



# 50 TOP CARDIOVASCULAR HOSPITALS

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2023

## **National Benchmarks**

Prepared for:

Sample Hospital

City, ST

Medicare ID: 999999

# Report Methodology Notes

## COMPARISON GROUPS

So that we can compare your hospital with others most like it, we assign each hospital to one of three comparison groups according to size, teaching status, and residency/fellowship program involvement:

- Teaching hospitals with cardiovascular residency programs (CARDIO TEACHING)
- Teaching hospitals without cardiovascular residency programs (TEACHING)
- Community hospitals (COMMUNITY)

## BENCHMARK AND PEER GROUPS

In the 50 Top Cardiovascular Hospitals study, we select 50 **Benchmark hospitals** (winners) based on overall performance in the most recent year of data available:

CARDIO TEACHING	20
TEACHING	20
COMMUNITY	10

**Peer group hospitals** include all U.S. hospitals in our study database, *excluding* benchmark hospitals.

## INCLUDED PATIENT GROUPS

The focus of the study is on hospitals that offer both medical and surgical treatment options for patients with two of the most common cardiovascular conditions — coronary atherosclerosis and heart failure. We include data for acute myocardial infarction (AMI), heart failure (HF), coronary artery bypass graft (CABG) and primary percutaneous coronary intervention (PCI) patients in our analysis. Patients are assigned to mutually exclusive groups, as follows:

- CABG patients (primary or secondary)
- PCI patients (excludes open chest coronary artery angioplasty)
- AMI patients (restricted to non-surgical)
- HF patients (restricted to non-surgical)

Patients with both PCI and CABG are grouped as CABG. Patients with both AMI and HF are excluded.

## POA METHODOLOGY NOTES

Present on Admission (POA) coding is used in risk models for inpatient mortality, complications, average LOS, and cost per case. Due to increasing numbers of diagnoses with invalid POA code ‘0’, we made the following

adjustments to the MEDPAR data:

- 1) Original, valid (Y, N, U, W, or 1) POA codes assigned to diagnoses were retained
- 2) Where a POA code of ‘0’ appeared, we took the next four steps:
  - a. We treated all principal diagnoses (dx) as ‘present on admission’
  - b. We treated all secondary dx on the CMS exempt list as ‘exempt’
  - c. We treated secondary diagnoses for which the POA code ‘Y’ or ‘W’ appeared more than 50 percent of the time in the all-payer database, as ‘present on admission’
  - d. All others were treated as ‘not present’

## RANK WEIGHTS AND PUBLIC DATA SOURCES

Ranked Performance Metric	Current Wt	Trend Wt	Source
Risk-Adjusted IP Mortality (AMI, HF, CABG, PCI)	1/2 ea	1/2 ea	MEDPAR FFY <sup>1</sup> 2016-2021
Risk-Adjusted Complications (CABG, PCI)	1/4 ea	1/4 ea	MEDPAR FFY <sup>1</sup> 2016-2021
30-Day Mortality Rate (AMI, HF, CABG)	1/6 ea	1/6 ea	CMS Hospital Compare: 3-yr datasets ending Jun 30 in 2017, 2018, 2019*, 2021
30-Day Readmission Rate (AMI, HF, CABG)	1/6 ea	1/6 ea	CMS Hospital Compare: 3-yr datasets ending Jun 30 in 2017, 2018, 2019*, 2021
Severity-Adjusted ALOS (AMI, HF, CABG, PCI)	1/4 ea	1/4 ea	MEDPAR FFY <sup>1</sup> 2017-2021
Wage- and Severity-Adjusted Average Cost per Case (AMI, HF, CABG, PCI)	1/4 ea	1/4 ea	MEDPAR FFY <sup>1</sup> 2017-2021
30-Day Episode Payment (AMI, HF)	1/2 ea	1/2 ea	CMS Hospital Compare: 3-yr datasets ending Jun 30 in 2017, 2018, 2019*, 2021
HCAHPS	1/2	NA	CMS Hospital Compare: Oct 1, 2020-Sep 30, 2021

<sup>1</sup> Federal Fiscal Year is Oct 1 through Sep 30.

\* Two data points end in 2019 due to CMS removal of Q1 and Q2 2020 data from measure data sets in current year, 2 ½ years of data in 2020 data point.

## FOR MORE INFORMATION

For a Study Overview, with full details on performance measures, methods used and winner list, visit [www.100tophospitals.com](http://www.100tophospitals.com).

# 50 Top Cardiovascular Hospitals Performance Matrix

## INTEGRATED HOSPITAL PERFORMANCE COMPARISON

The 50 Top Cardiovascular Hospitals Performance Matrix, in a single view, compares your hospital's current level of performance achievement and five-year rate of improvement in percentiles. These percentiles are based on your hospital's rank, overall and by measure, within your comparison group. This integrated performance comparison provides insight into the success of hospital performance improvement strategies relative to other similar hospitals.

## INTERPRETING HOSPITAL PERFORMANCE

The matrix "Overall" dot displays your national rank percentile for current overall performance with your national rank percentile for five-year overall rate of improvement. Rank percentiles for each individual measure are also graphed. Measures may fall into any one of four quadrants: Declining (lower left), Improving (upper left), Leading (upper right), or At-Risk (lower right).

Overall hospital performance in the most current year is a composite score based on the weighted sum of the ranks of individual measures. This sum is used to rank your hospital within your comparison group and produce your 2021 Performance Percentile.

Overall hospital performance on the multi-year rate of improvement is also a composite score based on the sum of the weighted ranks of individual measures on improvement. This sum is used to rank your hospital within your comparison group and produce your Rate of Improvement Percentile.

50 Top Cardiovascular Hospitals award winners are selected based on highest **current** overall performance. Winners fall into either the "Leading" or "At-Risk" quadrants, depending on their five-year rate of improvement. Those with a high rate of improvement will be "Leading" performers, and those who have fallen behind their comparison group mean are "At Risk" for falling out of the winner circle, if performance improvement continues to be stalled.

## PERFORMANCE MATRIX NOTES

### Overall Dot

Due to the number of individual measures in this study, two matrix graphs are provided to better visualize the performance of each measure. One graph shows the medical patient group measures (AMI and HF) and the other shows the surgical patient group measures (CABG and PCI). **However**, the "Overall" dot on each matrix graph represents the hospital overall performance and rate of improvement based on **all** measures and patient groups, combined (AMI, HF, CABG, PCI). Therefore, it is identical on each matrix graph.

### Missing Matrix Graphs

The matrix graphs will be missing if your hospital did not have enough years of data to be trended. A minimum of four years of data, including the most current year, are required. There also will be no trend graphs in the report.

If there were too few years of data for one or more measures, but not all, there will be no matrix graphs; but there will be trend graphs for the measures that were not missing. Notes on excluded data points are in the Appendix following the Trend Profile.

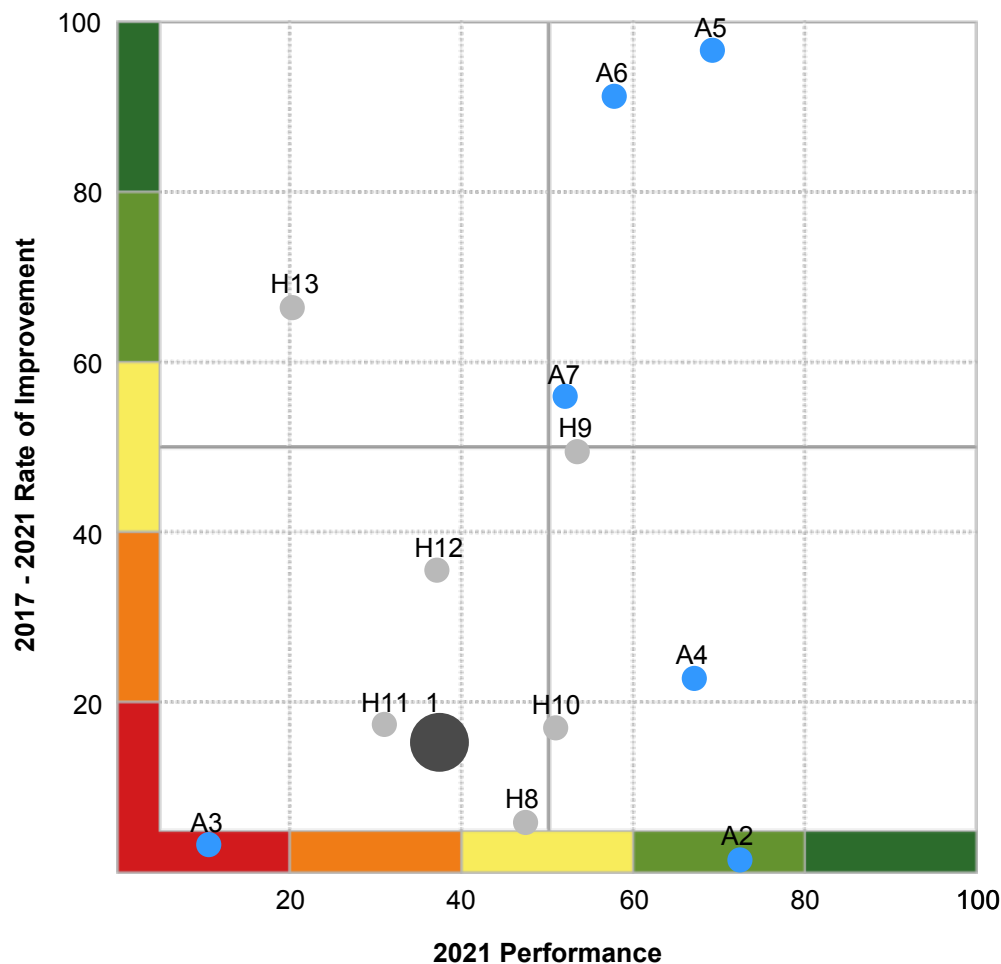
### Missing Measure Dots

A measure dot will be missing from the matrix if your hospital had too few usable data points (after outlier exclusions) to calculate a regression line t-statistic, which is the ranked variable. If this occurs, the dot for the affected measure(s) will be missing on the matrix graph **and** there will be no "Overall" dot. In addition, data points will be missing from the affected trend measure graphs. Notes on excluded data points are in the Appendix following the Performance Matrix graph and the current and trend graphs.

# 50 Top Cardiovascular Hospitals Performance Comparison Group

**Profiled hospital compared to cardio teaching hospitals**

# AMI and HF patients: 2021 Performance and Five-Year Rate of Improvement Matrix



**DATA POINT KEY**

- 1 **OVERALL\***
- A2 AMI IP Mortality
- A3 AMI 30-Day Mortality
- A4 AMI 30-Day Readmit
- A5 AMI Avg LOS
- A6 AMI Cost per Case
- A7 AMI 30-Day Payment
- H8 HF IP Mortality
- H9 HF 30-Day Mortality
- H10 HF 30-Day Readmit
- H11 HF Avg LOS
- H12 HF Cost per Case
- H13 HF 30-Day Payment

**QUINTILES**

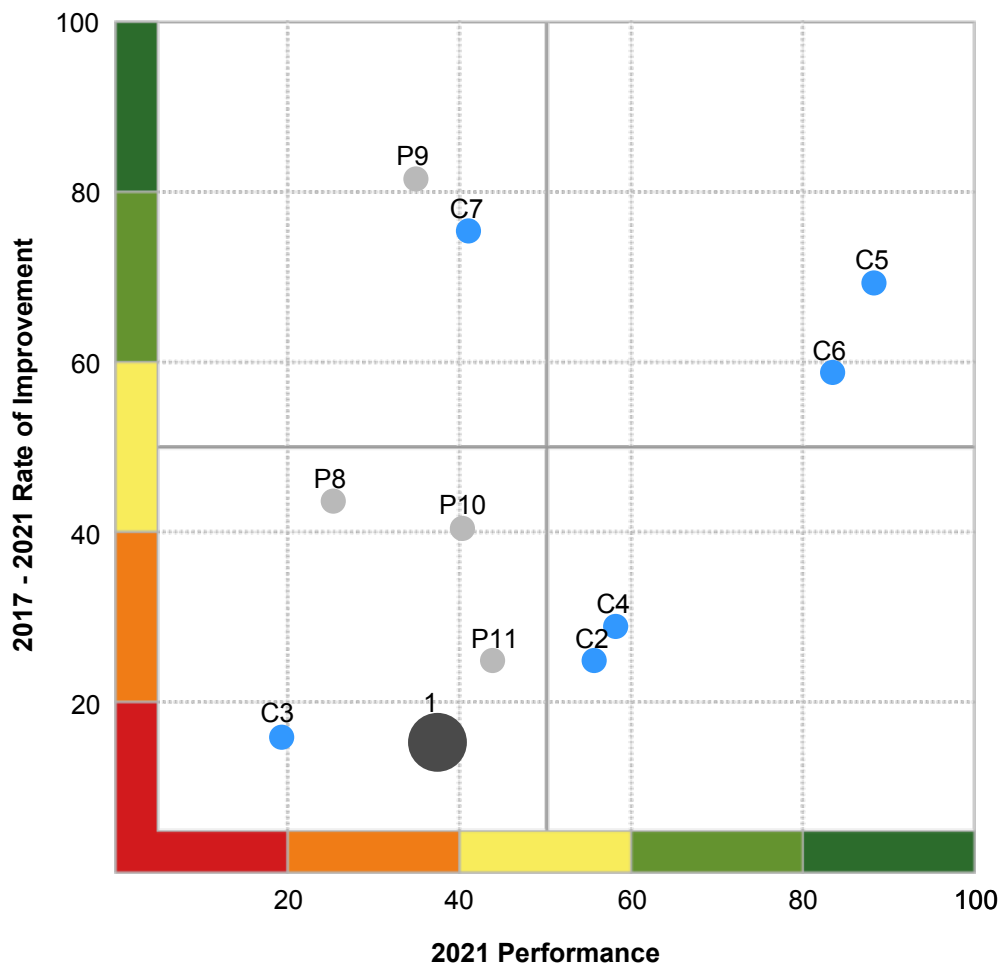
- 80 TO 100
- 60 TO 80
- 40 TO 60
- 20 TO 40
- 0 TO 20

\*Overall Measure includes all 4 patient groups of measures: AMI, HF, CABG, PCI

**PROFILED HOSPITAL compared to:**

2021 cardio teaching hospitals: n = 281  
 2017-2021 cardio teaching hospitals: n = 278

# CABG and PCI patients: 2021 Performance and Five-Year Rate of Improvement Matrix



**DATA POINT KEY**

- 1 **OVERALL\***
- C2 CABG IP Mortality
- C3 CABG Complications
- C4 CABG 30-Day Mortality
- C5 CABG 30-Day Readmit
- C6 CABG Avg LOS
- C7 CABG Cost per Case
- P8 PCI IP Mortality
- P9 PCI Complications
- P10 PCI Avg LOS
- P11 PCI Cost per Case

**QUINTILES**

- 80 TO 100
- 60 TO 80
- 40 TO 60
- 20 TO 40
- 0 TO 20

\*Overall Measure includes all 4 patient groups of measures: AMI, HF, CABG, PCI

**PROFILED HOSPITAL compared to:**

2021 cardio teaching hospitals: n = 281  
 2017-2021 cardio teaching hospitals: n = 278

# Performance and Improvement – Rank Percentiles Graphs

## UNDERSTANDING THE GRAPHS

### 2021 Performance Rank Percentiles

This bar graph shows your hospital's performance on each measure, in the most current year of data we analyzed, reported as rank percentiles. Individual measure percentiles are calculated by dividing your measure rank within your comparison group by the number of hospitals in the group and multiplying by 100.

### 2017-2021 Rate of Improvement Rank Percentiles

This bar graph shows your hospital's relative rate of improvement on each measure, and overall, reported as rank percentiles. Individual measure percentiles are calculated by dividing your measure rank within your comparison group by the number of hospitals in the group and multiplying by 100.

