

Use of Temporary MCS for Management of Cardiogenic Shock Before and After the UNOS Donor Heart Allocation System Changes:

*Data from the Critical Care Cardiology
Trials Network (CCCTN) Registry*

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on behalf of the **CCCTN Investigators**

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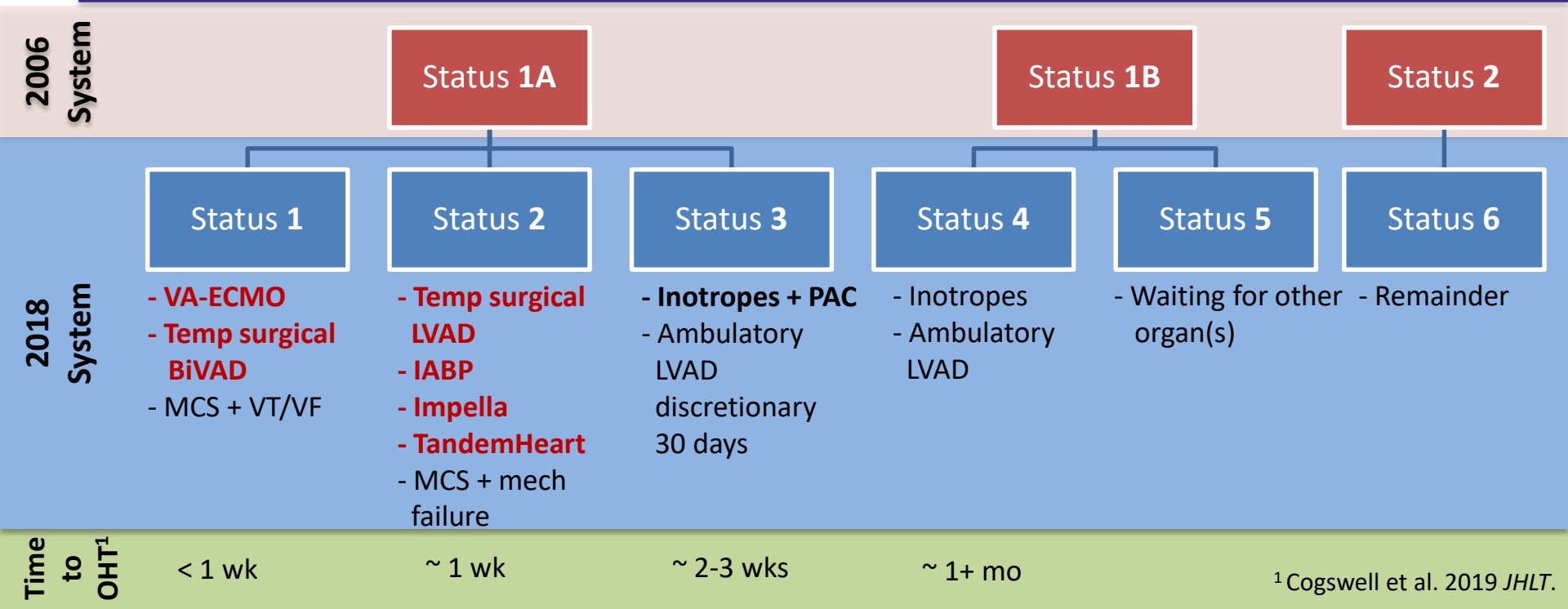
Disclosures

- I have no personal disclosures

Background

- In Oct 2018, a revised UNOS donor heart allocation system was implemented in an effort to reduce waitlist mortality
- The revised system prioritizes patients supported with temporary MCS while awaiting heart transplant
- Whether the UNOS allocation system revision is associated with a shift in CS patient management is unknown

UNOS Donor Heart Allocation System Changes



¹Cogswell et al. 2019 *JHLT*.



