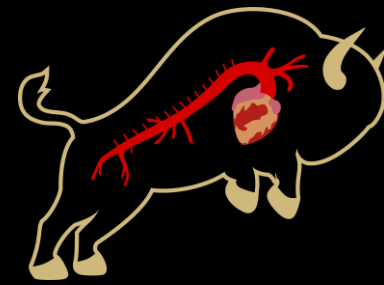




# Exploring the Impact of Socioeconomic Vulnerability on Elective Aortic Valvular Surgery Presentation and Outcomes



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## Introduction

- Previously, we have demonstrated more socially vulnerable patients present more urgently or emergently in aortic surgery
- It remains unclear if social vulnerability affects elective presentation, including disease severity or outcomes
- Assessing differences in elective presentation could shed light on where disparities in care exist in patients undergoing concomitant aortic and aortic valve procedures

## Aims/Methods

- A retrospective review of a single institution aortic database from 2009-2023 for patients who underwent elective aortic valve and aortic resection surgery (280 patients identified; Final N=227 after discarding those who had valve intervention that was not for AV stenosis or insufficiency)
- To assess access to care for patients undergoing elective based on the CDC Social Vulnerability Index (SVI)
- Patients were split into two cohorts based on SVI ([High SVI  $\geq 75$ , N=32], [“normal” SVI  $< 75$ , N=195])
- To compare any differences in other pre-operative or operative characteristics, and post-operative outcomes

## Table 1

### • Pre-operative characteristics

Variable	SVI < 75%tile (N=195)	SVI $\geq$ 75%tile (N=32)	p-value
Age (Years)	64.85 (53.9-73.6)	59.15 (52.7-65.7)	0.060
Gender (Male)	140 (71.8%)	24 (75%)	0.833
Body mass index (BMI)	<b>26.8 (24.1-30.6)</b>	<b>28.5 (26.6-33.2)</b>	<b>0.050</b>
Hyperlipidemia	81 (41.5%)	15 (46.9%)	0.567
Hypertension	127 (65.1%)	19 (59.4%)	0.554
Smoking	44 (22.6%)	12 (37.5%)	0.078
Diabetes mellitus type 2	23 (11.8%)	3 (9.4%)	0.999
Chronic kidney disease	14 (7.2%)	3 (9.4%)	0.715
Pulmonary disease	42 (21.5%)	5 (15.6%)	0.637
Coronary artery disease	34 (17.4%)	8 (25%)	0.328
Baseline hemoglobin A1C	5.5 (5.3-5.8)	5.5 (5.4-5.7)	0.331
Baseline systolic blood pressure	130 (116-140)	125 (114-132)	0.197
Baseline diastolic blood pressure	73 (66-82)	70 (65-79)	0.894
Severe aortic stenosis or aortic insufficiency	71 (36.4%)	14 (43.8%)	0.437
Gradient (Filtered for Moderate AS and >20)	36.9 (28-50.1)	31.4 (27.1-42.5)	0.140

*Higher baseline BMI in high SVI patients, trend towards younger age, more smoking  
 No differences seen in valvular disease severity*

## Table 2

### • Operative variables and post-operative outcomes

Variable	SVI < 75%tile (N=195)	SVI $\geq$ 75%tile (N=32)	p-value
<b>Operative variables</b>			
Root replacement	77 (39.5%)	11 (34.4%)	0.697
Hemiarch replacement	160 (82.1%)	25 (78.1%)	0.552
Total arch replacement	22 (11.3%)	5 (15.6%)	
Cardiopulmonary bypass time	136 (114-173)	140 (123.25-200.75)	0.194
Aortic cross-clamping time	98 (79-122)	102 (79-139.75)	0.555
<b>Post-operative outcomes</b>			
Length of stay	8 (6-10)	8 (6-9)	0.697
ICU length of stay	3 (2-5)	3 (2-6)	0.406
Acute kidney injury requiring hemodialysis	6 (3.1%)	0 (0%)	0.589
Stroke	8 (4.1%)	2 (6.3%)	0.636
Prolonged Ventilation >48 hours	14 (7.2%)	1 (3.1%)	0.701
Infection	15 (7.7%)	1 (3.1%)	0.706
Required mechanical circulatory support	10 (5.1%)	1 (3.1%)	0.999
Death	6 (3.1%)	0 (0%)	0.598