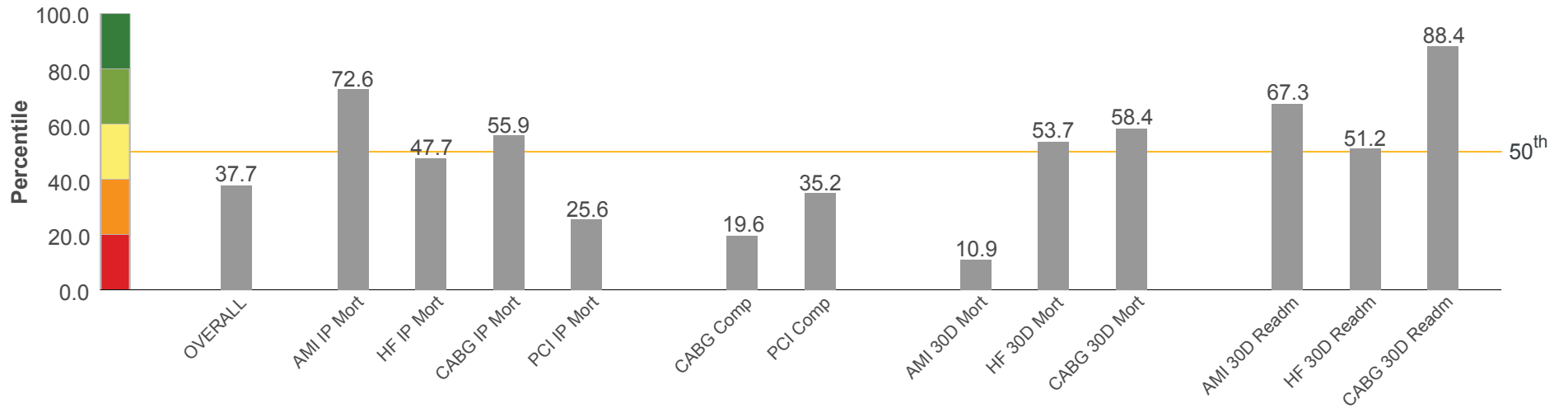
The overall rank percentile is based on the sum of your individual measure ranks, re-ranked by comparison group. The overall rank sum is then converted into a percentile. The overall rank percentile is not the average of the individual measure percentiles.

Hospitals with overall and measure-specific rank percentiles above the median are likely to move ahead of peers on performance in the future, if those rates of improvement have continued.

Hospitals with overall and measure-specific rank percentiles below the median are likely to fall behind peers on performance in the future, if those low rates of improvement have continued. And, winners with a low overall rate of improvement are at future risk of dropping out of the winner circle entirely.

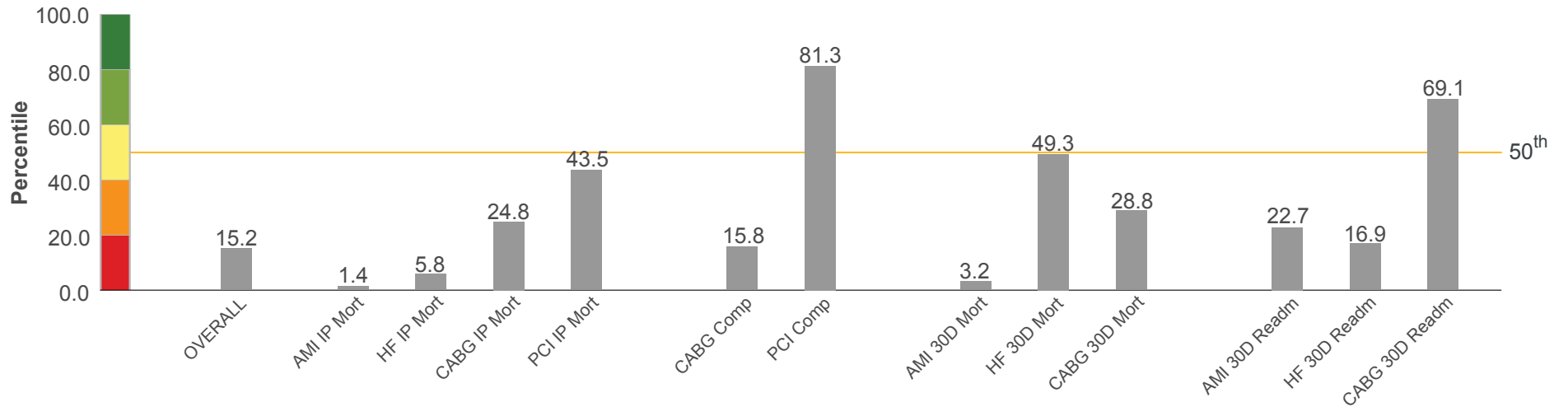
**The 50 Top Cardiovascular Hospitals benchmark hospitals (winners) are selected based only on 2021 performance.**

## 2021 Clinical Performance Rank Percentiles



Profiled hospital compared to cardio teaching hospitals: n = 281

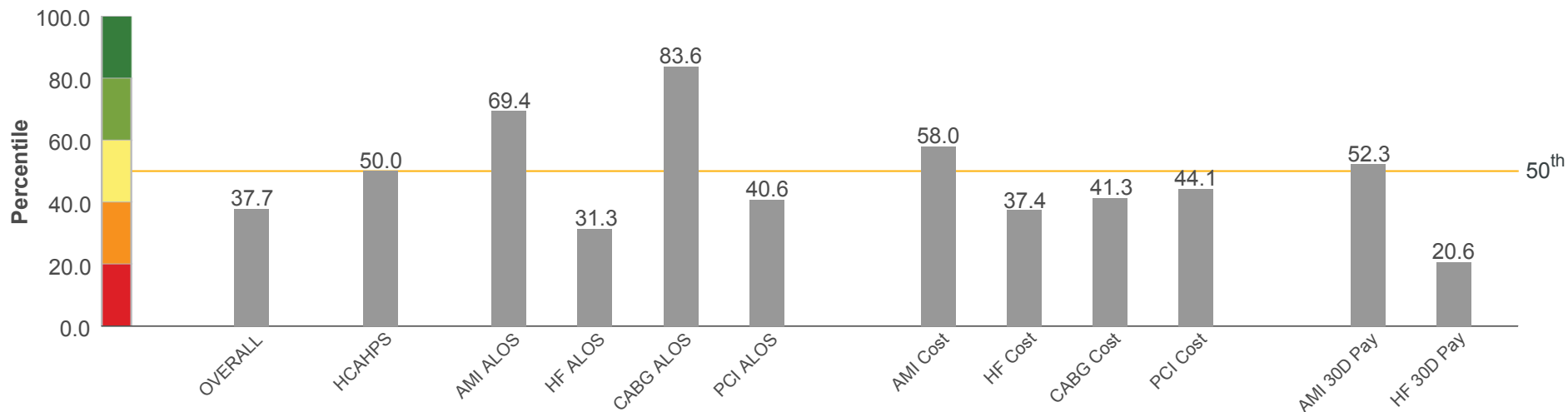
## 2017 - 2021 Clinical Rate of Improvement Rank Percentiles



Profiled hospital compared to cardio teaching hospitals: n = 278

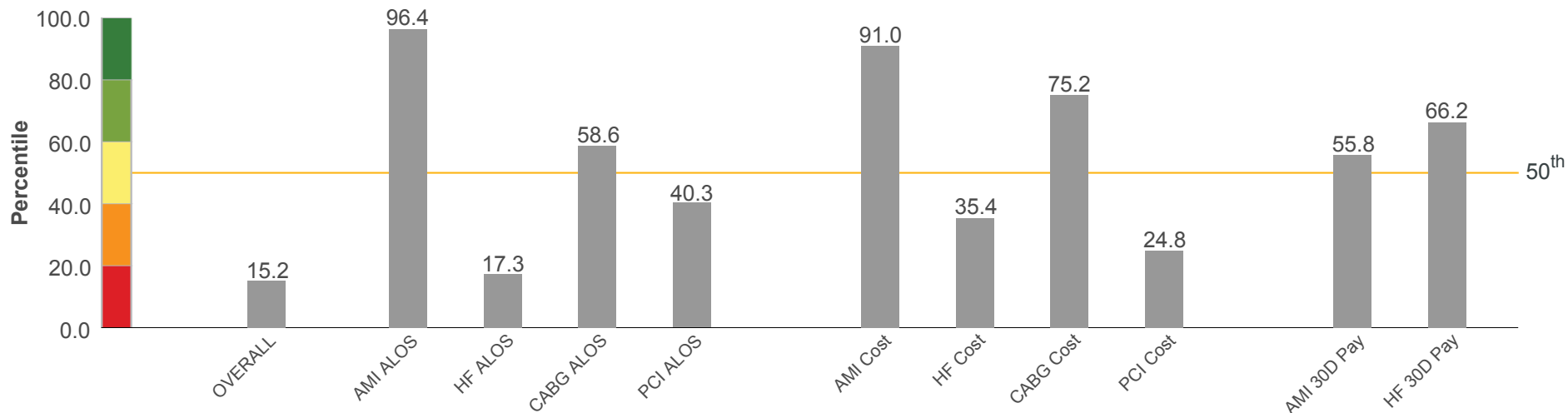


## 2021 Operational Performance Rank Percentiles



Profiled hospital compared to cardio teaching hospitals: n = 281

## 2017 - 2021 Operational Rate of Improvement Rank Percentiles



Profiled hospital compared to cardio teaching hospitals: n = 278

# 50 Top Cardiovascular Hospitals Current Profile Notes

## CURRENT PROFILE

**The 50 Top Cardiovascular Hospitals winners are selected based on performance in the most current year of the Study (Current Profile).**

The Current Profile analyzes your hospital's performance in the most recent year available, using a national balanced scorecard of critical performance metrics:

- Risk-Adjusted Inpatient Mortality Index
- Risk-Adjusted Complications Index
- 30-Day Mortality Rate (AMI, HF, CABG)
- 30-Day Readmission Rate (AMI, HF, CABG)
- Severity-Adjusted Average Length of Stay
- Wage- and Severity-Adjusted Average Cost per Case
- 30-Day Episode Payment (AMI, HF)
- HCAHPS Top Box Percent (Overall Hospital Rating)

Using this Profile, you can identify your hospital's level of performance achievement by individual measure and overall, and target higher performance. In addition, the Profile shows the median level of achievement of national **award-winning** ("benchmark") hospitals and the median performance of **non-winning** ("peer") hospitals in your comparison group.

## UNDERSTANDING THE GRAPHS

### Profiled Hospital Compared with Benchmark and Peer

The hospital's current performance is represented by individual bar graphs for each of the performance measures included in the 50 Top Cardiovascular Hospitals balanced scorecard, organized by patient group. **Each bar graph shows performance achievement levels for three groups: your hospital, the benchmark group median, and the peer group median.**

## Binomial Measures

The graphs for the binomial measures – inpatient mortality and complications – have a statistical significance note that indicates whether your hospital's performance is better than expected, as expected, or worse than expected (99% confidence). For binomial measures, we rank your hospital on the z-score calculated from your observed and normalized expected values. Z-scores take statistical significance into account. If your note indicates your performance is "as expected," your performance is 'normal', regardless of how high or low the index value.

## Missing Bars and Measure Rank Percentiles

A measure's performance bar and its associated rank percentile value are not displayed if one or more of the following conditions apply:

- Measure data for a specific year was missing in the source data file (CMS Hospital Compare; HCRIS hospital cost reports)
- Measure was in calculable due to insufficient MEDPAR POA coding (impacts inpatient mortality, complications, ALOS, cost per case)
- Measure was based on fewer than 11 patient records (HIPAA)

## Measure Data Periods

Measure	Data Period Used for 2021 Performance
Inpatient Mortality and Complications	FFY 2020-2021
30-Day Mortality, Readmissions and Episode Payment	July 1, 2018-June 30, 2021
ALOS; Cost per Case	FFY 2021
HCAHPS	Oct 1, 2020-Sept 30, 2021

# 50 Top Cardiovascular Hospitals Current Profile Notes

## USE OF MEDIAN VALUES

When individual measures are missing or the reported value is insufficiently precise (patient count too low), we substitute class median values so your hospital can be ranked. This was done only for the following measures:

- 30-day mortality rates (AMI, HF, CABG)
- 30-day readmission rates (AMI, HF, CABG)

*Note: Hospitals missing all 30-day mortality rates or all 30-day readmission rates are excluded from the study.*

## WINNER EXCLUSIONS

A hospital was not eligible to be a winner if one of the following applied in the most current year:

- Statistically poor performance on any inpatient mortality or complications measure (99% confidence interval).
- One or more outliers for the cost per case measures (IQR methodology).
- Less than 11 cases in any of the patient groups (AMI, HF, CABG, PCI) in the most current year.
- One or more 30-day mortality measures missing.
- One or more 30-day readmission measures missing.

## MEASURES FOR INFORMATION ONLY

We continue to include measures for information only in this report, to allow you to compare your performance relative to your peer and benchmark groups. These measures are **not** included in your overall performance rating and are not used to select the 50 Top award-winning hospitals. You will find these measures at the end of the report.

## MORE INFORMATION ON METHODOLOGIES

The Methodology and Appendix sections of the 50 Top Cardiovascular Hospitals Study Overview provide more detail on the calculation of each performance measure. The Overview also describes the methodology used to calculate IQR outliers and to determine statistically poor performance on the inpatient mortality and complications measures.

**See Study Overview for more details. Visit [www.100tophospitals.com](http://www.100tophospitals.com).**

# 50 Top Cardiovascular Hospitals Trend Profile Notes

## TREND PROFILE

The Trend analysis is intended to provide insight into progress toward performance improvement. Its results are **not** used to select winners.

The 50 Top Cardiovascular Hospitals Trend Profile analyzes your hospital's rate of performance improvement over five years, using a balanced scorecard of critical performance metrics:

- Risk-Adjusted Inpatient Mortality Index
- Risk-Adjusted Complications Index
- 30-Day Mortality Rate (AMI, HF, CABG)
- 30-Day Readmission Rate (AMI, HF, CABG)
- Severity-Adjusted Average Length of Stay
- Wage- and Severity-Adjusted Average Cost per Case
- 30-Day Episode Payment (AMI, HF)

## UNDERSTANDING THE GRAPHS

### Multi-Year Trend Graphs – Profiled Hospital and Comparison Group Quintiles

The hospital's rate of improvement for each of the individual performance measures is represented by graphs showing your hospital's actual data points for each year. These data points are displayed against a background of quintile ranges for the data points of all hospitals in your comparison group. Each range is color-coded to indicate level of performance, from dark green (best quintile) to red (worst quintile). You can use these graphs to see whether you are moving ahead of or falling behind other similar hospitals.

## Missing Data Points

Data points will be missing from a trend graph if one or more of the following conditions apply:

- Measure data for a specific year was missing in the source data file (CMS Hospital Compare; HCRIS hospital cost reports)
- Measure was incalculable due to insufficient MEDPAR POA coding (impacts inpatient mortality, complications, ALOS, cost per case)
- Measure was excluded from trend analysis as a high or low outlier. We apply an interquartile range (“IQR”) methodology to identify high and low outlier trim points (impacts cost per case measures).
- Measure was based on 11 or fewer patient records (HIPAA Privacy Rule-based exclusion applied to MEDPAR as a Limited Data Set)

## Measure Data Periods

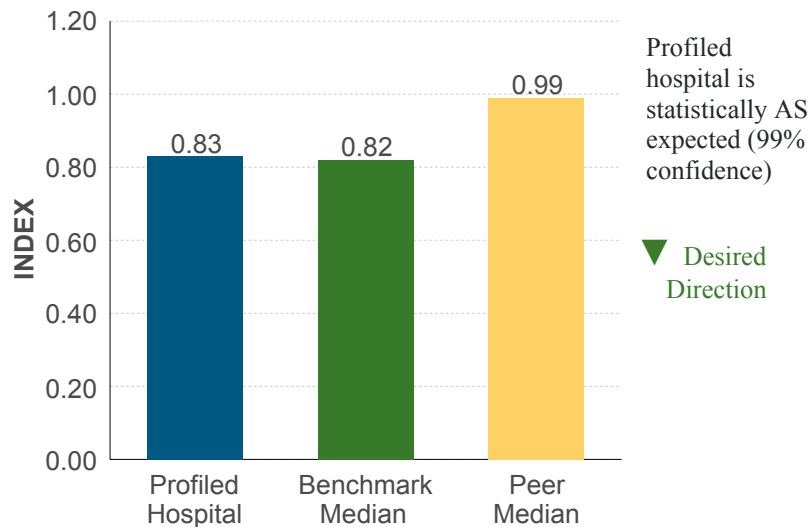
Measure	Data Point	Data Period
Inpatient Mortality and Complications*	2021	FFY 2020-2021
	2020	FFY 2019-2020
	2019	FFY 2018-2019
	2018	FFY 2017-2018
	2017	FFY 2016-2017
30-Day Mortality, Readmissions and Episode Payment	2021	July 1, 2018-June 30, 2021
	2020	July 1, 2017-Dec 31, 2019**
	2019	July 1, 2016-June 30, 2019
	2018	July 1, 2015-June 30, 2018
	2017	July 1, 2014-June 30, 2017
ALOS, Cost per Case	2017-2021	FFY 2017-2021

\*Two years of MEDPAR data combined for each study year.

\*\*Measures have only 2 ½ years of data instead of 3 due to CMS removal of Q1 and Q2 2020 data from measure data sets.