Objective

To determine if temporary MCS use in CICUs has changed in U.S transplant centers since the UNOS donor heart allocation system revision

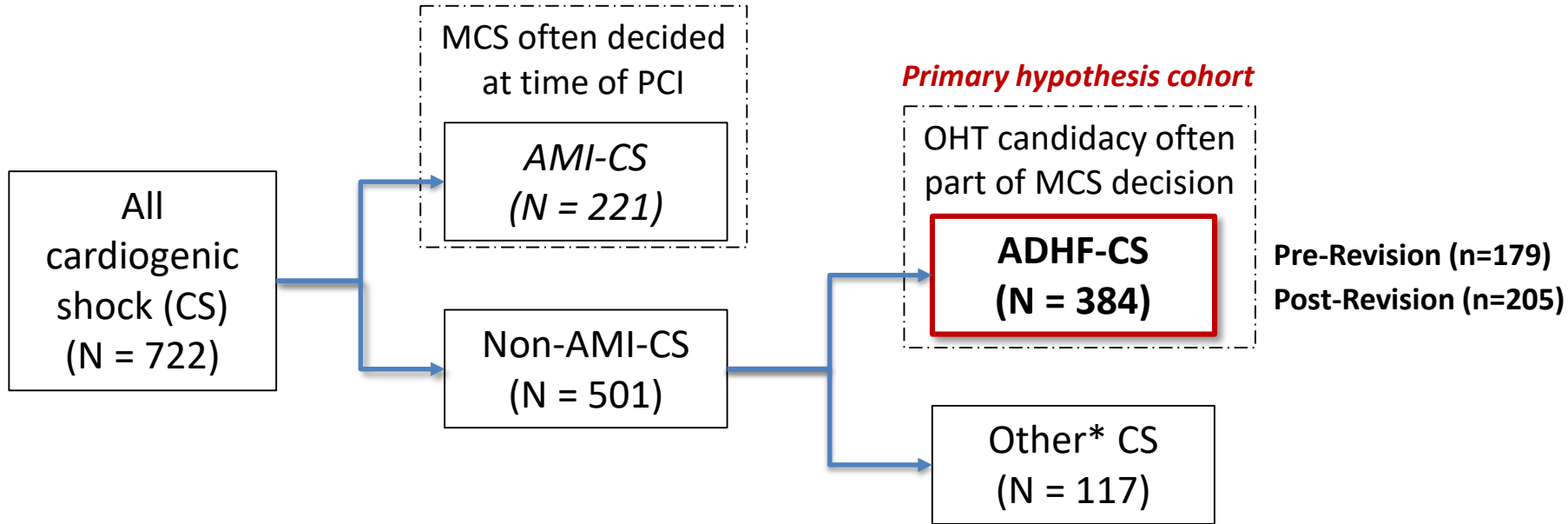
CCCTN Registry



- CCCTN is an investigator-initiated, multicenter network of tertiary CICUs in North America coordinated by TIMI Study Group
- U.S. transplant centers (N = 7) and other CICUs (N = 7) contributed 2-month snapshots of consecutive medical CICU admissions between:
 - 9/2017-9/2018 (Pre-Revision)
 - 10/2018-9/2019 (Post-Revision)



Study Population



* Post-cardiotomy CS, severe valve disease, etc

Temporary MCS *

- IABP
- Impella axial flow pump
- TandemHeart PVAS
- VA-ECMO
- Non-dischargeable, surgical VAD

* Multiple devices hierarchical classification:

