**SUPPLEMENTAL MATERIALS**

**Supplemental Table 1:** Baseline Characteristics, Index Procedures and Cardiac Interventions for Single Ventricle Subgroups in the First Year of Life

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **HLHS****(n=154)** | **uCAVC****(n=88)** | **DORV****(n=45)** | **PA/IVS****(n=38)** | **Tri Atresia****(n=38)** | **AA/AS****(n=31)** | **DILV****(n=30)** | **Other****(n=13)** | **Overall****(n=437)** | **p-value** |
| **Characteristic** |
| Male | 92 (60%) | 43 (49%) | 28 (62%) | 19 (50%) | 17 (45%) | 14 (45%) | 18 (60%)  | 7 (54%) | 238 (54%) | 0.40 |
| Birth Weight (kg) | 3.20 (2.76, 3.50) | 3.00 (2.70, 3.32) | 3.14 (2.75, 3.50) | 3.00 (2.77, 3.37) | 3.06 (2.70, 3.42) | 2.82 (2.60, 3.24) | 3.27 (2.76, 3.72) | 2.94 (2.72, 3.17) | 3.04 (2.72, 3.45) | 0.12 |
| *Unknown* | 3 | 5 | 0 | 1 | 1 | 1 | 2 | 1 | 14 |  |
| Gestational Age (weeks) | 39.00 (37.00, 39.00) | 38.00 (37.00, 38.00) | 39.00 (37.00, 39.00) | 38.50 (37.00, 39.00) | 39.00 (38.00, 39.00) | 38.00 (37.00, 39.00) | 39.00 (37.00, 39.00) | 39.00 (35.00, 39.00) | 39.00 (37.00, 39.00) | 0.30 |
| *Unknown* | 6 | 5 | 0 | 4 | 2 | 0 | 1 | 0 | 18 |  |
| Non-cardiac Anatomic Abnormality | 8 (5.2%) | 19 (22%) | 3 (6.7%) | 3 (8.6%) | 4 (11%) | 3 (10%) | 3 (10%) | 2 (17%) | 45 (11%) | **0.01** |
| *Unknown* | 0 | 2 | 0 | 3 | 0 | 2 | 1 | 1 | 9 |  |
| Chromosomal Abnormality or Genetic Syndrome | 18 (12%) | 42 (49%) | 4 (8.9%) | 3 (8.6%) | 4 (11%) | 10 (34%) | 6 (21%) | 1 (8.3%) | 88 (21%) | **<0.01** |
| *Unknown* | 0 | 2 | 0 | 3 | 1 | 2 | 1 | 1 | 10 |  |
| **Ventricular Dominance** | **<0.01** |
| Balanced | 0 (0%) | 1 (1.1%) | 11 (24%) | 0 (0%) | 0 (0%) | 24 (77%) | 0 (0%) | 7 (54%) | 43 (9.8%) |  |
| Left | 0 (0%) | 26 (30%) | 4 (8.9%) | 38 (100%) | 38 (100%) | 0 (0%) | 30 (100%) | 5 (38%) | 141 (32%) |  |
| Right | 154 (100%) | 61 (69%) | 30 (67%) | 0 (0%) | 0 (0%) | 7 (23%) | 0 (0%) | 1 (7.7%) | 253 (58%) |  |
| **Index Procedure** | **<0.01** |
| Arch/PAB | 2 (1.3%) | 4 (4.5%) | 8 (18%) | 0 (0%) | 3 (7.9%) | 1 (3.2%) | 0 (0%) | 0 (0%) | 18 (4.1%) |  |
| Biventricular Repair | 3 (1.9%) | 9 (10%) | 1 (2.2%) | 1 (2.6%) | 0 (0%) | 13 (42%) | 0 (0%) | 1 (7.7%) | 28 (6.4%) |  |
