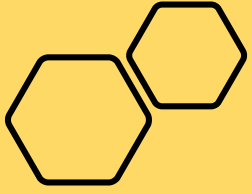




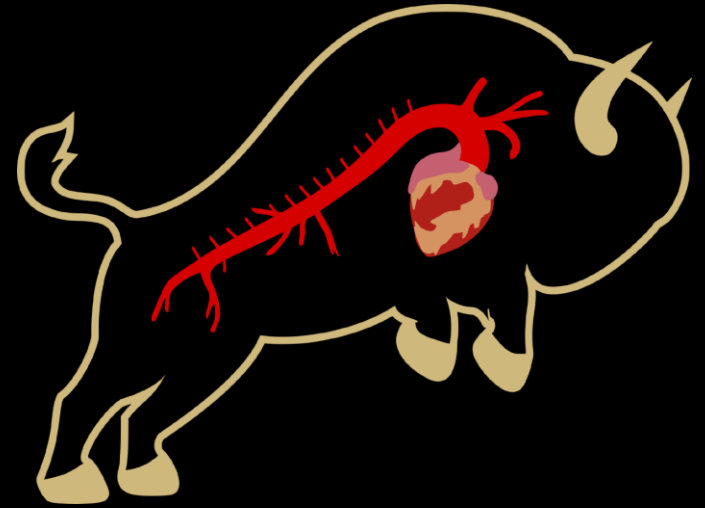
# Operative Urgency in Total Arch Replacement: Urgent Patients Benefit from Pre-Operative Optimization

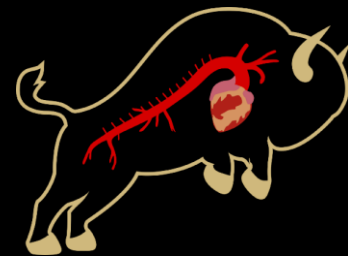
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No disclosures

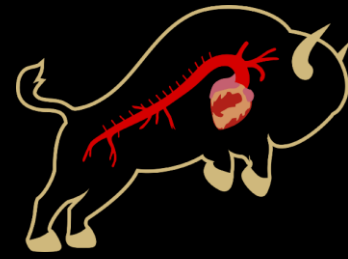




# Introduction

- Despite advances in technique, total arch replacement still carries high risk of morbidity and mortality
- Emergent total arch patients fare worse compared to elective patients, but unclear how urgent patients fare
  - Can undergo some degree of pre-operative optimization, but still have acute pathology
- We hypothesized urgent patients would have similar outcomes to emergent patients given acuity of presentation

# Aim

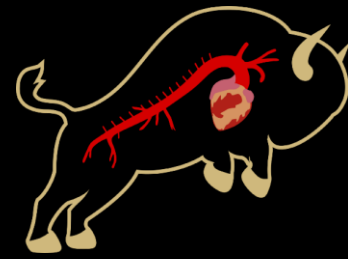


Investigate outcomes in total arch replacement between elective, urgent and emergent patients



# Methods

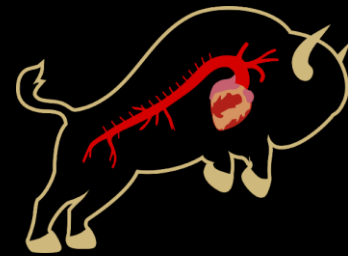
- A retrospective review of a single institution aortic database from 2011-2023 for patients who underwent total arch replacement
- Stratify patients into three cohorts: Elective, Urgent, Emergent
  - Perform between groups comparisons of pre-operative and operative variables, post-operative outcomes
  - Perform adjusted cox proportional hazard analysis for 30-day mortality by procedural urgency



# Results: Preoperative

- In total, 243 patients identified
- Higher incidence of coronary artery disease in non-emergent cohorts, otherwise no differences seen in pre-operative variables