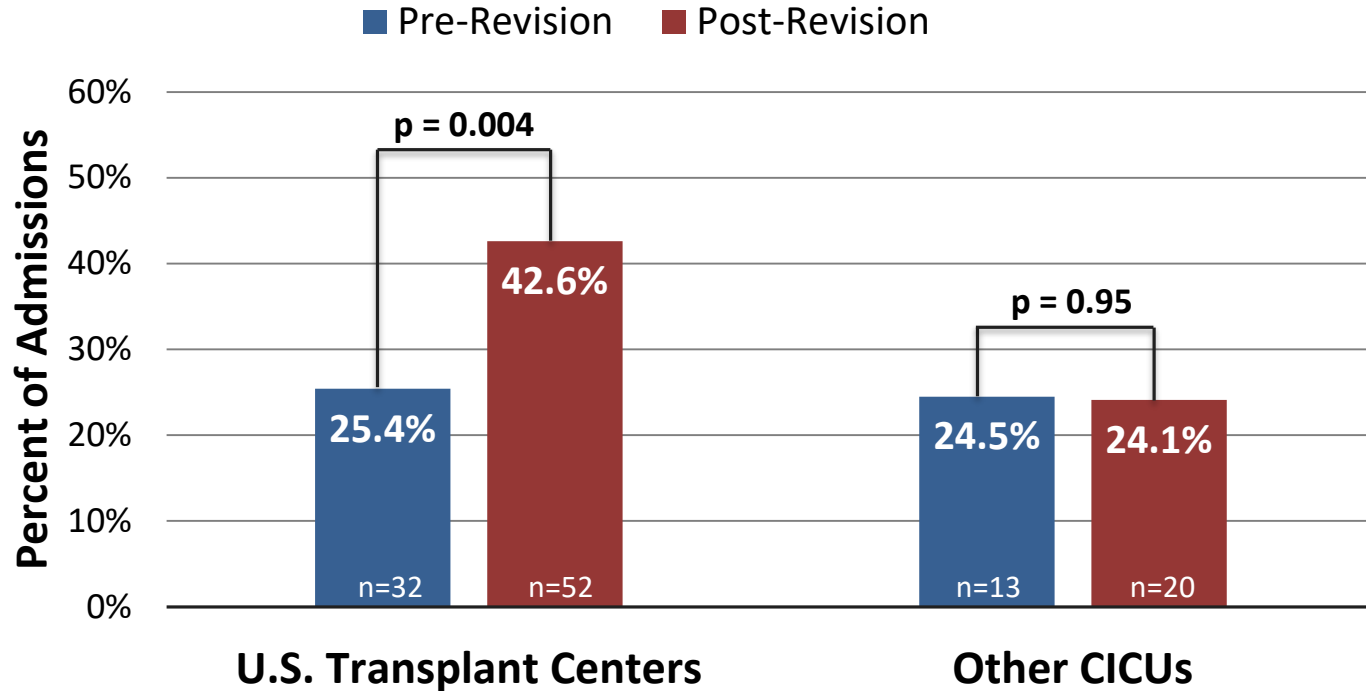
Non-dischargeable, surgical VAD > VA-ECMO > Impella or TandemHeart > IABP