# AMI patients: Risk-adjusted inpatient mortality index

## 2021 IP MORTALITY PERFORMANCE

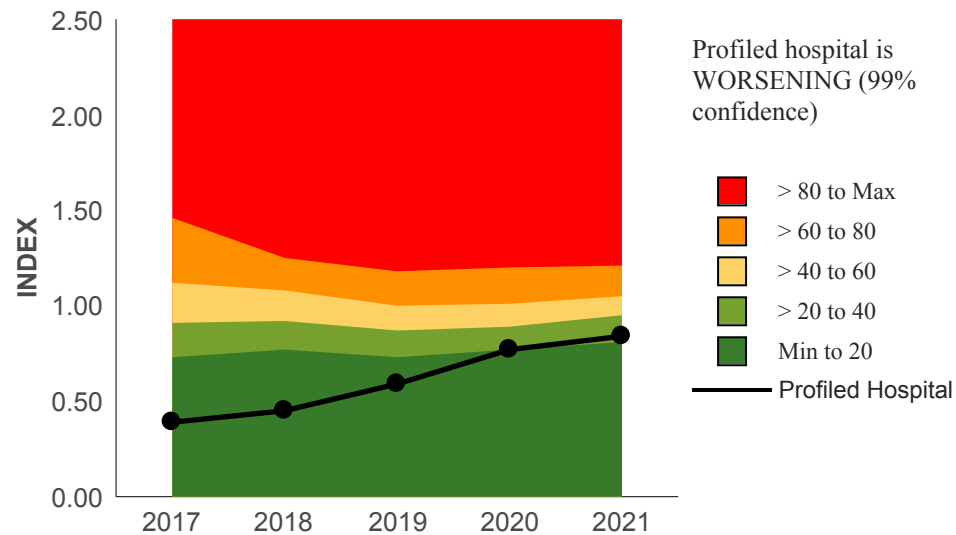


Benchmark hospitals are the winners in the comparison group: n = 20

Peer hospitals are the non-winners in the comparison group: n = 261

Note: 2021 values on the current and trend graphs will not match due to different norm factors used to normalize the expected values.

## 2017-2021 IP MORTALITY RATE OF IMPROVEMENT

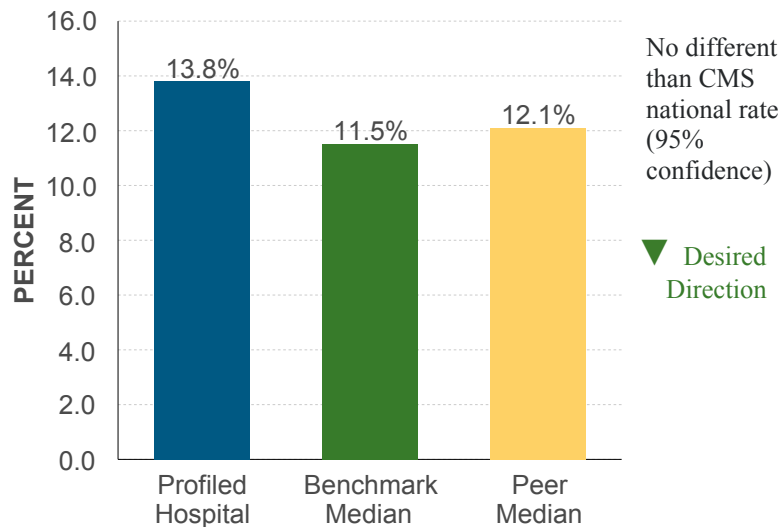


Hospital performance compared to peer hospital quintiles: n = 278

PERCENTILE POINTS ►		HOSPITAL COMPARISON GROUP				PROFILED HOSPITAL		
		20th	40th	60th	80th	Value	Upper C.I.	Lower C.I.
YEARS	2017	0.73	0.91	1.12	1.46	0.39	2.67	0.00
	2018	0.77	0.92	1.08	1.25	0.45	1.56	0.06
	2019	0.73	0.87	1.00	1.18	0.59	1.48	0.17
	2020	0.77	0.89	1.01	1.20	0.77	1.73	0.27
	2021	0.81	0.95	1.05	1.21	0.84	1.98	0.27

# AMI patients: 30-day mortality rate

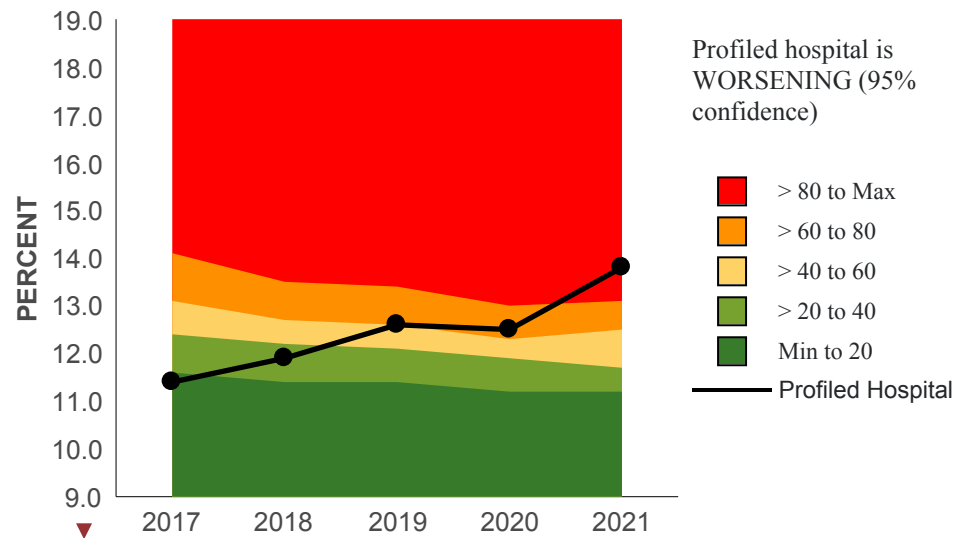
## 2021 30D MORTALITY PERFORMANCE



Benchmark hospitals are the winners in the comparison group: n = 20

Peer hospitals are the non-winners in the comparison group: n = 261

## 2017-2021 30D MORTALITY RATE OF IMPROVEMENT

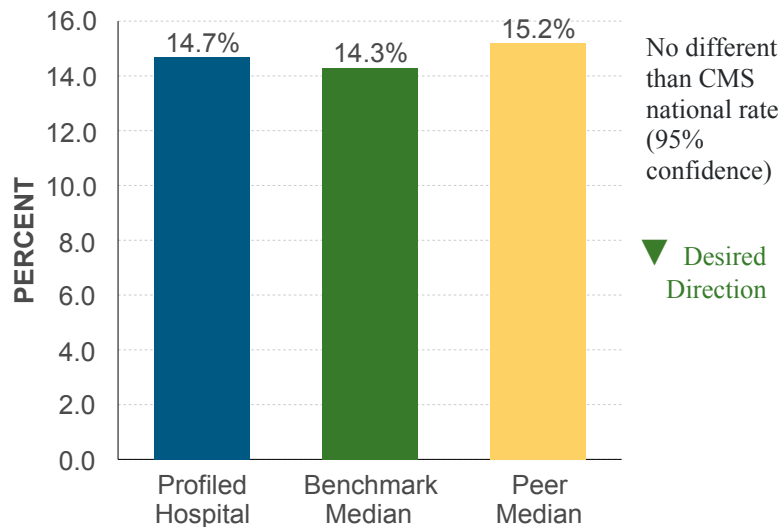


Hospital performance compared to peer hospital quintiles: n = 278

PERCENTILE POINTS ►		HOSPITAL COMPARISON GROUP				PROFILED HOSPITAL
		20th	40th	60th	80th	Value
YEARS	2017	11.6	12.4	13.1	14.1	11.4
	2018	11.4	12.2	12.7	13.5	11.9
	2019	11.4	12.1	12.6	13.4	12.6
	2020	11.2	11.9	12.3	13.0	12.5
	2021	11.2	11.7	12.5	13.1	13.8

# AMI patients: 30-day readmission rate

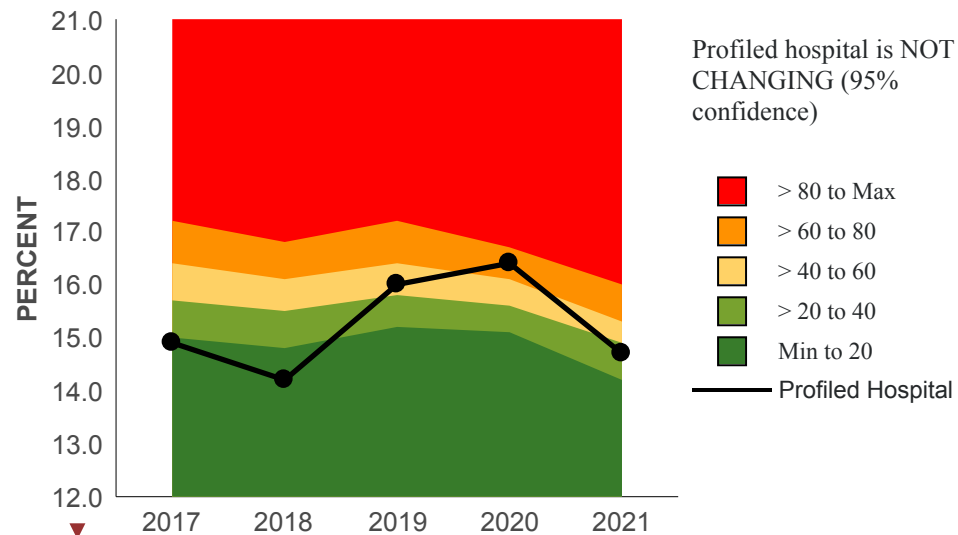
## 2021 30D READMISSION PERFORMANCE



Benchmark hospitals are the winners in the comparison group: n = 20

Peer hospitals are the non-winners in the comparison group: n = 261

## 2017-2021 30D READMISSION RATE OF IMPROVEMENT

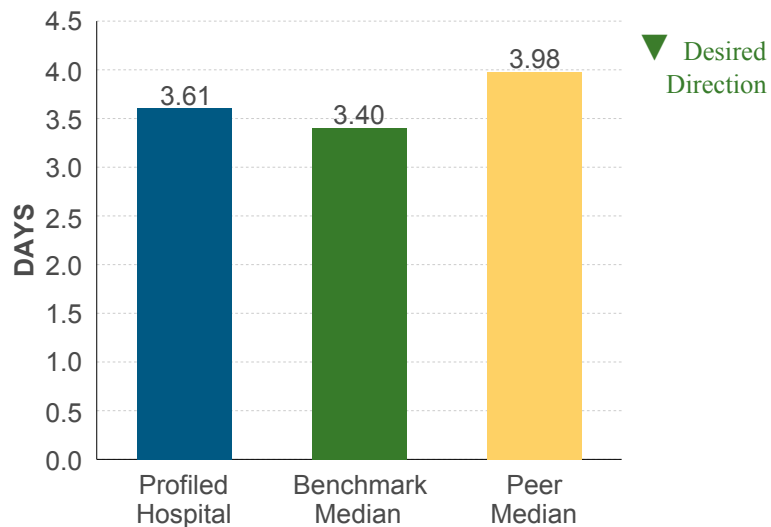


Hospital performance compared to peer hospital quintiles: n = 278

PERCENTILE POINTS ►		HOSPITAL COMPARISON GROUP				PROFILED HOSPITAL
		20th	40th	60th	80th	Value
YEARS	2017	15.0	15.7	16.4	17.2	14.9
	2018	14.8	15.5	16.1	16.8	14.2
	2019	15.2	15.8	16.4	17.2	16.0
	2020	15.1	15.6	16.1	16.7	16.4
	2021	14.2	14.9	15.3	16.0	14.7

# AMI patients: Severity-adjusted average length of stay

## 2021 ALOS PERFORMANCE

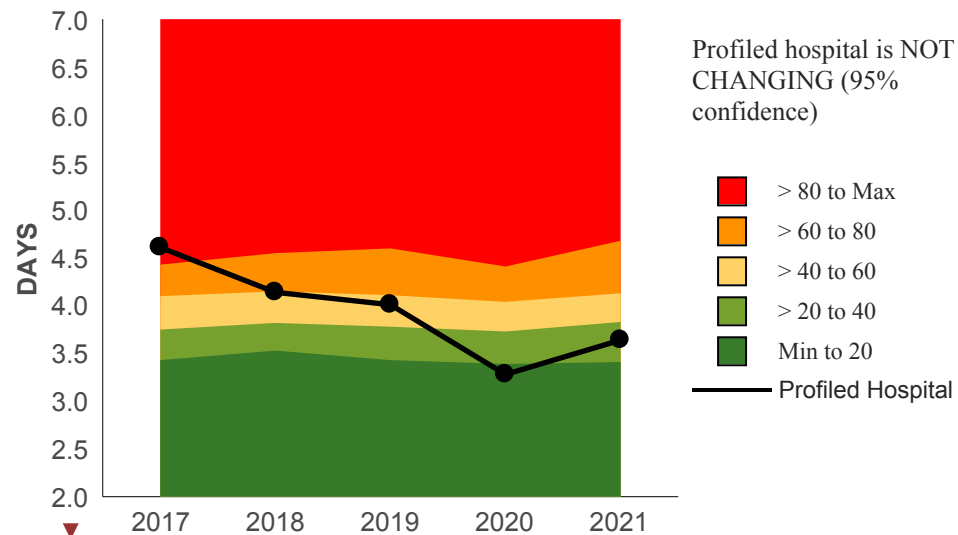


Benchmark hospitals are the winners in the comparison group: n = 20

Peer hospitals are the non-winners in the comparison group: n = 261

Note: 2021 values on the current and trend graphs will not match due to different norm factors used to normalize the expected values.

## 2017-2021 ALOS RATE OF IMPROVEMENT



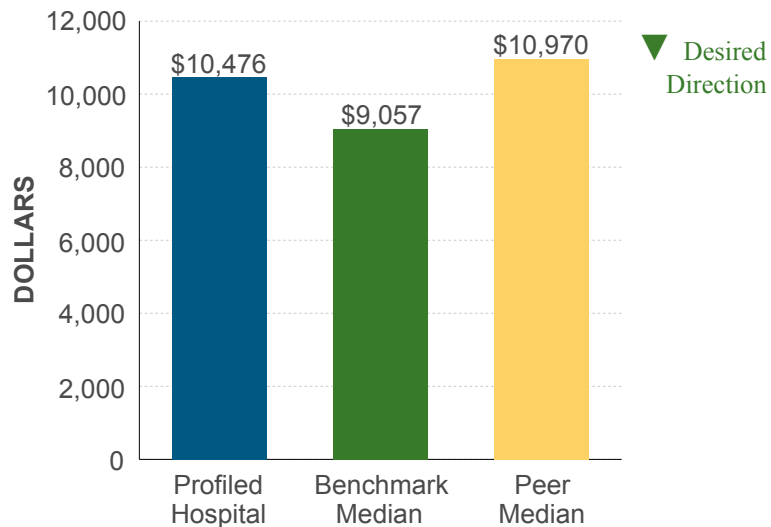
Hospital performance compared to peer hospital quintiles: n = 278

PERCENTILE POINTS ►		HOSPITAL COMPARISON GROUP				PROFILED HOSPITAL
		20th	40th	60th	80th	Value
YEARS	2017	3.43	3.75	4.10	4.43	4.61
	2018	3.53	3.82	4.15	4.55	4.14
	2019	3.43	3.78	4.11	4.60	4.01
	2020	3.39	3.73	4.04	4.41	3.28
	2021	3.41	3.83	4.13	4.68	3.64



# AMI patients: Wage- and severity-adjusted cost per case

## 2021 COST PER CASE PERFORMANCE

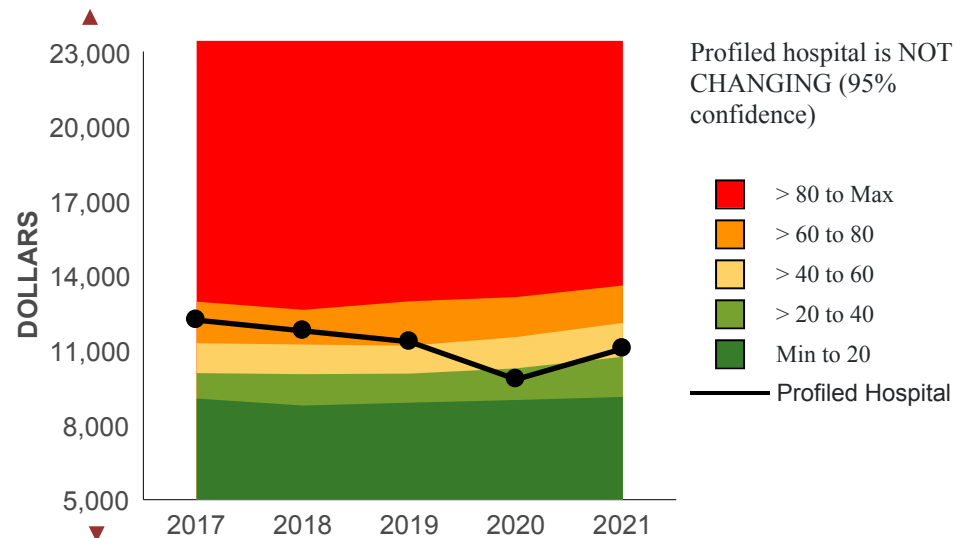


Benchmark hospitals are the winners in the comparison group: n = 20

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Note: 2021 values on the current and trend graphs will not match due to different norm factors used to normalize the expected values.