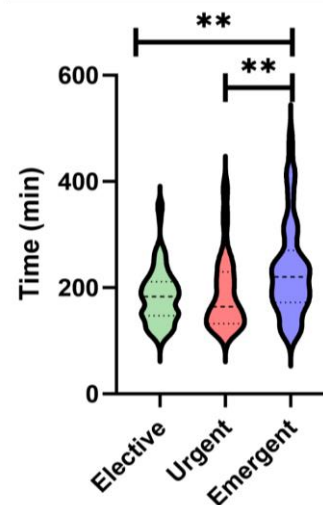
	Elective	Urgent	Emergent	p value
<b>N</b>	120	56	67	
<b>Age</b>	59.7 (49.1-68.5)	64.4 (59.1-70.4)	58.2 (50.3-63.4)	0.323
<b>Male</b>	78 (65.0%)	35 (62.5%)	45 (67.2%)	0.865
<b>Body Mass Index (BMI)</b>	27.4 (24.2-31.0)	27.4 (24.7-30.1)	28.1 (23.5-33.2)	0.784
<b>Hyperlipidemia</b>	39 (32.5%)	27 (40.3%)	18 (26.9%)	0.722
<b>Hypertension</b>	94 (78.3%)	43 (76.8%)	53 (79.1%)	0.958
<b>Current Smoker</b>	27 (22.5%)	21 (37.5%)	16 (23.9%)	0.102
<b>Diabetes Mellitus</b>	8 (6.7%)	6 (10.7%)	3 (4.5%)	0.388
<b>Chronic Kidney Disease</b>	15 (12.5%)	7 (12.5%)	7 (10.4%)	0.933
<b>Prior Stroke</b>	15 (12.5%)	8 (14.3%)	6 (9.0%)	0.661
<b>Coronary Artery Disease</b>	22 (18.3%)	7 (12.5%)	2 (3.0%)	<b>0.011</b>
<b>Peripheral Vascular Disease</b>	10 (8.3%)	3 (5.4%)	4 (6.0%)	0.847
<b>Pulmonary Disease</b>	29 (24.2%)	17 (30.4%)	16 (23.9%)	0.667



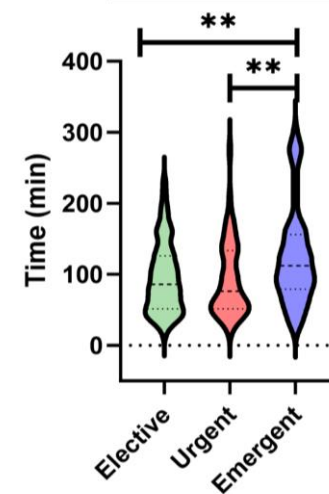
# Results: Intraoperative

- Emergent patients:
  - Increased cardiopulmonary bypass, cross-clamp times
  - Lower nadir bladder temperature, but in range of moderate hypothermia
  - Increased RBC and coagulation product (FFP and platelet)
- No differences seen in circulatory arrest time
- No differences seen between urgent patients relative to elective

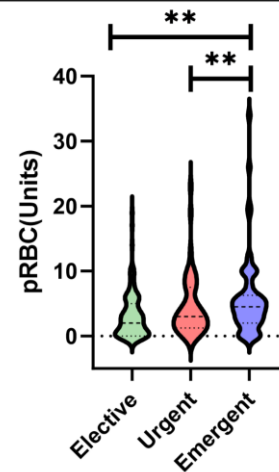
Cardiopulmonary Bypass Time



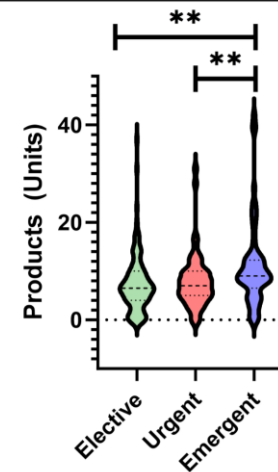
Cross-Clamp Time

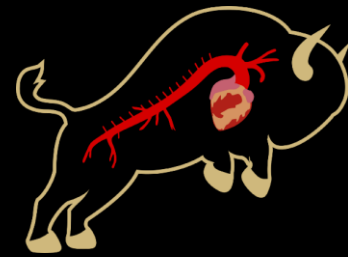


Red Blood Cell Administration



Coagulation Product Administration



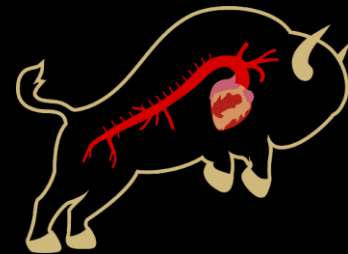


# Results: Postoperative

- Emergent patients:
  - Increased length of stay, ICU length of stay
  - More stroke, hemodialysis, prolonged ventilation, mortality
- Trend towards higher stroke in urgent patients, but non-significant (p=0.09)
- No significant differences seen between urgent patients relative to elective
  - Longer length of stay reflective of pre-operative optimization