Patient Characteristics

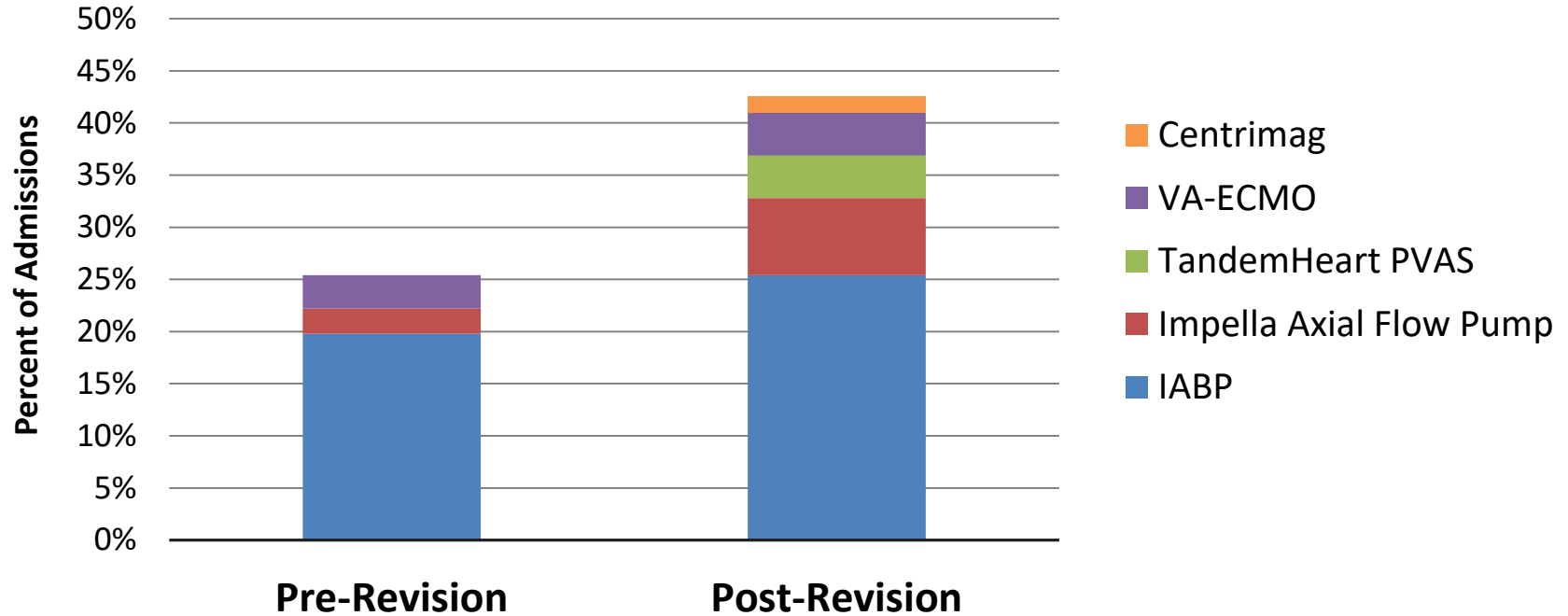
	U.S. Txplt Pre-Rev	U.S. Txplt Post-Rev	P-Value	Other CICUs Pre-Rev	Other CICUs Post-Rev	P-Value
Age	63 [54, 73]	61 [53, 68]	0.09	65 [58, 72]	63 [53, 74]	0.78
Coronary artery disease	41.3%	41.8%	0.93	47.2%	36.1%	0.20
Cardiac Arrest	16.7%	18.9%	0.65	18.9%	14.5%	0.50
Lactate (mmol/L)	3.4 [1.8, 6.5]	2.9 [1.7, 5.4]	0.27	2.7 [1.7, 6.9]	3.6 [1.8, 5.6]	0.52
SCr (mg/dL)	1.7 [1.4, 3.1]	2.1 [1.4, 3.1]	0.40	2.1 [1.6, 3.2]	2.2 [1.6, 3.4]	0.55