## 2017-2021 COST PER CASE RATE OF IMPROVEMENT

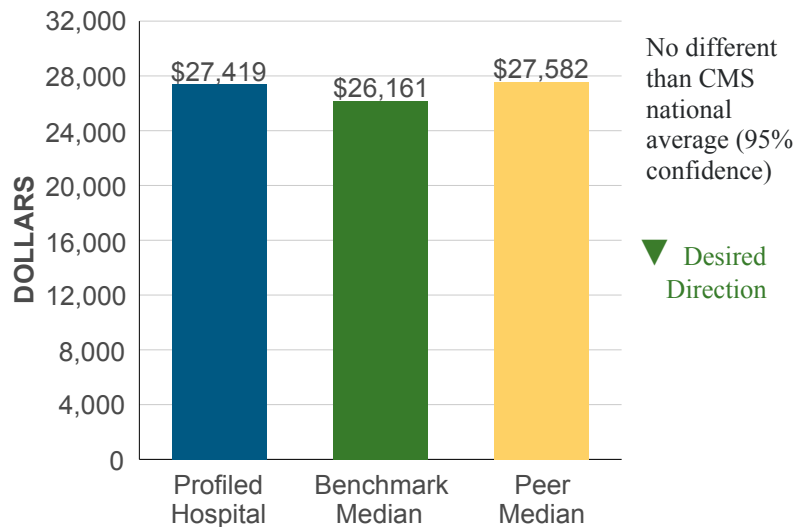


Hospital performance compared to peer hospital quintiles: n = 278

PERCENTILE POINTS ►		HOSPITAL COMPARISON GROUP				PROFILED HOSPITAL
		20th	40th	60th	80th	Value
YEARS	2017	9,062	10,083	11,284	12,953	12,211
	2018	8,781	10,041	11,231	12,624	11,779
	2019	8,896	10,064	11,186	12,967	11,340
	2020	9,004	10,277	11,532	13,137	9,833
	2021	9,127	10,740	12,101	13,602	11,064

# AMI patients: 30-day episode payment

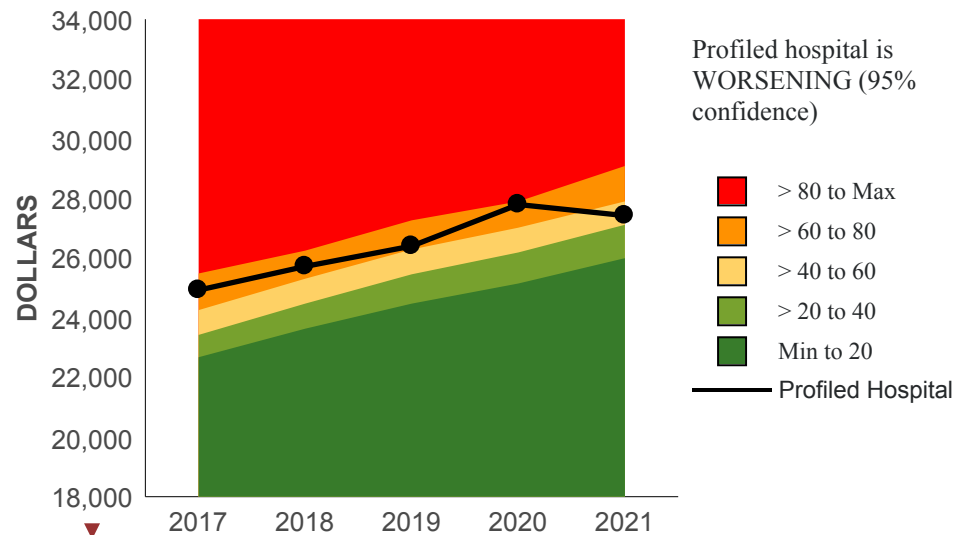
## 2021 30D EPISODE PAYMENT PERFORMANCE



Benchmark hospitals are the winners in the comparison group: n = 20

Peer hospitals are the non-winners in the comparison group: n = 261

## 2017-2021 30D EPISODE PAYMENT RATE OF IMPROVEMENT

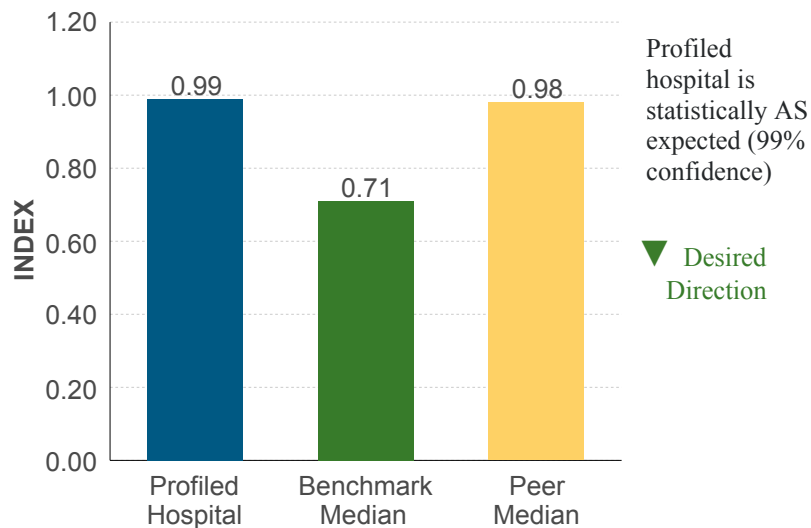


Hospital performance compared to peer hospital quintiles: n = 278

PERCENTILE POINTS ►		HOSPITAL COMPARISON GROUP				PROFILED HOSPITAL
		20th	40th	60th	80th	Value
YEARS	2017	22,673	23,421	24,252	25,479	24,922
	2018	23,629	24,469	25,304	26,245	25,716
	2019	24,469	25,452	26,285	27,261	26,398
	2020	25,143	26,184	27,014	27,891	27,790
	2021	25,992	27,111	27,894	29,081	27,419

# HF patients: Risk-adjusted inpatient mortality index

## 2021 IP MORTALITY PERFORMANCE

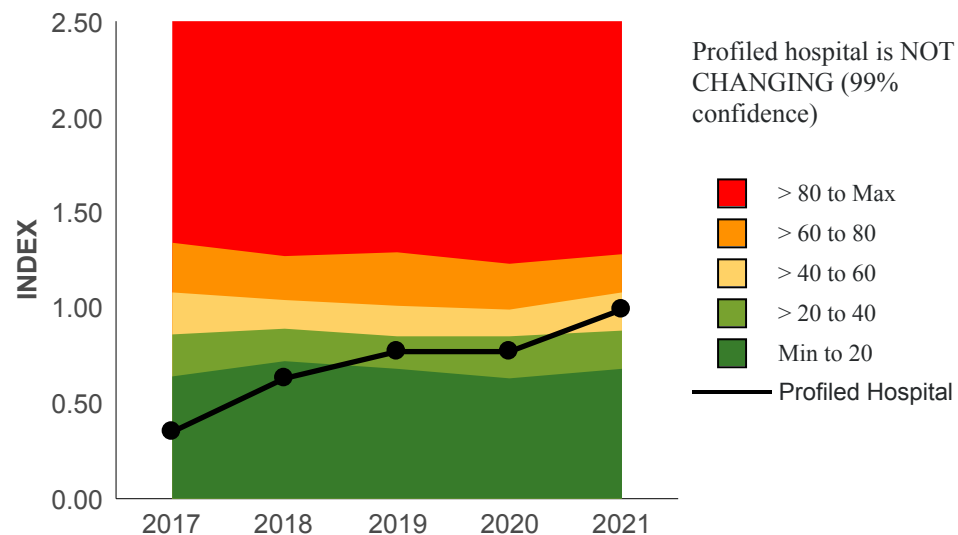


Benchmark hospitals are the winners in the comparison group: n = 20

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Note: 2021 values on the current and trend graphs will not match due to different norm factors used to normalize the expected values.

## 2017-2021 IP MORTALITY RATE OF IMPROVEMENT

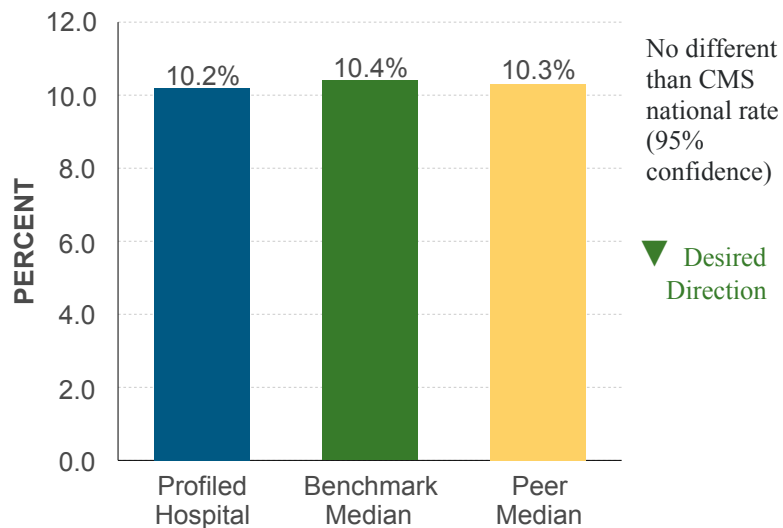


Hospital performance compared to peer hospital quintiles: n = 278

PERCENTILE POINTS ►		HOSPITAL COMPARISON GROUP				PROFILED HOSPITAL		
		20th	40th	60th	80th	Value	Upper C.I.	Lower C.I.
YEARS	2017	0.64	0.86	1.08	1.34	0.35	1.52	0.03
	2018	0.72	0.89	1.04	1.27	0.63	1.48	0.20
	2019	0.68	0.85	1.01	1.29	0.77	1.67	0.29
	2020	0.63	0.85	0.99	1.23	0.77	1.67	0.29
	2021	0.68	0.88	1.08	1.28	0.99	2.00	0.41

# HF patients: 30-day mortality rate

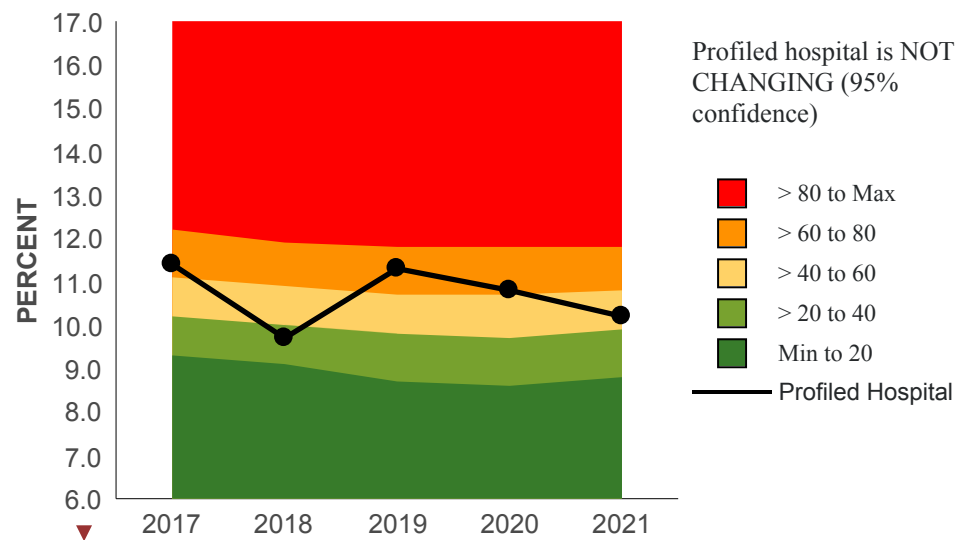
## 2021 30D MORTALITY PERFORMANCE



Benchmark hospitals are the winners in the comparison group: n = 20

Peer hospitals are the non-winners in the comparison group: n = 261

## 2017-2021 30D MORTALITY RATE OF IMPROVEMENT

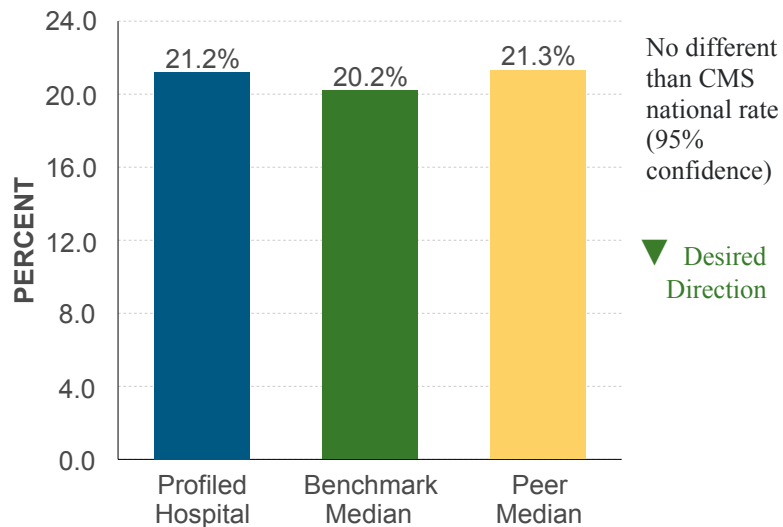


Hospital performance compared to peer hospital quintiles: n = 278

PERCENTILE POINTS ►		HOSPITAL COMPARISON GROUP				PROFILED HOSPITAL
		20th	40th	60th	80th	Value
YEARS	2017	9.3	10.2	11.1	12.2	11.4
	2018	9.1	10.0	10.9	11.9	9.7
	2019	8.7	9.8	10.7	11.8	11.3
	2020	8.6	9.7	10.7	11.8	10.8
	2021	8.8	9.9	10.8	11.8	10.2

# HF patients: 30-day readmission rate

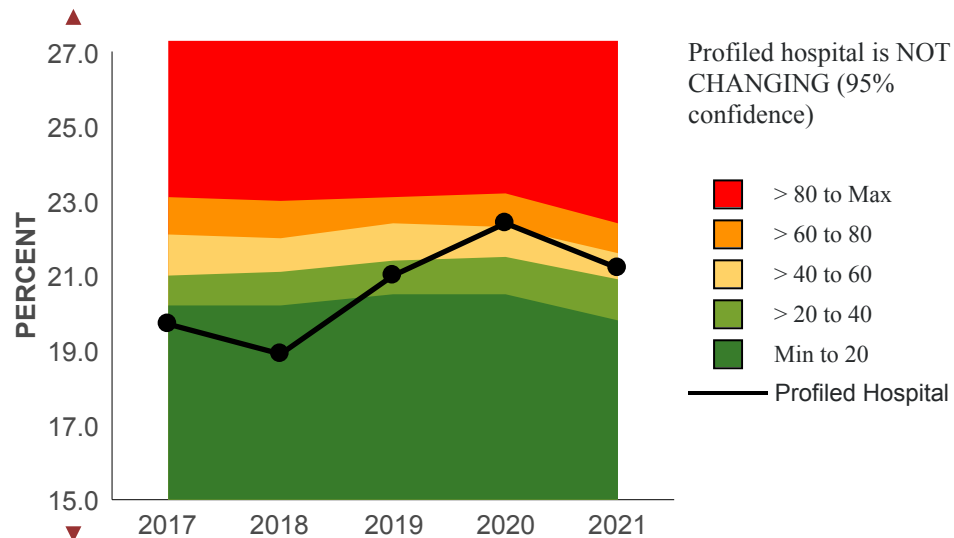
## 2021 30D READMISSION PERFORMANCE



Benchmark hospitals are the winners in the comparison group: n = 20

Peer hospitals are the non-winners in the comparison group: n = 261

## 2017-2021 30D READMISSION RATE OF IMPROVEMENT

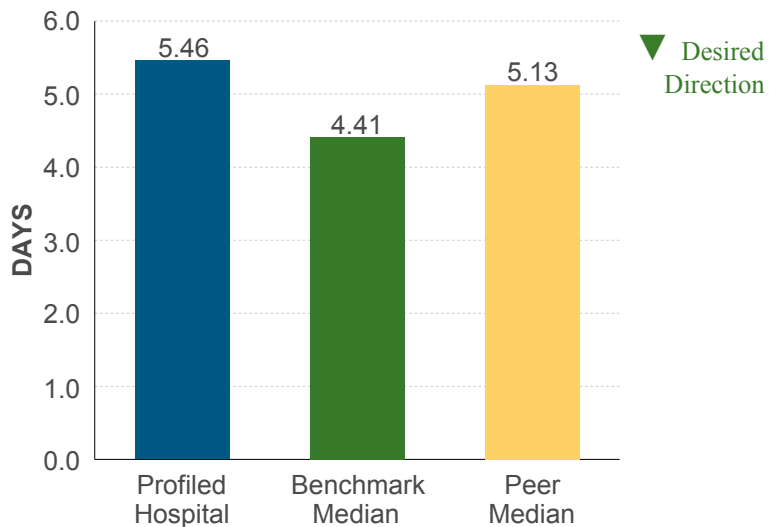


Hospital performance compared to peer hospital quintiles: n = 278

PERCENTILE POINTS ►		HOSPITAL COMPARISON GROUP				PROFILED HOSPITAL
		20th	40th	60th	80th	Value
YEARS	2017	20.2	21.0	22.1	23.1	19.7
	2018	20.2	21.1	22.0	23.0	18.9
	2019	20.5	21.4	22.4	23.1	21.0
	2020	20.5	21.5	22.3	23.2	22.4
	2021	19.8	20.9	21.6	22.4	21.2