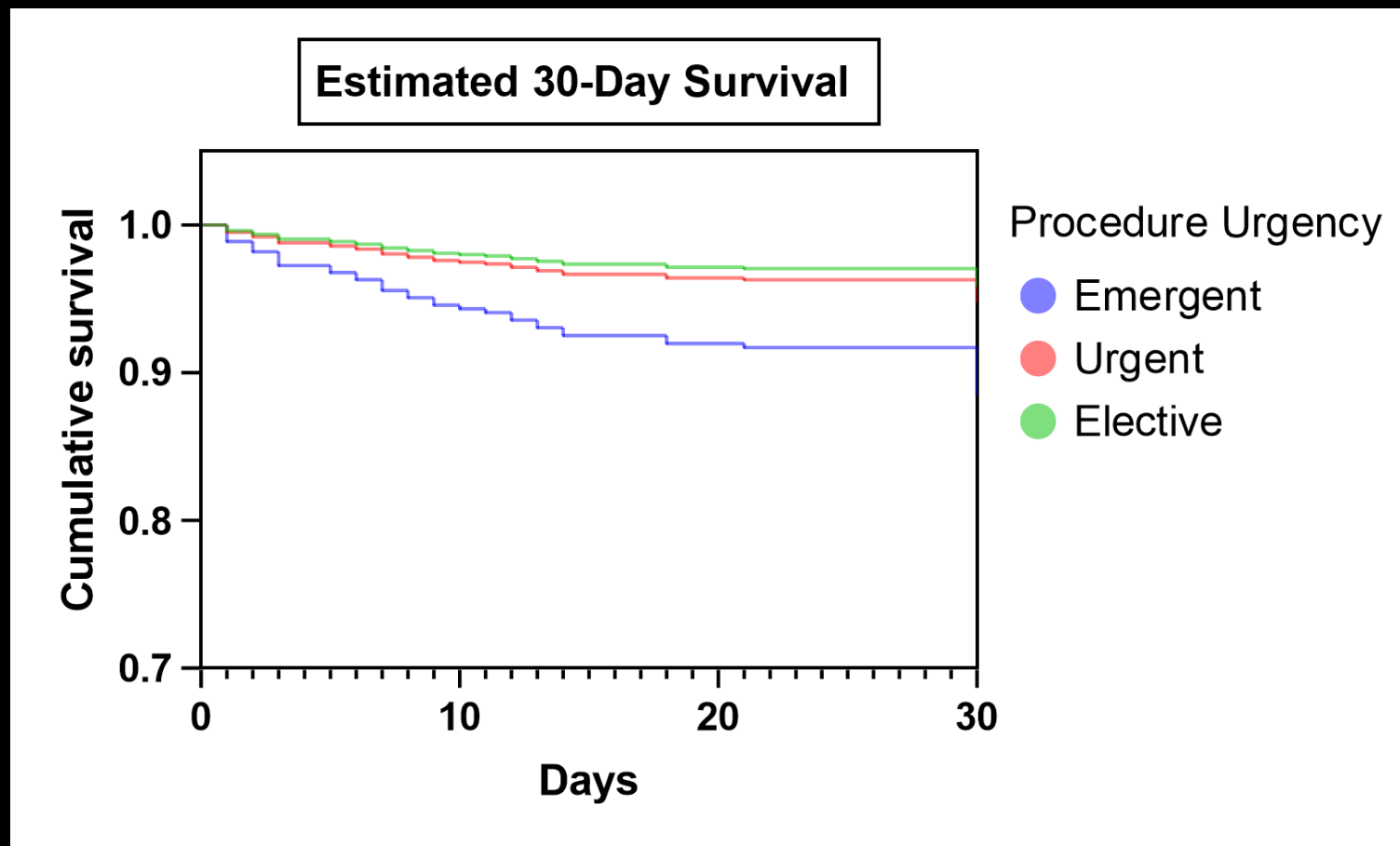
	Elective	Urgent	Emergent	p value
<b>N</b>	120	56	67	
<b>Length of Stay</b>	10 (7-15)	14 (11-18)	13 (9-23)	<b>0.003</b>
<b>ICU Length of Stay</b>	4 (3-6)	5 (4-8)	7 (4-13)	<b>0.001</b>
<b>Open Chest</b>	14 (11.7%)	9 (16.1%)	15 (22.4%)	0.148
<b>Stroke</b>	11 (9.2%)	11 (19.6%)	27 (40.3%)	<b>&lt;0.001</b>
<b>New RRT</b>	8 (6.7%)	2 (3.5%)	18 (26.9%)	<b>&lt;0.001</b>
<b>Prolonged Ventilation (&gt;48 hr)</b>	17 (14.2%)	8 (14.3%)	20 (29.9%)	<b>0.025</b>
<b>Infection</b>	13 (10.8%)	9 (16.1%)	15 (22.4%)	0.106
<b>Mechanical Circulatory Support</b>	5 (4.2%)	4 (7.1%)	8 (11.9%)	0.134
<b>Mortality</b>	11 (9.2%)	6 (10.7%)	20 (28.4%)	<b>0.001</b>

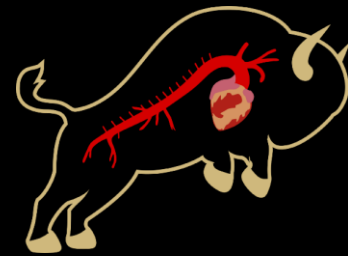




# Results

- Adjusted Cox proportional hazard model demonstrated reduced 30-day survival for emergent group ( $p=0.010$ )





# Conclusions

- Emergent patients have longer operative times and require more product, at high risk for adverse post-operative outcomes
- Urgent patients fare similarly to elective patients
- Urgent patients appear to benefit from pre-operative optimization when clinically feasible

Questions???

