

# Hospital Characteristics Associated with Observed Transcatheter Aortic Valve Replacement Prices

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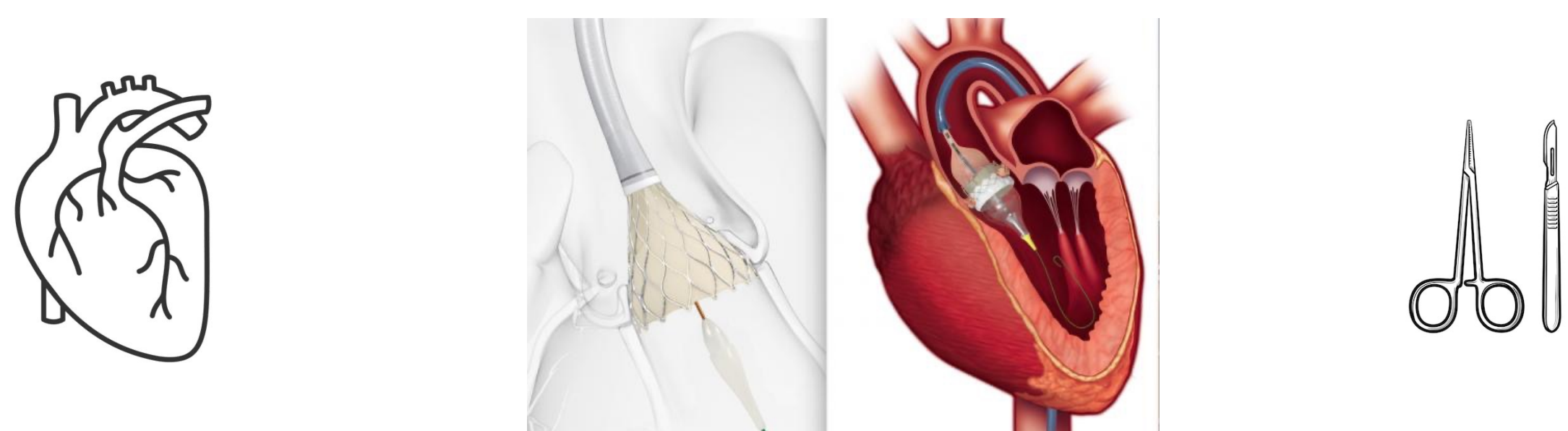
## Introduction

- Transcatheter aortic valve replacements (TAVRs) are safer and less invasive than traditional surgical aortic valve replacements for aortic stenosis
- Lack of price transparency is a barrier to informed decision making for patients
- U.S. News and World Report (USNWR) provides ratings associated with quality of TAVR-performing hospitals
- January 1, 2022, CMS mandated that hospitals post accessible pricing information via a machine-readable file but compliance is low
- While prior studies have noted high variation in TAVR prices across hospitals and payers, they have eschewed exploring associations between TAVR prices and hospital financial characteristics



## Objective

To describe the variation in TAVR prices as a factor of hospital financial performance among hospitals ranked by The U.S. News and World Report



## Methods

### Overview:

- Cross-sectional retrospective study of non-federal, adult, and non-critical access USNWR-ranked hospital price disclosures

### Data Sources:

- Price reports compiled by Turquoise Health
- Publicly available financial reporting data to compile facility-specific features including net profit margins, markups, CMS wage index, and patient revenues

### Statistical Analysis:

- Modified two-part model to evaluate the association between observed-to-expected price ratios and financial health characteristics



## Results

Of 640 total USNWR hospitals

- **389 (60.8%) did not disclose prices**
- **251 (39.2%) disclosed at least one procedure price**

	Total	Disclosed Prices	Did Not Disclose Prices	P-Value
<b>No. of USNWR TAVR Ranked Hospitals</b>	640	251 (39.2%)	389 (60.8%)	
<b>Bed Size</b>				
Median (IQR)	397 (304)	403 (270)	396 (317)	0.89
<b>Net Patient Revenue (USD)</b>				
Median (IQR)	599,404,885 (607,765,964)	599,054,043 (565,145,924)	600,505,110 (631,704,912)	0.89
<b>Teaching Hospital</b>				
Yes	490 (76.5%)	208 (82.8%)	287 (73.8%)	0.44
No	121 (18.9%)	43 (17.1%)	81 (20.8%)	
<b>Ownership Type</b>				
Non-Profit	471 (76.1%)	205 (75.1%)	266 (72.3%)	0.033
Government Owned	61 (9.9%)	27 (9.9%)	40 (10.9%)	
For-Profit	86 (13.9%)	25 (9.2%)	62 (16.8%)	