# HF patients: Severity-adjusted average length of stay

## 2021 ALOS PERFORMANCE

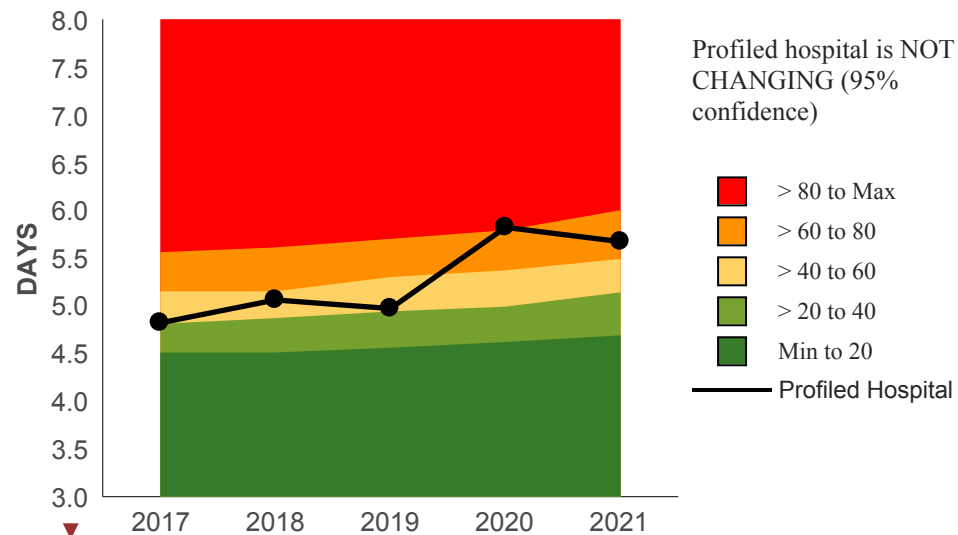


Benchmark hospitals are the winners in the comparison group: n = 20

Peer hospitals are the non-winners in the comparison group: n = 261

Note: 2021 values on the current and trend graphs will not match due to different norm factors used to normalize the expected values.

## 2017-2021 ALOS RATE OF IMPROVEMENT

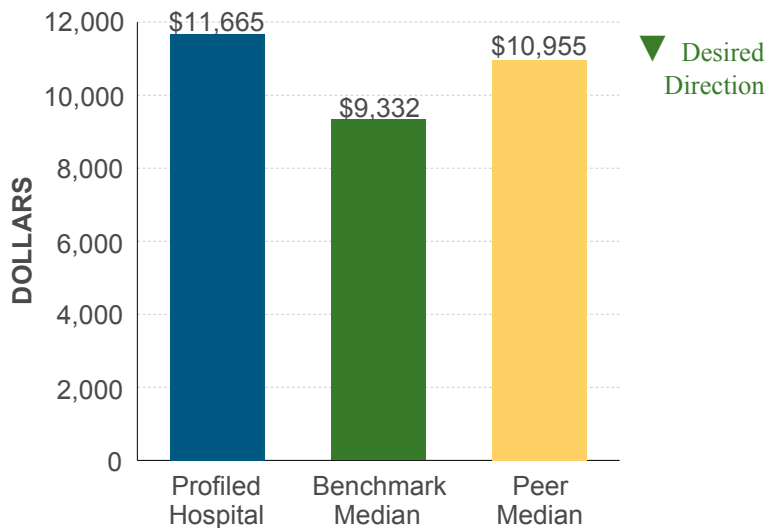


Hospital performance compared to peer hospital quintiles: n = 278

PERCENTILE POINTS ►		HOSPITAL COMPARISON GROUP				PROFILED HOSPITAL
		20th	40th	60th	80th	Value
YEARS	2017	4.51	4.81	5.15	5.56	4.82
	2018	4.51	4.87	5.15	5.61	5.06
	2019	4.56	4.94	5.30	5.70	4.97
	2020	4.62	4.99	5.37	5.79	5.82
	2021	4.69	5.14	5.49	6.00	5.67

# HF patients: Wage- and severity-adjusted cost per case

2021 COST PER CASE PERFORMANCE

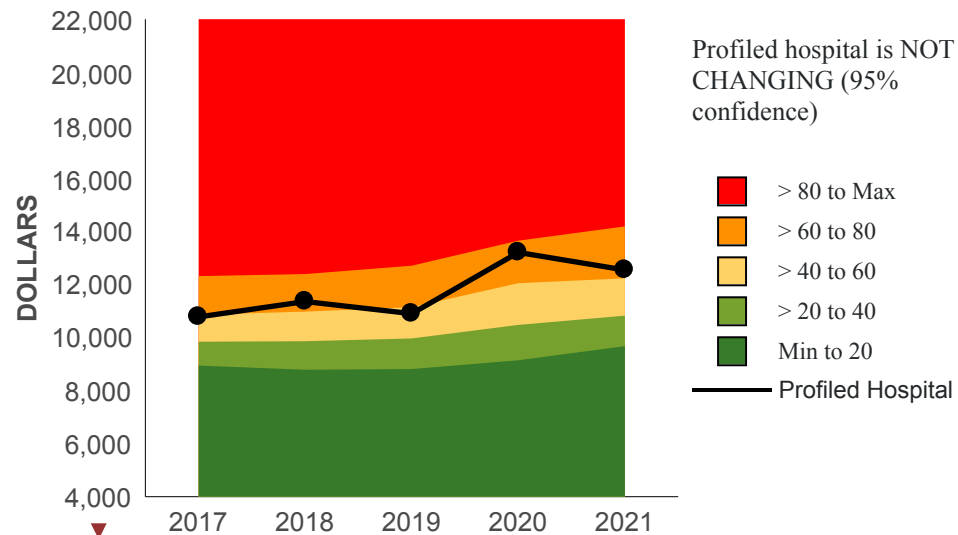


Benchmark hospitals are the winners in the comparison group: n = 20

Peer hospitals are the non-winners in the comparison group: n = 261

Note: 2021 values on the current and trend graphs will not match due to different norm factors used to normalize the expected values.

2017-2021 COST PER CASE RATE OF IMPROVEMENT

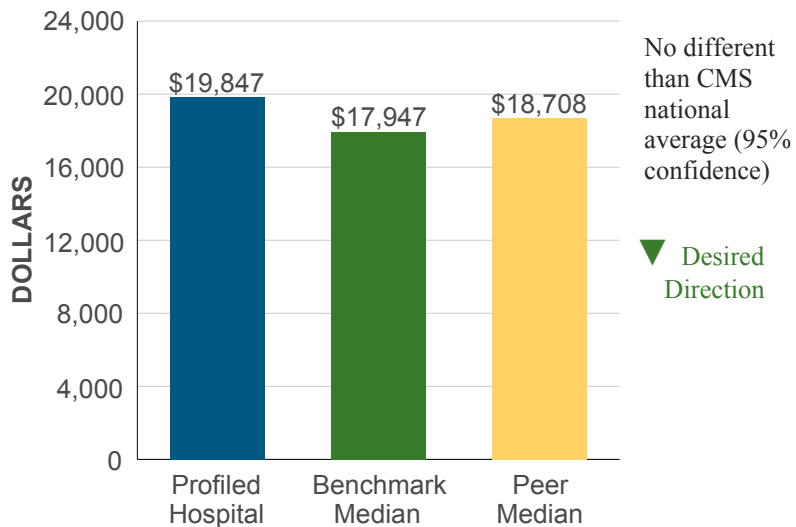


Hospital performance compared to peer hospital quintiles: n = 278

PERCENTILE POINTS ►		HOSPITAL COMPARISON GROUP				PROFILED HOSPITAL
		20th	40th	60th	80th	Value
YEARS	2017	8,943	9,842	10,858	12,315	10,777
	2018	8,785	9,861	10,976	12,391	11,356
	2019	8,811	9,965	11,144	12,708	10,899
	2020	9,144	10,475	12,047	13,652	13,207
	2021	9,675	10,824	12,233	14,188	12,545

# HF patients: 30-day episode payment

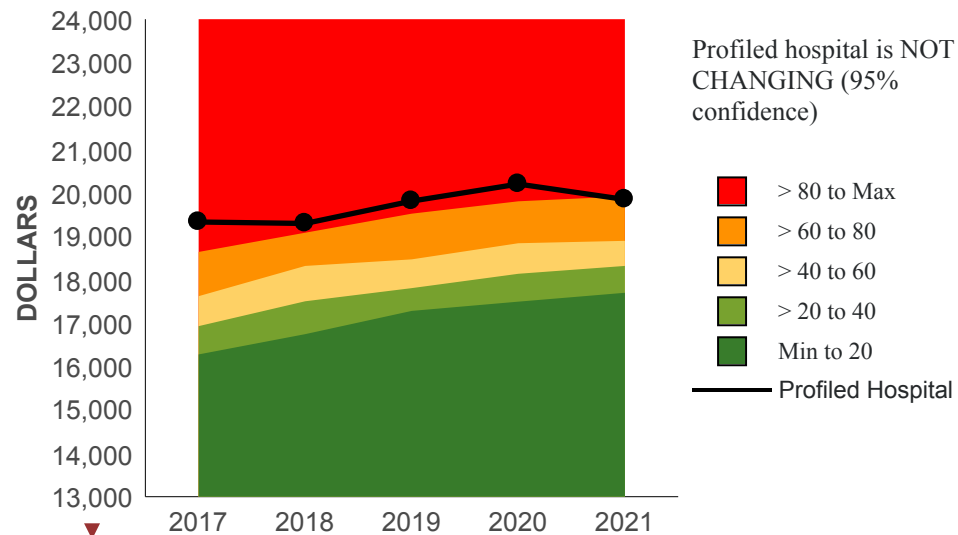
## 2021 30D EPISODE PAYMENT PERFORMANCE



Benchmark hospitals are the winners in the comparison group: n = 20

Peer hospitals are the non-winners in the comparison group: n = 261

## 2017-2021 30D EPISODE PAYMENT RATE OF IMPROVEMENT



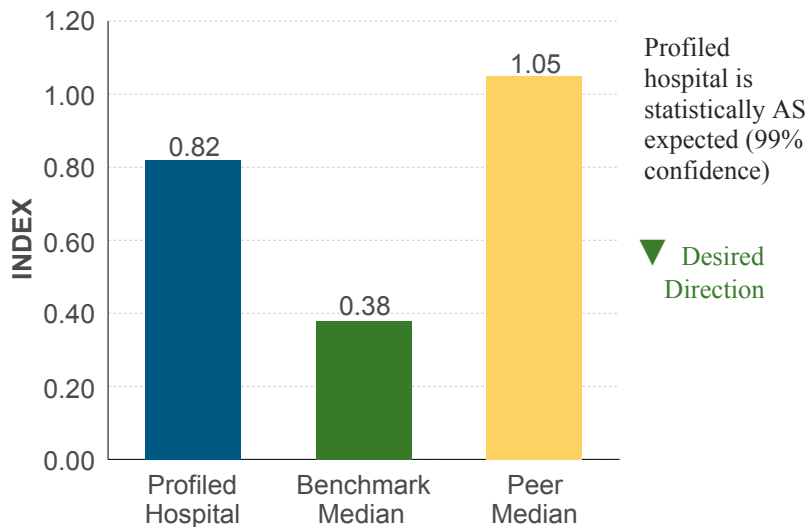
Hospital performance compared to peer hospital quintiles: n = 278

PERCENTILE POINTS ►		HOSPITAL COMPARISON GROUP				PROFILED HOSPITAL
		20th	40th	60th	80th	Value
YEARS	2017	16,277	16,929	17,619	18,638	19,328
	2018	16,744	17,501	18,316	19,081	19,294
	2019	17,280	17,805	18,467	19,520	19,810
	2020	17,493	18,135	18,839	19,805	20,202
	2021	17,697	18,316	18,894	19,919	19,847



# CABG patients: Risk-adjusted inpatient mortality index

## 2021 IP MORTALITY PERFORMANCE

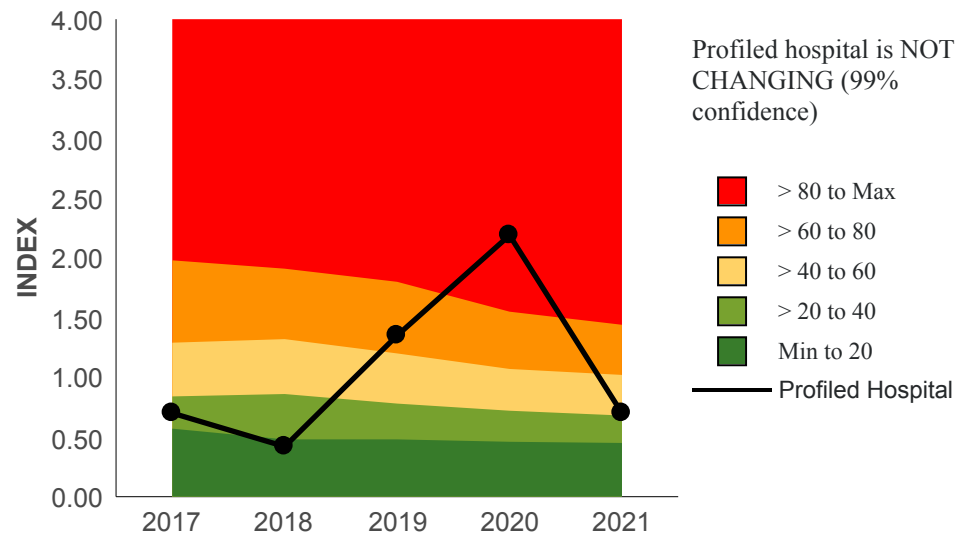


Benchmark hospitals are the winners in the comparison group: n = 20

Peer hospitals are the non-winners in the comparison group: n = 261

Note: 2021 values on the current and trend graphs will not match due to different norm factors used to normalize the expected values.

