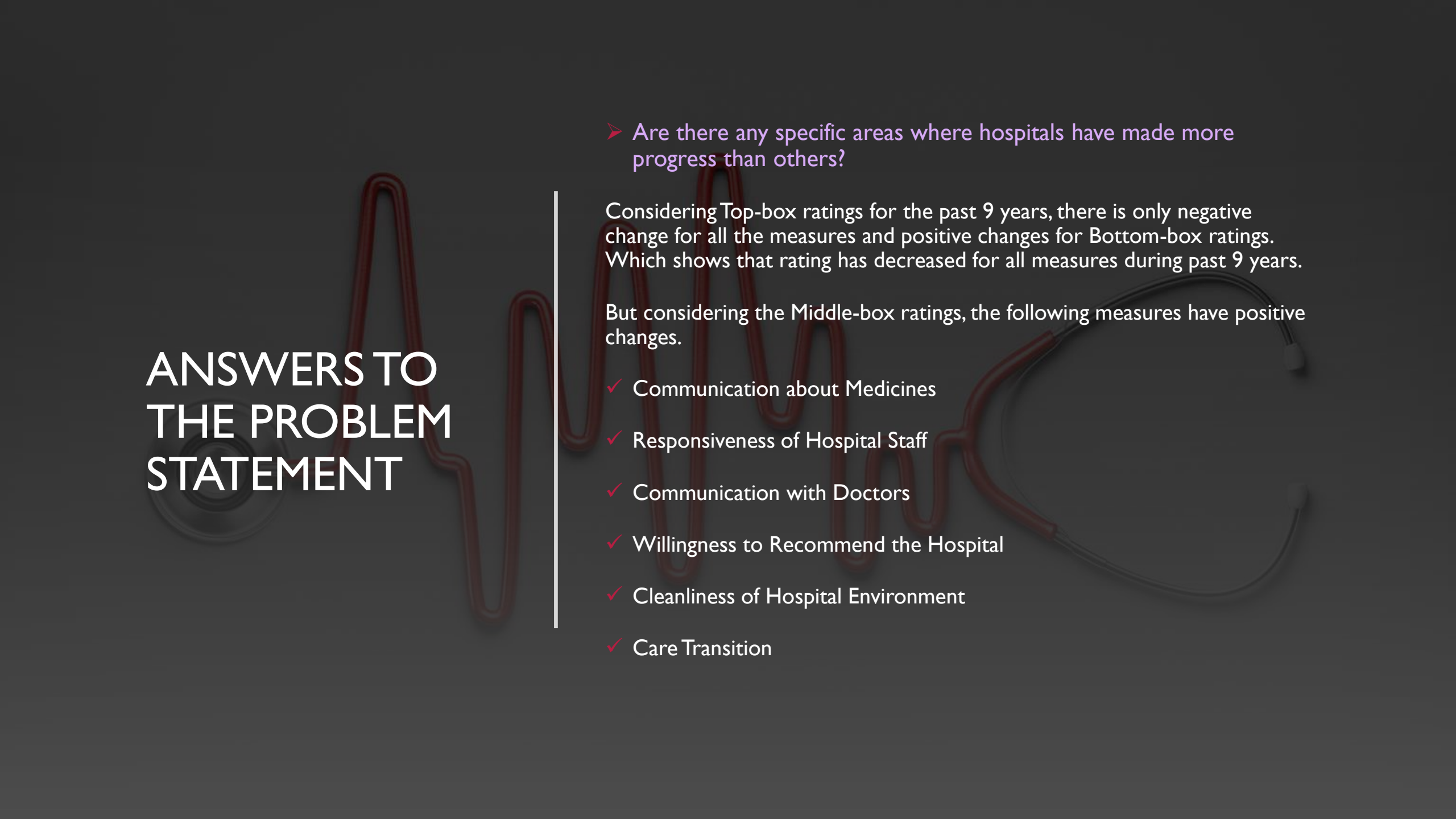
Over the past 9 years, the overall quality of care of hospitals has decreased.