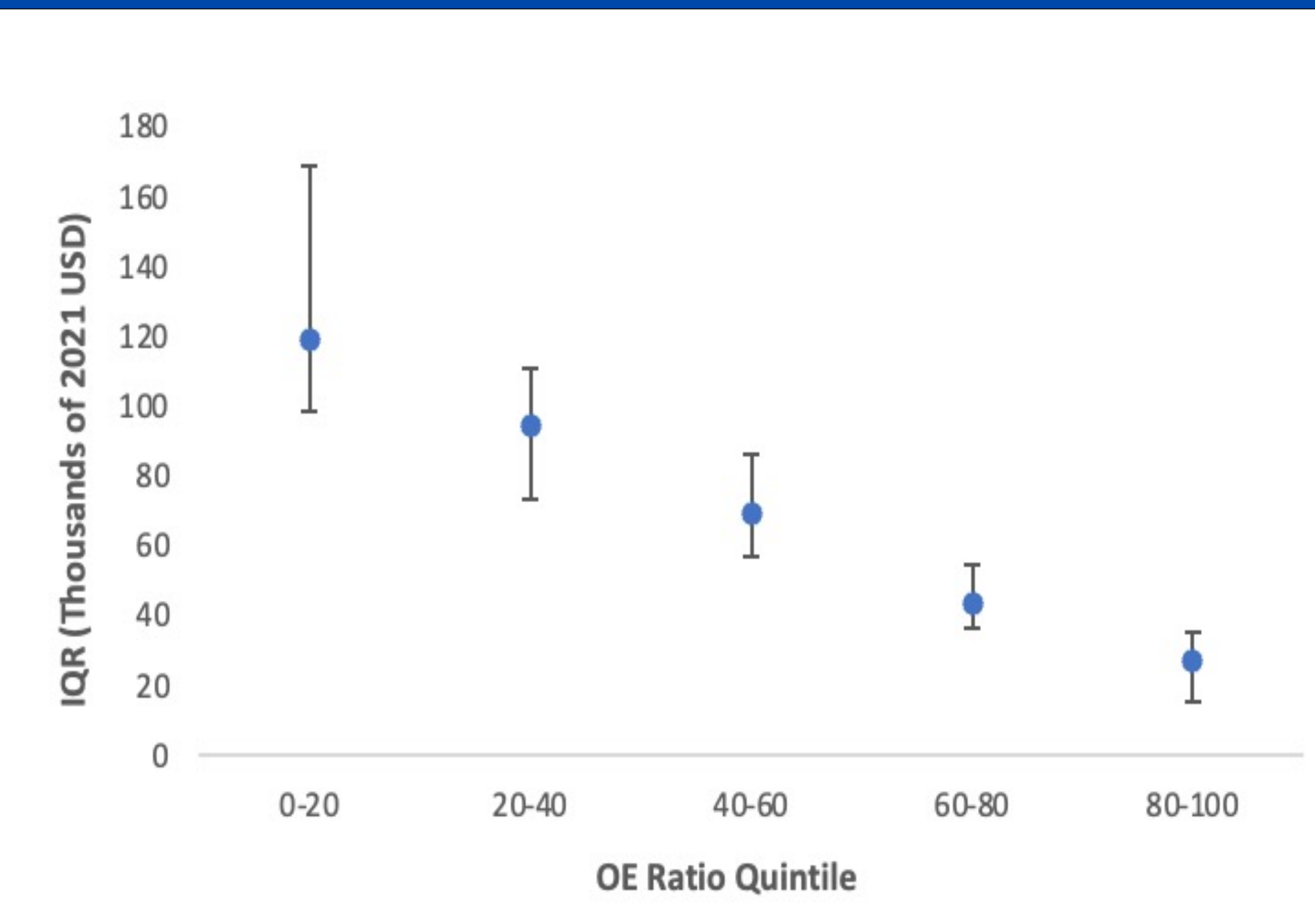
Disclosing and non-disclosing hospitals differed only in ownership type

	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	P-Value
<b>USNWR TAVR Performance Score (USD)</b>	-0.148 (IQR: 0.89)	0.0355 (IQR: 0.97)	-0.0295 (IQR: 0.67)	-0.2635 (IQR: 0.95)	-0.151 (IQR: 0.87)	0.95
<b>Median TAVR Price (USD)</b>	72,129.12 (IQR: 45552)	99,005.82 (IQR: 43611)	86,177.5175 (IQR: 58452)	65,358.02 (IQR: 28521)	49,022.03 (IQR: 28163)	<0.001
<b>Net Profit Margin</b>	1.76 (IQR: 10.4)	-0.82 (IQR: 12.1)	-0.16 (IQR: 11.3)	-0.39 (IQR: 9.1)	3.14 (IQR: 10.1)	0.12
<b>Markups</b>	4.75 (IQR: 2.4)	4.02 (IQR: 1.7)	4.17 (IQR: 1.17)	3.86 (IQR: 1.56)	5.33 (IQR: 2.38)	0.41
<b>Bed Days Available</b>	163,155 (IQR: 125197)	139,430 (IQR: 56540)	162,790 (IQR: 122574)	167,541 (IQR: 77656)	154,967 (IQR: 113837)	0.8
<b>CMS Wage Index</b>	1.00 (IQR: 0.27)	0.97 (IQR: 0.19)	1.00 (IQR: 0.18)	0.97 (IQR: 0.12)	0.88 (IQR: 0.13)	0.002
<b>TAVR Price IQR (USD)</b>	119,043 (IQR: 70316)	94,668 (IQR: 37762)	69,361 (IQR: 29031)	43,708 (IQR: 18034)	27,240 (IQR: 19669)	<0.001

Hospitals that higher observed to expected TAVR prices had:

- No change in reported quality
- No change in profit margins
- No change in bed days available

## Graph: TAVR Interquartile Range Across Observed to Expected TAVR Price Quintiles



**Increased** observed to expected TAVR prices were associated with a **linear decline** in TAVR variation as measured by IQR

## Conclusions

- Hospitals that charge **↑** than expected for TAVRs do not have **↑** profit margins nor markups and are not **↑** ranked by USNWR than those that charge **↓** than expected
- With **↑** observed over expected TAVR prices, the variation in TAVR rates within hospitals **↓** linearly
- Observed to expected TAVR price ratios appear to have no association with publicly reported hospital quality
- Regulations that stabilize prices for TAVRs could **↑** transparency while having minimal effects on hospital profits, especially since the highest variation in prices is among the hospitals with the lowest observed over expected prices
- Future studies should focus on exploring effects of severity of price transparency regulation on variation of shoppable surgical procedures