## 2017-2021 IP MORTALITY RATE OF IMPROVEMENT

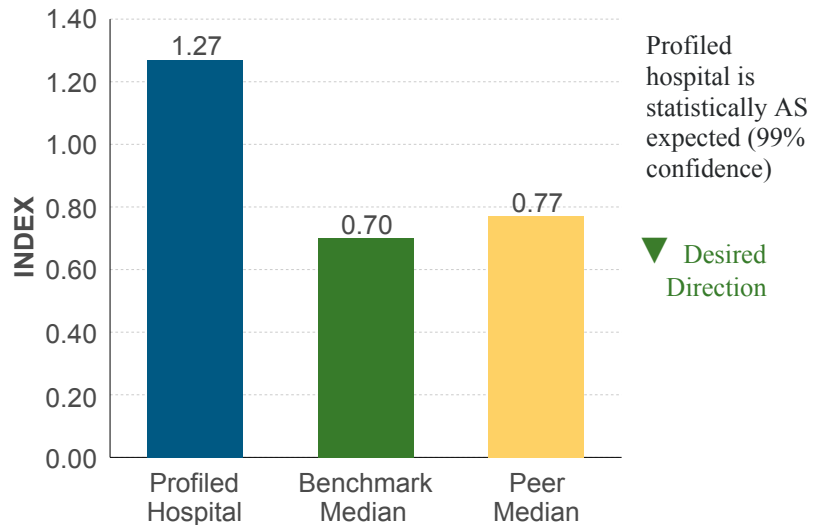


Hospital performance compared to peer hospital quintiles: n = 278

PERCENTILE POINTS ►		HOSPITAL COMPARISON GROUP				PROFILED HOSPITAL		
		20th	40th	60th	80th	Value	Upper C.I.	Lower C.I.
YEARS	2017	0.57	0.84	1.29	1.98	0.70	4.72	0.01
	2018	0.48	0.86	1.32	1.91	0.42	2.83	0.00
	2019	0.48	0.78	1.20	1.80	1.35	5.84	0.10
	2020	0.46	0.72	1.07	1.55	2.19	7.56	0.31
	2021	0.45	0.68	1.02	1.44	0.70	4.77	0.01

# CABG patients: Risk-adjusted complications index

## 2021 COMPLICATIONS PERFORMANCE

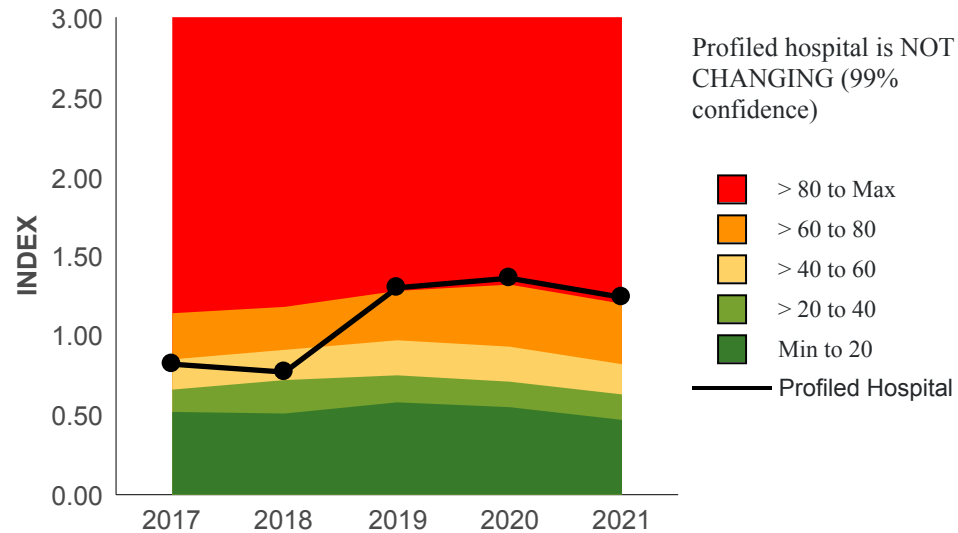


Benchmark hospitals are the winners in the comparison group: n = 20

Peer hospitals are the non-winners in the comparison group: n = 261

Note: 2021 values on the current and trend graphs will not match due to different norm factors used to normalize the expected values.

## 2017-2021 COMPLICATIONS RATE OF IMPROVEMENT

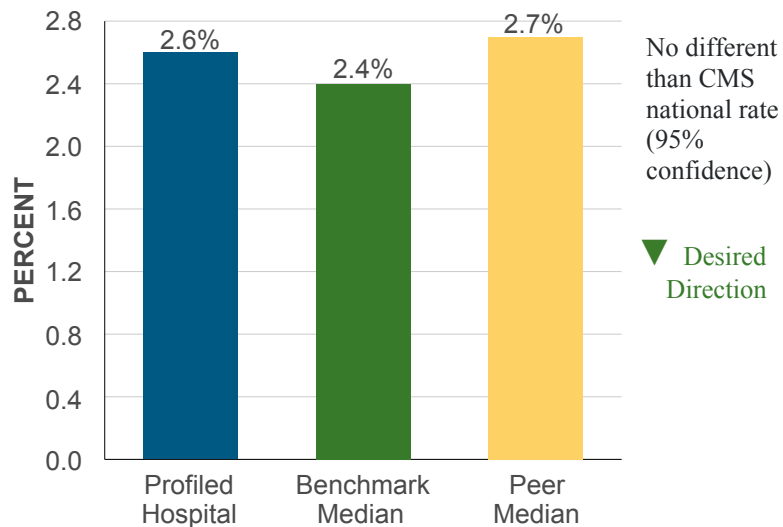


Hospital performance compared to peer hospital quintiles: n = 278

PERCENTILE POINTS ►		HOSPITAL COMPARISON GROUP				PROFILED HOSPITAL		
		20th	40th	60th	80th	Value	Upper C.I.	Lower C.I.
YEARS	2017	0.52	0.66	0.85	1.14	0.82	1.50	0.39
	2018	0.51	0.72	0.91	1.18	0.77	1.56	0.32
	2019	0.58	0.75	0.97	1.28	1.30	2.56	0.56
	2020	0.55	0.71	0.93	1.32	1.36	2.46	0.67
	2021	0.47	0.63	0.82	1.20	1.24	2.12	0.66

# CABG patients: 30-day mortality rate

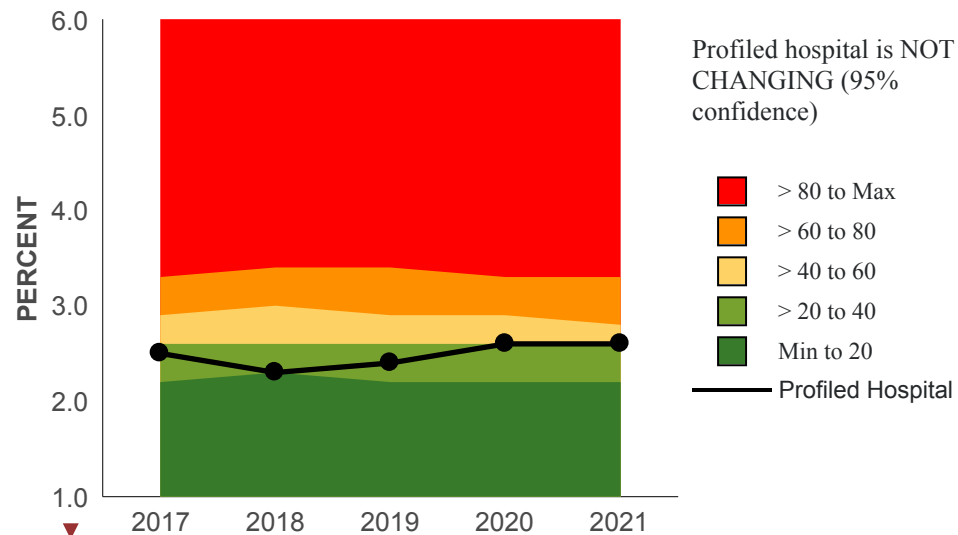
## 2021 30D MORTALITY PERFORMANCE



Benchmark hospitals are the winners in the comparison group: n = 20

Peer hospitals are the non-winners in the comparison group: n = 261

## 2017-2021 30D MORTALITY RATE OF IMPROVEMENT

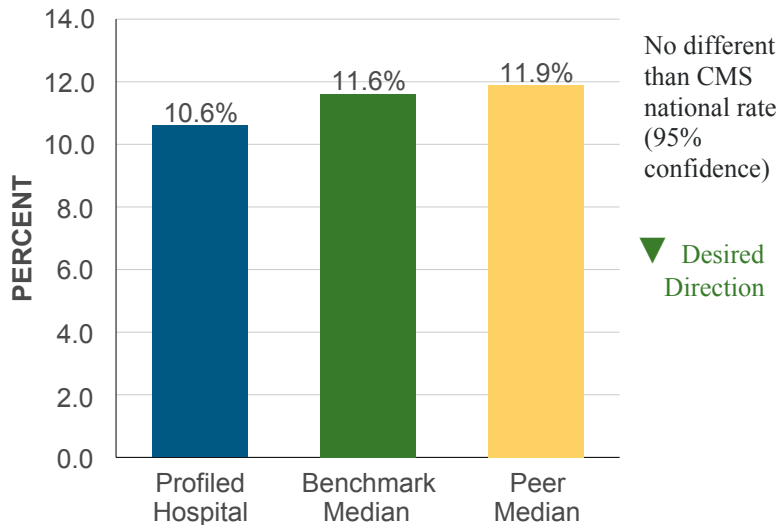


Hospital performance compared to peer hospital quintiles: n = 278

PERCENTILE POINTS ►		HOSPITAL COMPARISON GROUP				PROFILED HOSPITAL
		20th	40th	60th	80th	Value
YEARS	2017	2.2	2.6	2.9	3.3	2.5
	2018	2.3	2.6	3.0	3.4	2.3
	2019	2.2	2.6	2.9	3.4	2.4
	2020	2.2	2.6	2.9	3.3	2.6
	2021	2.2	2.6	2.8	3.3	2.6

# CABG patients: 30-day readmission rate

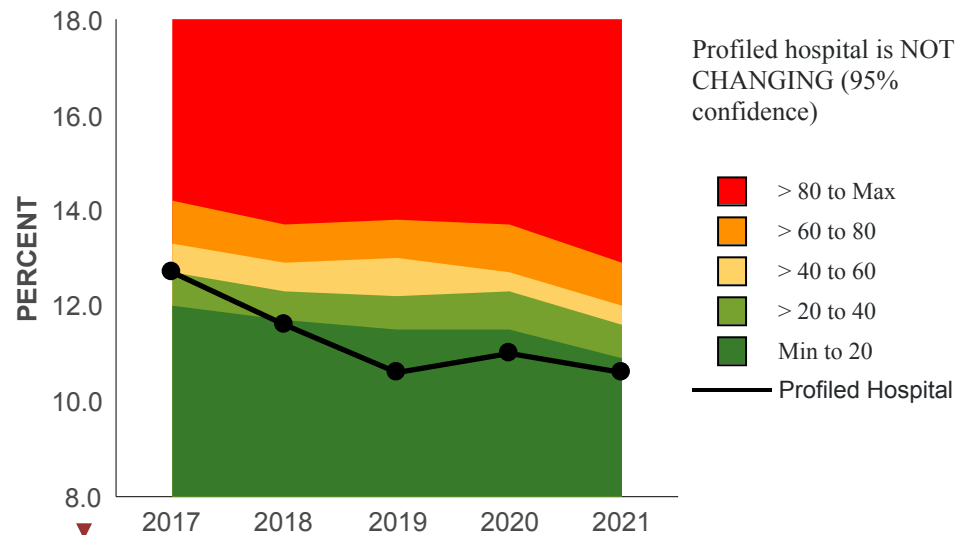
## 2021 30D READMISSION PERFORMANCE



Benchmark hospitals are the winners in the comparison group: n = 20

Peer hospitals are the non-winners in the comparison group: n = 261

## 2017-2021 30D READMISSION RATE OF IMPROVEMENT

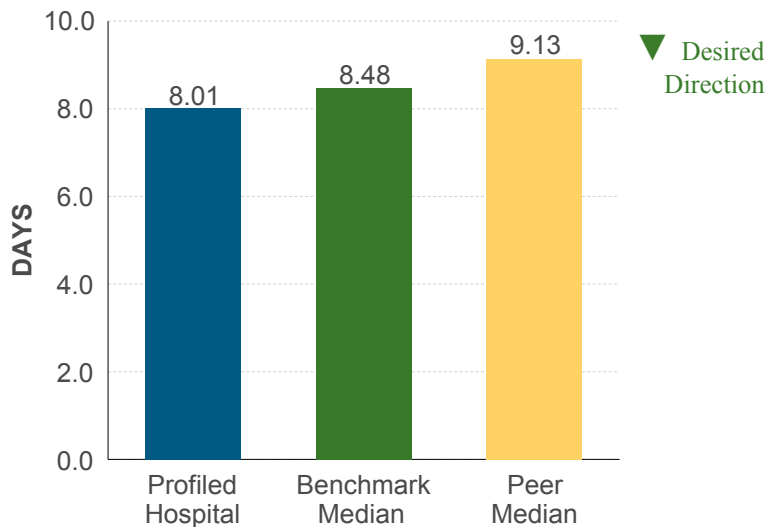


Hospital performance compared to peer hospital quintiles: n = 278

PERCENTILE POINTS ►		HOSPITAL COMPARISON GROUP				PROFILED HOSPITAL
		20th	40th	60th	80th	Value
YEARS	2017	12.0	12.7	13.3	14.2	12.7
	2018	11.7	12.3	12.9	13.7	11.6
	2019	11.5	12.2	13.0	13.8	10.6
	2020	11.5	12.3	12.7	13.7	11.0
	2021	10.9	11.6	12.0	12.9	10.6

# CABG patients: Severity-adjusted average length of stay

## 2021 ALOS PERFORMANCE

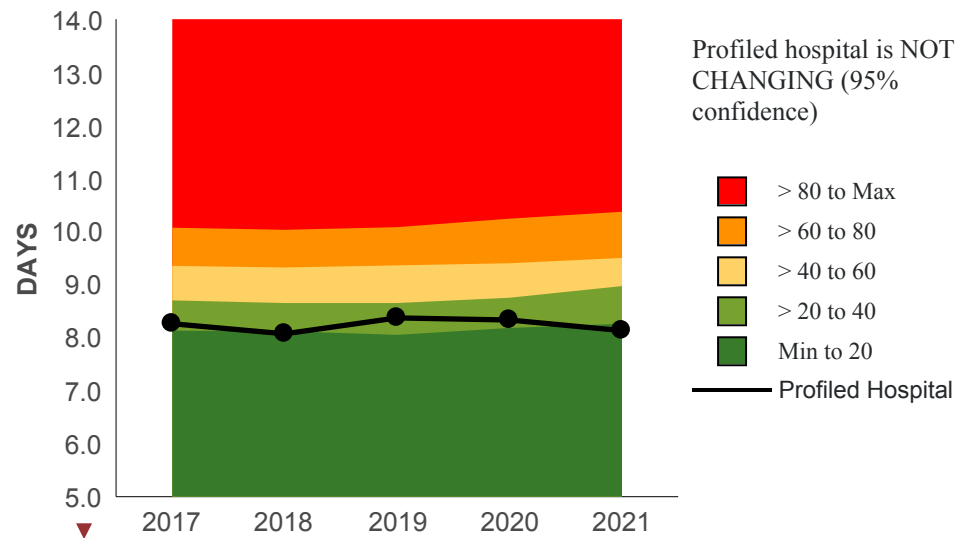


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Note: 2021 values on the current and trend graphs will not match due to different norm factors used to normalize the expected values.

## 2017-2021 ALOS RATE OF IMPROVEMENT

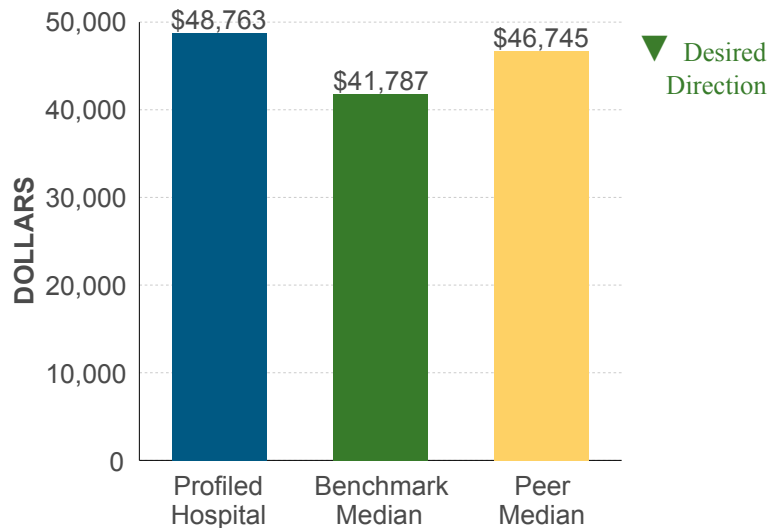


Hospital performance compared to peer hospital quintiles: n = 278

PERCENTILE POINTS ►		HOSPITAL COMPARISON GROUP				PROFILED HOSPITAL
		20th	40th	60th	80th	Value
YEARS	2017	8.13	8.70	9.35	10.07	8.26
	2018	8.12	8.65	9.32	10.03	8.07
	2019	8.05	8.65	9.36	10.08	8.37
	2020	8.18	8.75	9.40	10.24	8.33
	2021	8.26	8.97	9.50	10.37	8.13

# CABG patients: Wage- and severity-adjusted cost per case

2021 COST PER CASE PERFORMANCE

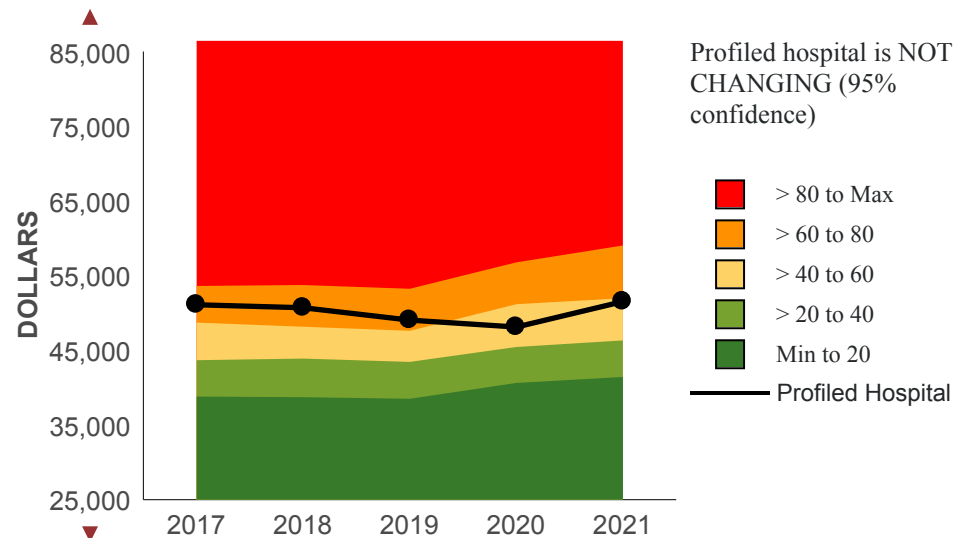


Benchmark hospitals are the winners in the comparison group: n = 20

Peer hospitals are the non-winners in the comparison group: n = 261

Note: 2021 values on the current and trend graphs will not match due to different norm factors used to normalize the expected values.