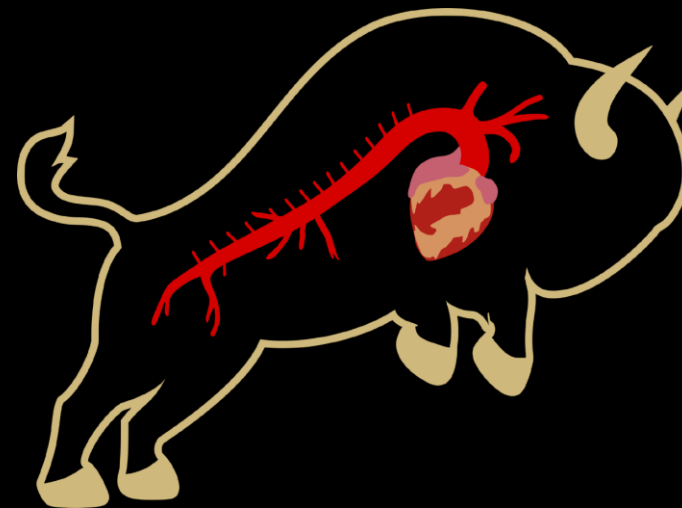
*No significant difference in operative variables or post-operative outcomes*

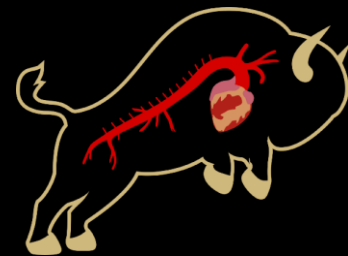
## Conclusions

- SVI is not associated with differences in degree of valvular disease or subsequent outcomes
- High SVI patients tend to have higher BMIs, trend toward younger age, and more smoking
- Disparities in care are not readily apparent after obtaining specialist care
- Disparities possibly manifest in obtaining initial access to primary/preventative care and failure/inability to see specialist referral



No disclosures

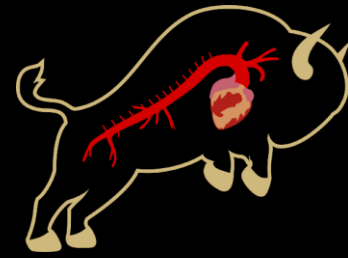




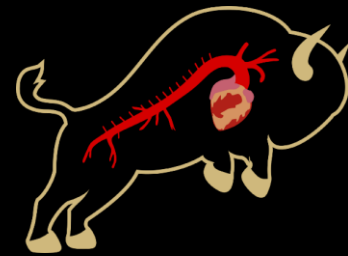
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# Aims

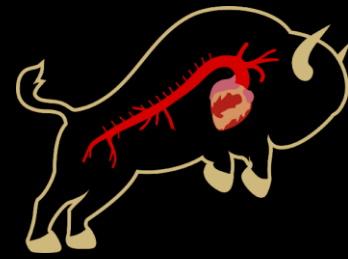


- To assess access to care for patients undergoing elective aortic valve and aortic resection surgery based on social vulnerability
  - Assess the severity of aortic stenosis (AS) or insufficiency (AI) at the presentation
  - Determine social vulnerability utilizing the CDC Social Vulnerability Index (SVI)
- To assess for any differences in other pre-operative or operative characteristics, and post-operative outcomes



# Methods

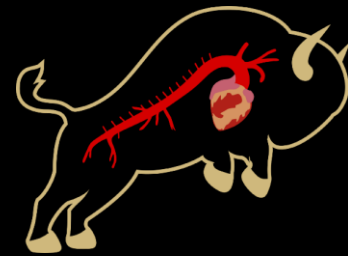
- A retrospective review of a single institution aortic database from 2009-2023 for patients who underwent elective surgical aortic valve intervention
  - 280 patients identified
  - Final N=227 after discarding those who had valve intervention that was not for AV stenosis or insufficiency
- Patients were split into two cohorts based on SVI ([High SVI  $\geq$ 75 percentile, N=32], [“normal” SVI <75 percentile, N=195])
  - SVI calculated based on patient’s residential address
- Compare disease severity at presentation
  - Degree of AS/AI, gradient if at least moderate AS
- Compare other pre-operative and operative characteristics, and post-operative outcomes



# Results: Preoperative

- Higher baseline BMI in high SVI patients, trend towards younger age, more smoking
- No differences seen in valvular disease severity

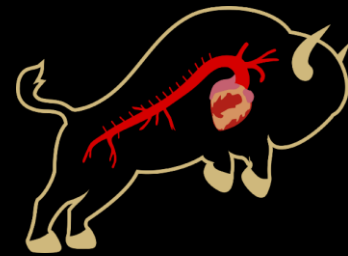
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# Results: Operative

No difference in operative variables or post-operative outcomes

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# Conclusions

- SVI is not associated with differences in degree of valvular disease or subsequent outcomes
  - High SVI patients tend to have higher BMIs, trend toward younger age, and more smoking
- Given similarities in presentation and outcomes, disparities in care are not readily apparent after obtaining specialist care
- Possible areas where disparities manifest:
  - Obtaining initial access to primary/preventative care
  - Failure/inability to see specialist referral