Until 2021, Average Top-box rating of the survey has been increasing and average Bottom-box rating has been steady.

But 2021 to 2023, Average Top-box rating has been decreasing rapidly and Bottom-box rating has a slight increase. But middle-box rating has been increasing rapidly during this time.

Even though, considering state wise or region wise reports many hospitals have made significant improvements in quality of care. 9 states have witnessed increase in Top-box ratings and 4 states have witnessed decrease in Bottom-box ratings.





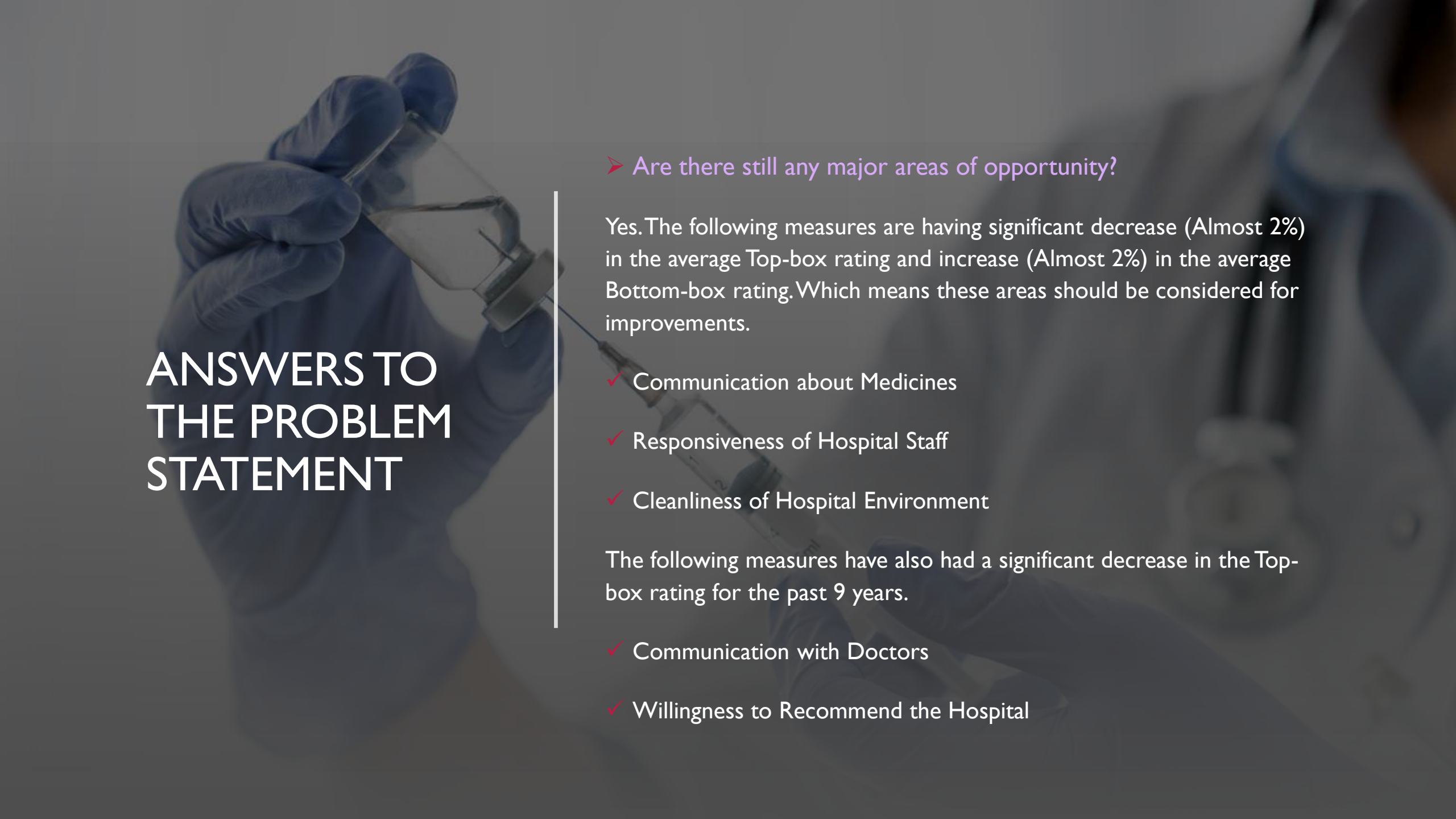
# ANSWERS TO THE PROBLEM STATEMENT

- Are there any specific areas where hospitals have made more progress than others?