2017-2021 COST PER CASE RATE OF IMPROVEMENT

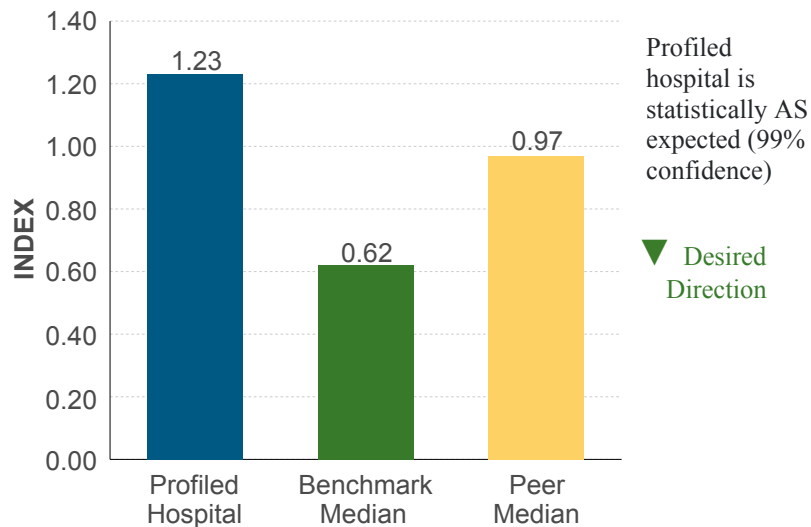


Hospital performance compared to peer hospital quintiles: n = 278

PERCENTILE POINTS ►		HOSPITAL COMPARISON GROUP				PROFILED HOSPITAL
		20th	40th	60th	80th	Value
YEARS	2017	38,805	43,672	48,707	53,610	51,094
	2018	38,723	43,891	48,151	53,736	50,695
	2019	38,508	43,445	47,610	53,235	49,040
	2020	40,627	45,441	51,170	56,768	48,111
	2021	41,431	46,322	51,971	59,030	51,523

# PCI patients: Risk-adjusted inpatient mortality index

## 2021 IP MORTALITY PERFORMANCE

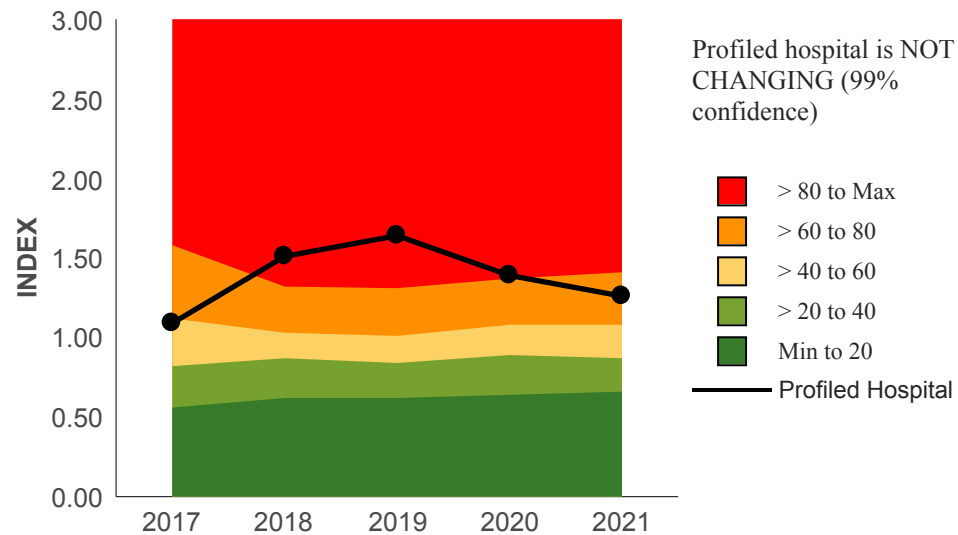


Benchmark hospitals are the winners in the comparison group: n = 20

Peer hospitals are the non-winners in the comparison group: n = 261

Note: 2021 values on the current and trend graphs will not match due to different norm factors used to normalize the expected values.

## 2017-2021 IP MORTALITY RATE OF IMPROVEMENT

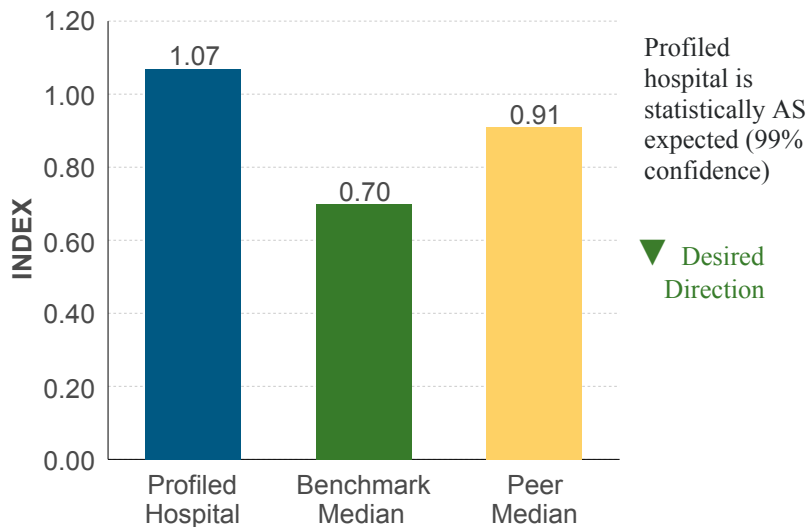


Hospital performance compared to peer hospital quintiles: n = 278

PERCENTILE POINTS ►		HOSPITAL COMPARISON GROUP				PROFILED HOSPITAL		
		20th	40th	60th	80th	Value	Upper C.I.	Lower C.I.
YEARS	2017	0.56	0.82	1.12	1.58	1.09	3.27	0.22
	2018	0.62	0.87	1.03	1.32	1.51	3.14	0.59
	2019	0.62	0.84	1.01	1.31	1.64	3.31	0.68
	2020	0.64	0.89	1.08	1.37	1.39	2.89	0.55
	2021	0.66	0.87	1.08	1.41	1.26	2.63	0.50

# PCI patients: Risk-adjusted complications index

## 2021 COMPLICATIONS PERFORMANCE

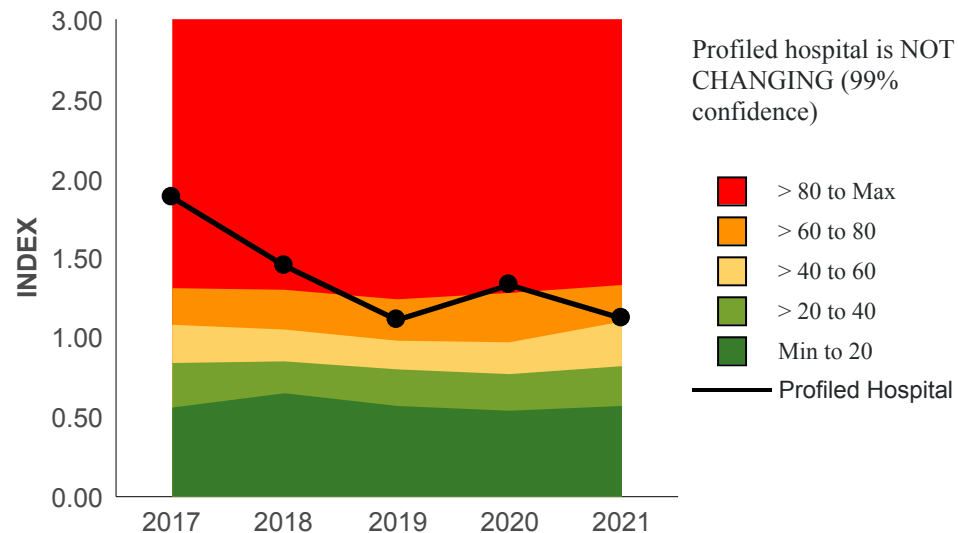


Benchmark hospitals are the winners in the comparison group: n = 20

Peer hospitals are the non-winners in the comparison group: n = 261

Note: 2021 values on the current and trend graphs will not match due to different norm factors used to normalize the expected values.

## 2017-2021 COMPLICATIONS RATE OF IMPROVEMENT



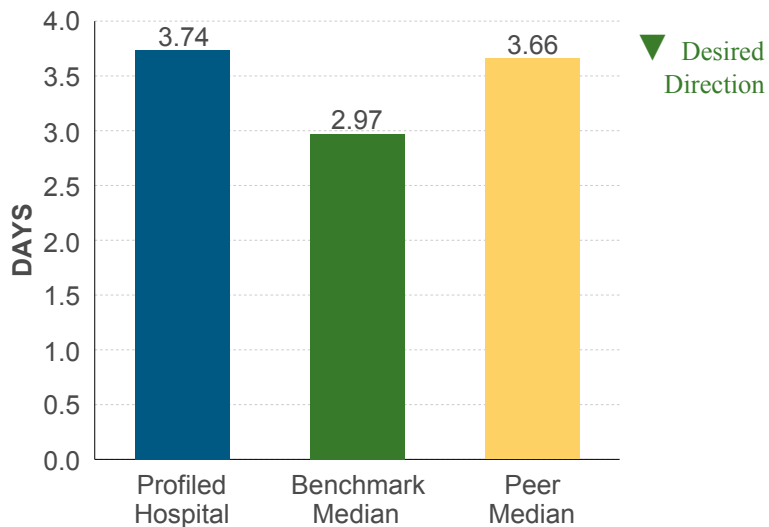
Hospital performance compared to peer hospital quintiles: n = 278

PERCENTILE POINTS ►		HOSPITAL COMPARISON GROUP				PROFILED HOSPITAL		
		20th	40th	60th	80th	Value	Upper C.I.	Lower C.I.
YEARS	2017	0.56	0.84	1.08	1.31	1.88	3.46	0.90
	2018	0.65	0.85	1.05	1.30	1.45	2.33	0.84
	2019	0.57	0.80	0.98	1.24	1.11	1.85	0.61
	2020	0.54	0.77	0.97	1.28	1.33	2.21	0.73
	2021	0.57	0.82	1.10	1.33	1.12	2.07	0.54



# PCI patients: Severity-adjusted average length of stay

## 2021 ALOS PERFORMANCE

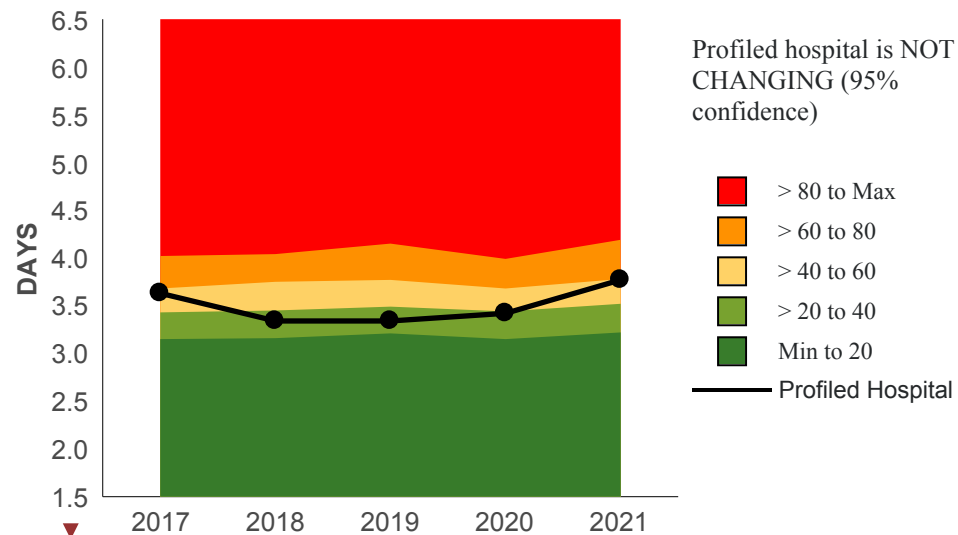


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Note: 2021 values on the current and trend graphs will not match due to different norm factors used to normalize the expected values.

## 2017-2021 ALOS RATE OF IMPROVEMENT

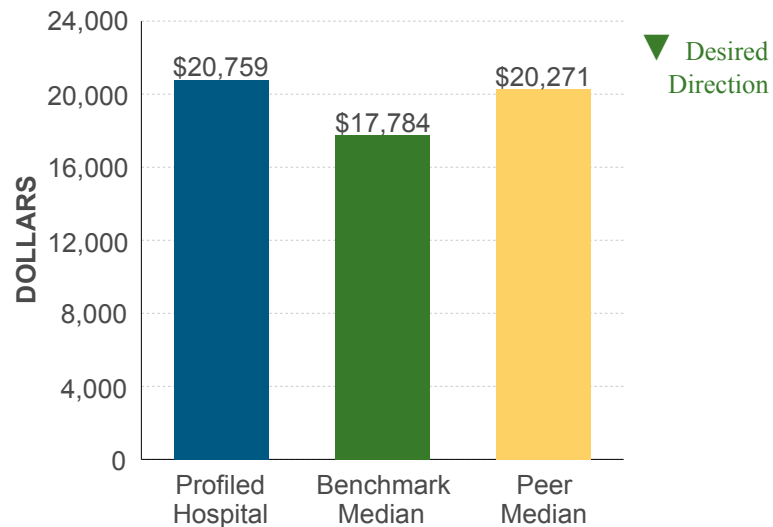


Hospital performance compared to peer hospital quintiles: n = 278

PERCENTILE POINTS ►		HOSPITAL COMPARISON GROUP				PROFILED HOSPITAL
		20th	40th	60th	80th	Value
YEARS	2017	3.15	3.43	3.68	4.02	3.63
	2018	3.16	3.45	3.75	4.04	3.34
	2019	3.21	3.49	3.77	4.15	3.34
	2020	3.15	3.44	3.68	3.99	3.42
	2021	3.22	3.52	3.78	4.19	3.77

# PCI patients: Wage- and severity-adjusted cost per case

## 2021 COST PER CASE PERFORMANCE

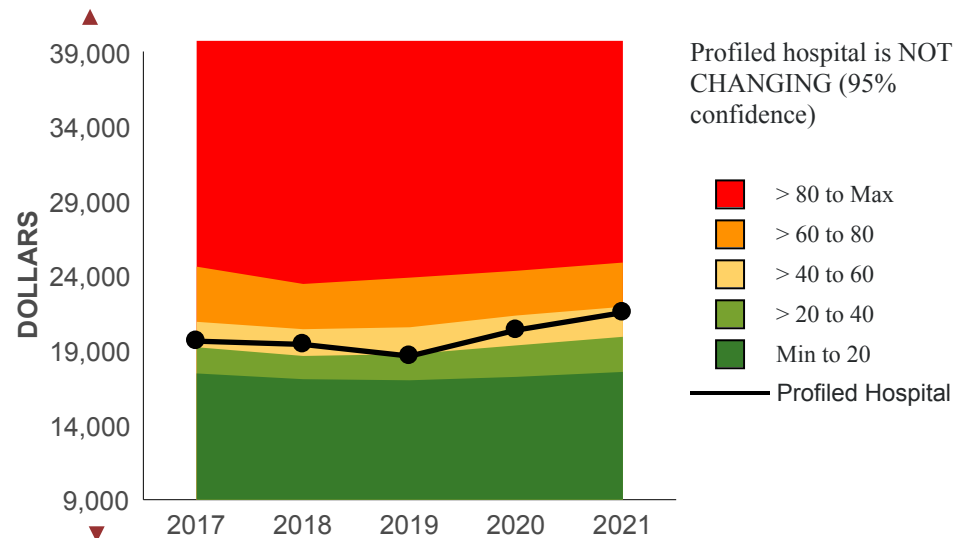


Benchmark hospitals are the winners in the comparison group: n = 20

Peer hospitals are the non-winners in the comparison group: n = 261

Note: 2021 values on the current and trend graphs will not match due to different norm factors used to normalize the expected values.