| Ductal Stent | 0 (0%) | 3 (3.4%) | 3 (6.7%) | 9 (24%) | 1 (2.6%) | 0 (0%) | 1 (3.3%) | 2 (15%) | 19 (4.3%) |  |
| Heart Transplant | 3 (1.9%) | 2 (2.3%) | 1 (2.2%) | 1 (2.6%) | 0 (0%) | 1 (3.2%) | 0 (0%) | 0 (0%) | 8 (1.8%) |  |
| Hybrid Norwood | 9 (5.8%) | 0 (0%) | 1 (2.2%) | 0 (0%) | 1 (2.6%) | 1 (3.2%) | 0 (0%) | 0 (0%) | 12 (2.7%) |  |
| None | 0 (0%) | 6 (6.8%) | 4 (8.9%) | 0 (0%) | 6 (16%) | 0 (0%) | 2 (6.7%) | 0 (0%) | 18 (4.1%) |  |
| Norwood | 131 (85%) | 20 (23%) | 9 (20%) | 0 (0%) | 5 (13%) | 15 (48%) | 14 (47%) | 2 (15%) | 196 (45%) |  |
| Other | 2 (1.3%) | 2 (2.3%) | 1 (2.2%) | 0 (0%) | 2 (5.3%) | 0 (0%) | 0 (0%) | 2 (15%) | 9 (2.1%) |  |
| PAB | 2 (1.3%) | 12 (14%) | 8 (18%) | 0 (0%) | 5 (13%) | 0 (0%) | 8 (27%) | 1 (7.7%) | 36 (8.2%) |  |
| Shunt | 2 (1.3%) | 23 (26%) | 8 (18%) | 27 (71%) | 15 (39%) | 0 (0%) | 4 (13%) | 5 (38%) | 84 (19%) |  |
| TAPVRR | 0 (0%) | 7 (8.0%) | 1 (2.2%) | 0 (0%) | 0 (0%) | 0 (0%) | 1 (3.3%) | 0 (0%) | 9 (2.1%) |  |
| **Cardiac & Valvular Function** |
| Moderate/Severe Dominant Ventricular Dysfunction | 7 (4.5%) | 0 (0%) | 0 (0%) | 1 (2.6%) | 0 (0%) | 4 (13%) | 0 (0%) | 0 (0%) | 12 (2.7%) | **0.02** |
| Moderate/Severe Atrioventricular Valve Regurgitation | 13 (8.4%) | 11 (12%) | 7 (16%) | 4 (11%) | 0 (0%) | 2 (6.5%) | 0 (0%) | 0 (0%) | 37 (8.5%) | 0.07 |
| **ECMO Within First Year of Life** |
| ECMO | 36 (23%) | 21 (24%) | 8 (18%) | 7 (18%) | 7 (18%) | 9 (29%) | 5 (17%) | 3 (23%) | 96 (22%) | >0.90 |
| **Late Era (7/1/2013-12/31/2021)** |
| Late Era | 73 (47%) | 55 (62%) | 29 (64%) | 19 (50%) | 21 (55%) | 15 (48%) | 23 (77%) | 9 (69%) | 244 (56%) | **0.04** |
| **Cardiac Reinterventions Within First Year of Life** |
| Total Cardiac Catheterizations | 2 (1, 3) | 2 (1, 3) | 2 (1, 3) | 2 (2, 3) | 1 (1, 3) | 1 (1, 2) | 2 (1, 3) | 2 (1, 3) | 2 (1, 3) | 0.10 |
| Total Reoperations | 0 (0, 0) | 0 (0, 0) | 0 (0, 0) | 0 (0, 0) | 0 (0, 0) | 0 (0, 0) | 0 (0, 0) | 0 (0, 0) | 0 (0, 0) | **0.05** |
| Total Surgeries | 2 (2, 2) | 2 (1, 2) | 2 (1, 2) | 2 (1, 2) | 2 (1, 2) | 2 (1, 2) | 2 (2, 2) | 1 (1, 2) | 2 (1, 2) | **<0.01** |
| Total Hospitalizations | 3 (2, 4) | 3 (2, 4) | 2 (2, 4) | 3 (2, 4) | 3 (2, 4) | 2 (1, 3) | 3 (2, 5) | 3 (3, 4) | 3 (2, 4) | 0.20 |