Considering Top-box ratings for the past 9 years, there is only negative change for all the measures and positive changes for Bottom-box ratings. Which shows that rating has decreased for all measures during past 9 years.

But considering the Middle-box ratings, the following measures have positive changes.

- ✓ Communication about Medicines
- ✓ Responsiveness of Hospital Staff
- ✓ Communication with Doctors
- ✓ Willingness to Recommend the Hospital
- ✓ Cleanliness of Hospital Environment
- ✓ Care Transition



# ANSWERS TO THE PROBLEM STATEMENT

## ➤ Are there still any major areas of opportunity?

Yes. The following measures are having significant decrease (Almost 2%) in the average Top-box rating and increase (Almost 2%) in the average Bottom-box rating. Which means these areas should be considered for improvements.

- ✓ Communication about Medicines
- ✓ Responsiveness of Hospital Staff
- ✓ Cleanliness of Hospital Environment

The following measures have also had a significant decrease in the Top-box rating for the past 9 years.

- ✓ Communication with Doctors
- ✓ Willingness to Recommend the Hospital



# SOLUTIONS & RECOMMENDATIONS

A stethoscope is positioned diagonally across the frame, with its chest piece in the lower-left and its ear pieces in the upper-right. The background is a dark, textured grey.

## SOLUTIONS & RECOMMENDATIONS

### Enhance Communication about Medicines:

- Implement training programs for healthcare staff to improve communication with patients about medications.
- Introduce user-friendly informational materials for patients regarding their prescribed medicines

### Improve Responsiveness of Hospital Staff:

- Conduct regular staff training on responsiveness and patient engagement.
- Establish clear communication channels for patients to provide feedback on staff responsiveness.





## SOLUTIONS & RECOMMENDATIONS

### Prioritize Cleanliness of Hospital Environment:

- Implement rigorous cleanliness protocols and regular audits to maintain a hygienic environment.
- Encourage a culture of cleanliness among hospital staff through awareness campaigns and incentives.

### Optimize Communication with Doctors:

- Establish efficient communication channels for patients to reach out to doctors.
- Encourage doctors to enhance patient communication, providing clear explanations and addressing concerns.



## SOLUTIONS & RECOMMENDATIONS

### Boost Willingness to Recommend the Hospital:

- Focus on improving overall patient experiences to naturally enhance willingness to recommend.
- Gather patient feedback systematically and address specific issues affecting recommendation scores.

### Targeted Interventions for Specific Measures:

- Develop specialized interventions for measures showing a decline, such as targeted training programs or process improvements.
- Utilize state-specific strategies for areas where bottom-box ratings have increased.



## SOLUTIONS & RECOMMENDATIONS

### Continuous Monitoring and Feedback:

- Implement a continuous monitoring system to track changes in quality measures.
- Encourage an open feedback loop, allowing patients and staff to contribute to ongoing quality improvement initiatives.

### Collaborate with State Health Departments:

- Collaborate with state health departments to share best practices and insights.
- Engage in joint initiatives with other hospitals to collectively improve healthcare quality standards.



## SOLUTIONS & RECOMMENDATIONS

### Invest in Technological Solutions:

- Explore innovative technologies to streamline communication and improve patient experiences.
- Implement digital solutions for appointment scheduling, information dissemination, and patient engagement.

### Promote a Culture of Quality:

- Foster a culture of continuous improvement within the hospital.
- Recognize and reward staff contributions to quality improvement initiatives.



# THANK YOU

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