## 2017-2021 COST PER CASE RATE OF IMPROVEMENT

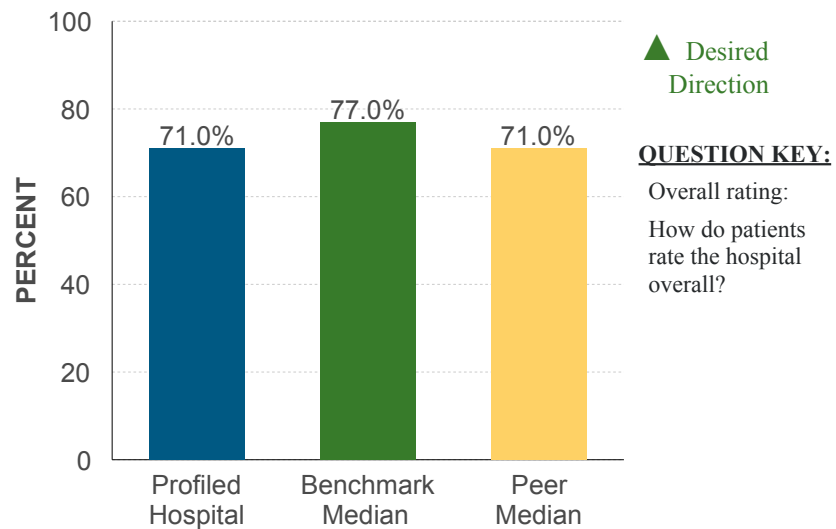


Hospital performance compared to peer hospital quintiles: n = 278

		HOSPITAL COMPARISON GROUP				PROFILED HOSPITAL
PERCENTILE POINTS ►		20th	40th	60th	80th	Value
YEARS	2017	17,450	19,203	20,906	24,597	19,612
	2018	17,065	18,620	20,412	23,439	19,392
	2019	16,992	18,741	20,540	23,862	18,611
	2020	17,220	19,328	21,326	24,321	20,350
	2021	17,552	19,902	21,912	24,872	21,525

# HCAHPS: overall rating question

## 2021 HCAHPS TOP BOX PERFORMANCE



MEASURE NOT IN TREND PROFILE

*Benchmark hospitals are the winners in the comparison group: n = 20*

*Peer hospitals are the non-winners in the comparison group: n = 261*

## Supplemental information-only measures

This section of your report contains measures that we are profiling only for informational purposes; they were not included in ranking or determination of winners. We welcome your comments and feedback on the usefulness and relevance of these measures in assessing leadership's ability to drive high-level, balanced performance.

- **Excess days in acute care (EDAC) measures:**
  - 30-day excess days in acute care for AMI patients
  - 30-day excess days in acute care for HF patients

As defined by the Centers for Medicare & Medicaid Services (CMS), the “EDAC measures capture excess days that a hospital’s patients spent in acute care within 30 days after discharge.”

The values of these measures are the number of risk-adjusted days a hospital’s patients spend in an emergency department (ED), a hospital observation unit, or a hospital inpatient unit (“days in acute care”) during the 30 days following a hospitalization for AMI or HF.”

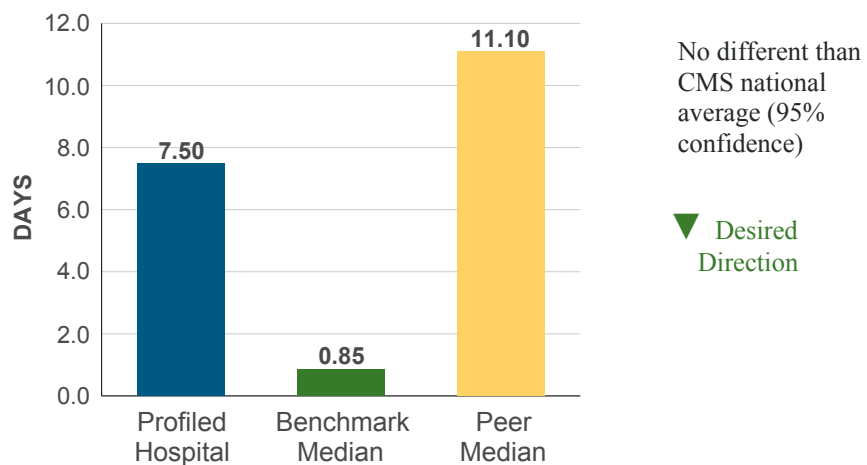
The measures report the difference (“excess”) between each hospital’s average days in acute care (“predicted days”) and the number of days in acute care that each hospital’s patients would have been expected to spend if discharged from an average-performing hospital (“expected days”). The measure is reported as excess days per 100 discharges.

- **HCAHPS**

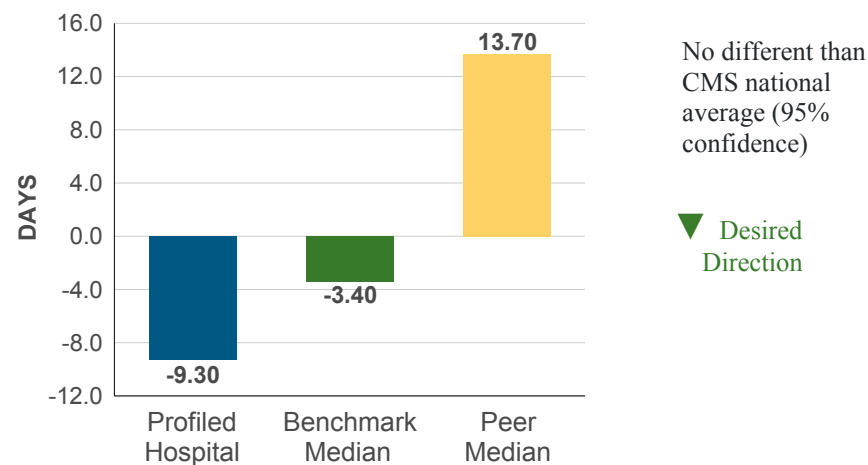
The ranked measure is the overall hospital rating question. The individual detailed survey questions are displayed for information only.

# AMI and HF patients: 2021 Performance Compared to Benchmark<sup>1</sup> and Peer<sup>2</sup> Hospitals

**AMI 30D EXCESS DAYS IN ACUTE CARE**



**HF 30D EXCESS DAYS IN ACUTE CARE**



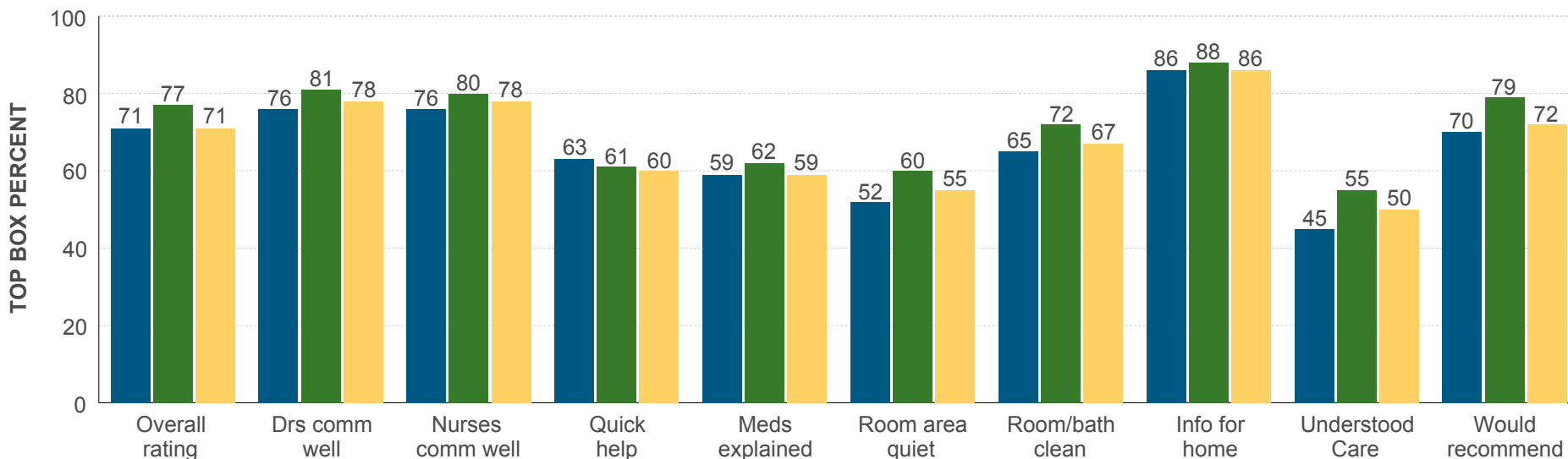
*Note: Profiled hospital compared to cardio teaching hospitals*

<sup>1</sup> Benchmark hospitals are the winners in the comparison group: n = 20

<sup>2</sup> Peer hospitals are the non-winners in the comparison group: n = 261

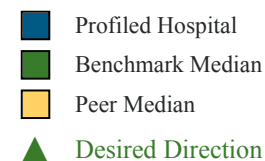
# HCAHPS questions - only overall rating used in ranking

## 2021 HCAHPS PERFORMANCE



### QUESTION KEY

- Overall rating How do patients rate the hospital overall?
- Drs comm well How often did doctors communicate well with patients?
- Nurses comm well How often did nurses communicate well with patients?
- Quick help How often did patients receive help quickly from hospital staff?
- Meds explained How often did staff explain about medicines before giving them to patients?
- Room area quiet How often was the area around patients rooms kept quiet at night?
- Room/bath clean How often were the patients rooms and bathrooms kept clean?
- Info for home Were patients given information about what to do during their recovery at home?
- Understood care How often did patients understand their care at discharge?
- Would recommend Would patients recommend the hospital to friends and family?

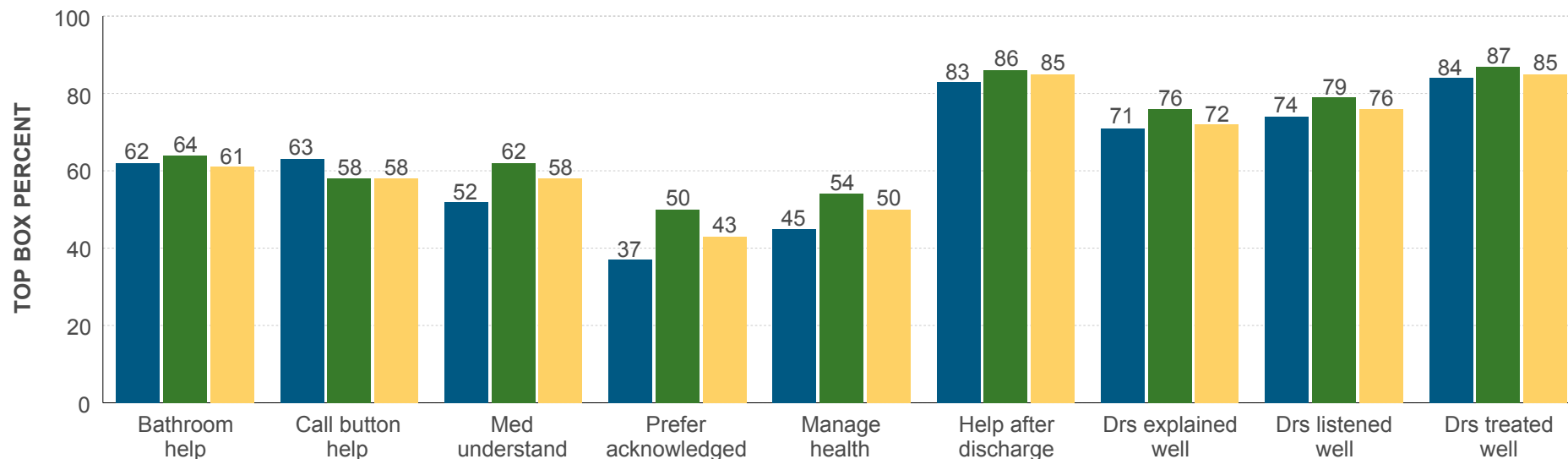


Benchmark hospitals are the winners in the comparison group: n = 20

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# HCAHPS questions, con't

## 2021 HCAHPS PERFORMANCE



### QUESTION KEY

- Bathroom help      How often did patients receive bathroom help as soon as they wanted?
- Call button help    How often did patients receive help after using the call button as soon as they wanted?
- Med understanding    How often did patients understand the purpose of their medications when leaving the hospital?
- Prefer acknowledged    How often did the staff take patients' preferences into account when determining health care needs?
- Manage health      How often did patients understand their responsibilities in managing their health?
- Help after discharge    How often did patients discuss whether they would need help after discharge?
- Drs explained well    How often did doctors explain things in a way patients could understand?
- Drs listened well      How often did doctors listen carefully to patients?
- Drs treated well      How often did doctors treat patients with courtesy and respect?

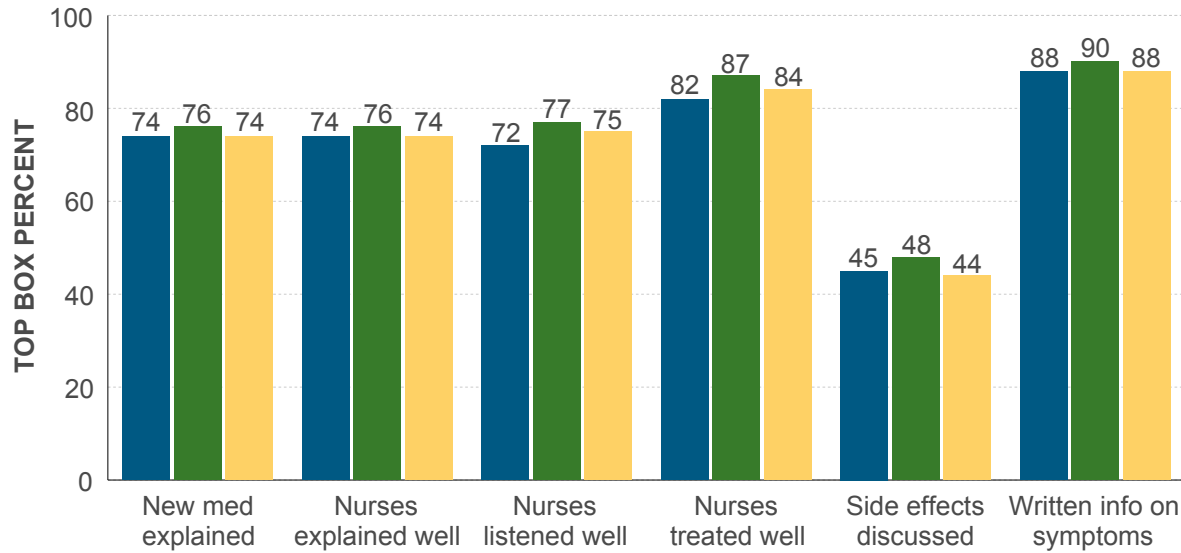


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# HCAHPS questions, con't

## 2021 HCAHPS PERFORMANCE



### QUESTION KEY

- New med explained      How often did staff communicate what the new medication was for?
- Nurses explained well      How often did nurses explain things in a way patients could understand?
- Nurses listened well      How often did nurses listen carefully to patients?
- Nurses treated well      How often did nurses treat patients with courtesy and respect?
- Side effects discussed      How often did staff discuss possible side effects when receiving a new medication?
- Written info on symptoms      Did patients receive written information about possible symptoms to look out for after discharge?

- Profiled Hospital
- Benchmark Median
- Peer Median
- ▲ Desired Direction

Benchmark hospitals are the winners in the comparison group: n = 20

Peer hospitals are the non-winners in the comparison group: n = 261