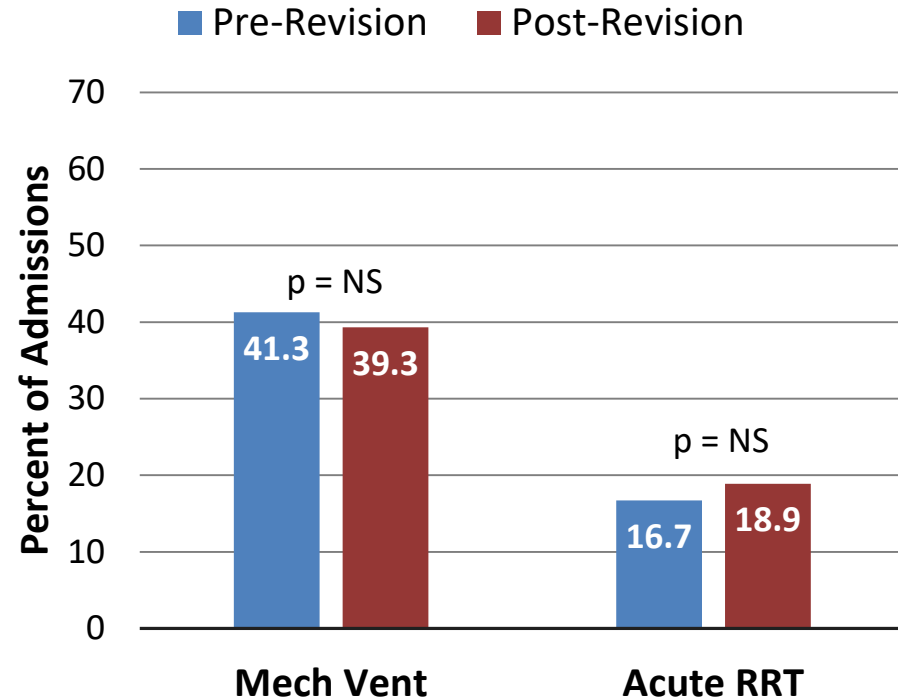
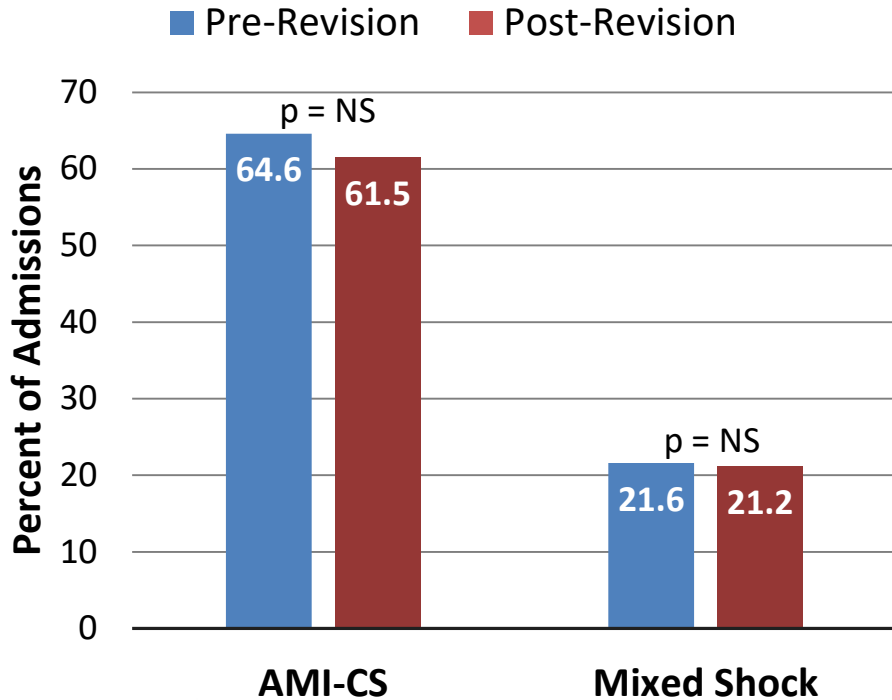
Temporary MCS Use in U.S. Transplant Centers & Other CICUs Pre- and Post-Revision of UNOS Allocation



Temporary MCS Device Breakdown in U.S. Transplant Centers



Falsification Analyses: Temporary MCS Use in Other Types of CS, Mech Vent, and RRT (U.S. Transplant Centers)



Limitations

- Sample size is limited
- Patients managed *exclusively* in surgical ICUs were not captured, which may affect VA-ECMO and CentriMag estimates
 - *Applies to both study periods, and thus shouldn't influence the primary comparison*
- Transplant listing status not captured
- Unable to exclude an influence of secular temporal trends in MCS use
 - *Falsification analyses support robustness of primary findings*

Summary

- **In the year following the UNOS donor heart allocation system changes:**
 - ❑ Temporary MCS use ↑ significantly in ADHF-CS patients in U.S. transplant centers
 - ❑ No change in temporary MCS among ADHF-CS patients in other CICUs or for other types of CS in U.S. transplant centers
- **Prioritization of temporary MCS in the revised UNOS system may have influenced management strategy for ADHF-CS at U.S. transplant centers**
- The impact of this shift on ADHF-CS patient outcomes and organ distribution should be evaluated



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