AA/AS=Aortic Atresia/Aortic Stenosis, HLHS=Hypoplastic Left Heart Syndrome, uCAVC=Unbalanced Complete Atrioventricular Canal Defect, DORV=Double Outlet Right Ventricle, PA/IVS=Pulmonary Atresia with Intact Ventricular Septum, Tri Atresia=Tricuspid Atresia, DILV=Double Inlet Left Ventricle, PAB=Pulmonary Artery Banding, TAPVRR=Total Anomalous Pulmonary Venous Return Repair, ECMO=Extracorporeal Membrane Oxygenation

**Supplemental Table 2:** Median Number of Days Alive and Out of Hospital for Single Ventricle Subgroups in the First Year of Life

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **HLHS****(n=154)** | **uCAVC****(n=88)** | **DORV****(n=45)** | **PA/IVS****(n=38)** | **Tri Atresia****(n=38)** | **AA/AS****(n=31)** | **DILV****(n=30)** | **Other****(n=13)** | **Overall****(n=437)** |
| **Days Alive and Out of Hospital** | 248 (65, 308) | 274 (178, 314) | 295 (216, 328) | 300 (226, 332) | 308 (272, 335) | 262 (44, 308) | 296 (237, 324) | 285 (225, 327) | 278 (157, 319) |

AA/AS=Aortic Atresia/Aortic Stenosis, HLHS=Hypoplastic Left Heart Syndrome, uCAVC=Unbalanced Complete Atrioventricular Canal Defect, DORV=Double Outlet Right Ventricle, PA/IVS=Pulmonary Atresia with Intact Ventricular Septum, Tri Atresia=Tricuspid Atresia, DILV=Double Inlet Left Ventricle.

**Supplemental Table 3:** Median Number of Days Alive and Out of Hospital for Single Ventricle Subgroups in the First Year of Life by Index Procedure

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Arch/PAB****(n=18)** | **BiV Repair****(n=28)** | **Ductal Stent****(n=19)** | **Heart Tx****(n=8)** | **Hybrid Norwood****(n=12)** | **None****(n=18)** | **Norwood****(n=196)** | **Other****(n=9)** | **PAB****(n=36)** | **Shunt****(n=84)** | **TAPVRR****(n=9)** |
| **Days Alive and Out of Hospital** | 296 (171, 320) | 299 (228, 337) | 281 (239, 323) | 79 (0,161) | 0 (0, 294) | 336 (305, 353) | 263 (118, 309) | 107 (0, 200) | 307 (277, 329) | 290 (189, 327) | 194 (0, 300) |

PAB=Pulmonary Artery Banding, BiV=Biventricular, Tx=Transplant, TAPVRR=Total Anomalous Pulmonary Venous Return Repair

**Supplemental Table 4:** Median Number of Days Alive and Out of Hospital for Single Ventricle Patients Surviving Index Hospitalization

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **HLHS****(n=122)** | **uCAVC****(n=81)** | **DORV****(n=42)** | **PA/IVS****(n=36)** | **Tri Atresia****(n=33)** | **AA/AS****(n=26)** | **DILV****(n=30)** | **Other****(n=11)** | **Overall****(n=381)** |
| **Days Alive and Out of Hospital** | 276 (194, 312) | 281 (207, 317) | 298 (248, 328) | 306 (254, 334) | 317 (280, 336) | 277 (192, 317) | 296 (237, 324) | 309 (250, 332) | 290 (223, 322) |

AA/AS=Aortic Atresia/Aortic Stenosis, HLHS=Hypoplastic Left Heart Syndrome, uCAVC=Unbalanced Complete Atrioventricular Canal Defect, DORV=Double Outlet Right Ventricle, PA/IVS=Pulmonary Atresia with Intact Ventricular Septum, Tri Atresia=Tricuspid Atresia, DILV=Double Inlet Left Ventricle.

**Supplemental Table 5:** Baseline Characteristics, Index Procedures and Cardiac Interventions for Single Ventricle Patients Surviving Index Hospitalization

