The majority of CICU presentations of cardiogenic shock (CS) with de novo heart failure (HF) or acute-on-chronic HF with CS (HF-CS) was 26.5%. Acute on HF presentations were 35%, while chronic presentations were 67.0% (58.0% for HF). The Critical Care Cardiology Trials Network (CCCTN) is a multicenter network of advanced CICUs in North America. Between 2017-2019, each center contributed 2-month snapshots of consecutive ICU admissions. CS was defined as sustained hemodynamic impairment due to low cardiac output. Patients with primary ventricular dysfunction were classified as either de novo or acute-on-chronic HF-CS based on pre-existing diagnoses of HF. Additionally, we stratified by initial cardiac arrest.

### METHODS

- Critical Care Cardiology Trials Network (CCCTN) is a multicenter network of advanced CICUs in N. America.
- Between 2017-2019, each center contributed 2-month snapshots of consecutive ICU admissions. CS was defined as sustained hemodynamic impairment due to low cardiac output.
- Patients with primary ventricular dysfunction were classified as either de novo vs. acute-on-chronic HF-CS based on pre-existing diagnoses of HF. Additionally, we stratified by initial cardiac arrest.

### Study Population

- **All cardiac presentations (N = 3183)**
  - **AMIS-CS** 608
  - **Non-AMIS CS** 2575
- **De Novo HF-CS** N = 330; 10%
  - **Cardiac Arrest** N = 112 (34%)
- **Acute-on-Chronic HF-CS** N = 2005 (66%)
  - **Cardiac Arrest** N = 669 (33%)

### FIGURES, TABLES, AND RESULTS

#### Table. Patient Demographics

<table>
<thead>
<tr>
<th>Category</th>
<th>De Novo HF-CS N = 330</th>
<th>Acute-on-Chronic HF-CS N = 2005</th>
<th>P-value*</th>
<th>AMI-CS N = 688 (for reference)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, median (IQR)</td>
<td>61.0 (50.0-70.0)</td>
<td>62.0 (51.0-71.0)</td>
<td>0.11</td>
<td>67.0 (58.0-76.0)</td>
</tr>
<tr>
<td>Female Sex</td>
<td>37.3%</td>
<td>31.5%</td>
<td>0.04</td>
<td>32.4%</td>
</tr>
<tr>
<td>BMI, median (IQR)</td>
<td>27.8 (24.0-32.1)</td>
<td>27.5 (23.4-32.1)</td>
<td>0.75</td>
<td>27.8 (24.4-31.6)</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td>0.40</td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>61.4%</td>
<td>58.5%</td>
<td>62.9%</td>
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</tr>
<tr>
<td>African American</td>
<td>22.7%</td>
<td>26.5%</td>
<td>11.3%</td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>2.7%</td>
<td>1.8%</td>
<td>6.5%</td>
<td></td>
</tr>
<tr>
<td>Other/Unknown</td>
<td>13.2%</td>
<td>13.2%</td>
<td>15.2%</td>
<td></td>
</tr>
</tbody>
</table>

* P-value comparing de novo HF-CS and acute-on-chronic HF-CS

#### Fig. 1. Ventricular Failure by HF-CS Type

- **De Novo HF-CS**
  - **Left Ventricular** 32.7%
  - **Right Ventricular** 69.7%
  - **Bi-Ventricular** 4.8%

- **Acute-on-Chronic HF-CS**
  - **Left Ventricular** 35.6%
  - **Right Ventricular** 60.1%
  - **Bi-Ventricular** 4.3%

#### Fig. 2. SCAI Shock Class by HF-CS Type

- **De Novo HF-CS**
  - **SCAI A** 28%
  - **SCAI B** 26%
  - **SCAI C** 16%

- **Acute-on-Chronic HF-CS**
  - **SCAI A** 28%
  - **SCAI B** 26%
  - **SCAI C** 16%

- **AMI-CS**
  - **SCAI A** 28%
  - **SCAI B** 26%
  - **SCAI C** 16%

#### Fig. 3. Mortality by HF-CS Types

- **Cardiac arrest was more common in patients with de novo HF-CS (32%) vs. acute-on-chronic HF-CS (12%).**
- **Among patients with de novo HF-CS, in-hospital mortality was 34% among all patients and 24% after excluding those with cardiac arrest (Fig. 3).**

### CONCLUSIONS

- In contemporary CICUs, >1/4 of all presentations of HF-CS occurred in patients without pre-existing HF, with a distinct epidemiology vs pts with acute-on-chronic HF.
- Mortality rates were higher in patients with de novo HF-CS than those with acute-on-chronic HF-CS, though this relationship was attenuated after excluding patients with cardiac arrest (Fig. 3).

**DISCLOSURE OF FACULTY RELATIONSHIPS:**

The authors have no disclosures related to the content of this abstract.