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **HLHS****(n=122)** | **uCAVC****(n=81)** | **DORV****(n=42)** | **PA/IVS****(n=36)** | **Tri Atresia****(n=33)** | **AA/AS****(n=26)** | **DILV****(n=30)** | **Other****(n=11)** | **Overall****(n=381)** | **p-value** |
| **Characteristic** |
| Male | 73 (60%) | 41 (51%) | 27 (64%) | 17 (47%) | 16 (48%) | 12 (46%) | 18 (60%)  | 7 (64%) | 211 (55%) | 0.60 |
| Birth Weight (kg) | 3.20 (2.89, 3.50) | 3.00 (2.76, 3.33) | 3.12 (2.76, 3.43) | 3.00 (2.79, 3.34) | 3.30 (2.71, 3.48) | 2.90 (2.60, 3.40) | 3.27 (2.76, 3.72) | 2.94 (2.75, 3.46) | 3.10 (2.77, 3.47) | 0.20 |
| *Unknown* | 1 | 5 | 0 | 1 | 1 | 1 | 2 | 1 | 12 |  |
| Gestational Age (weeks) | 39.00 (37.00, 39.00) | 38.00 (37.00, 39.00) | 39.00 (37.00, 39.00) | 39.00 (37.00, 39.00) | 39.00 (38.00, 39.00) | 38.00 (37.25, 39.00) | 39.00 (37.00, 39.00) | 39.00 (36.00, 39.00) | 39.00 (37.00, 39.00) | 0.60 |
| *Unknown* | 3 | 5 | 0 | 3 | 2 | 0 | 1 | 0 | 14 |  |
| Non-cardiac Anatomic Abnormality | 8 (6.6%) | 18 (23%) | 1 (2.4%) | 3 (9.1%) | 3 (9.1%) | 2 (8.3%) | 3 (10%) | 2 (20%) | 40 (11%) | **0.02** |
| *Unknown* | 0 | 2 | 0 | 3 | 0 | 2 | 1 | 1 | 9 |  |
| Chromosomal Abnormality or Genetic Syndrome | 12 (9.8%) | 40 (51%) | 2 (4.8%) | 3 (9.1%) | 2 (6.2%) | 8 (33%) | 6 (21%) | 1 (10%) | 74 (20%) | **<0.01** |
| *Unknown* | 0 | 2 | 0 | 3 | 1 | 2 | 1 | 1 | 10 |  |
| **Ventricular Dominance** | **<0.01** |
| Balanced | 0 (0%) | 1 (1.2%) | 11 (26%) | 0 (0%) | 0 (0%) | 21 (81%) | 0 (0%) | 7 (64%) | 40 (10%) |  |
| Left | 0 (0%) | 26 (32%) | 4 (9.5%) | 36 (100%) | 33 (100%) | 0 (0%) | 30 (100%) | 3 (27%) | 132 (35%) |  |
| Right | 122 (100%) | 54 (67%) | 27 (64%) | 0 (0%) | 0 (0%) | 5 (19%) | 0 (0%) | 1 (9.1%) | 209 (55%) |  |
| **Index Procedure** | **<0.01** |
| Arch/PAB | 2 (1.6%) | 4 (4.9%) | 7 (17%) | 0 (0%) | 2 (6.1%) | 1 (3.8%) | 0 (0%) | 0 (0%) | 16 (4.2%) |  |
| Biventricular Repair | 3 (2.5%) | 8 (9.9%) | 1 (2.4%) | 1 (2.8%) | 0 (0%) | 12 (46%) | 0 (0%) | 1 (9.1%) | 26 (6.8%) |  |
| Ductal Stent | 0 (0%) | 3 (3.7%) | 3 (7.1%) | 9 (25%) | 1 (3.0%) | 0 (0%) | 1 (3.3%) | 2 (18%) | 19 (5.0%) |  |
| Heart Transplant | 2 (1.6%) | 2 (2.5%) | 0 (0%) | 1 (2.8%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 5 (1.3%) |  |
| Hybrid Norwood | 3 (2.5%) | 0 (0%) | 0 (0%) | 0 (0%) | 1 (3.0%) | 0 (0%) | 0 (0%) | 0 (0%) | 4 (1.0%) |  |
| None | 0 (0%) | 6 (7.4%) | 4 (9.5%) | 0 (0%) | 6 (18%) | 0 (0%) | 2 (6.7%) | 0 (0%) | 18 (4.7%) |  |
| Norwood | 107 (88%) | 18 (22%) | 9 (21%) | 0 (0%) | 4 (12%) | 13 (50%) | 14 (47%) | 2 (18%) | 167 (44%) |  |
| Other | 1 (0.8%) | 2 (2.5%) | 1 (2.4%) | 0 (0%) | 1 (3.0%) | 0 (0%) | 0 (0%) | 0 (0%) | 5 (1.3%) |  |
| PAB | 2 (1.6%) | 12 (15%) | 8 (19%) | 0 (0%) | 5 (15%) | 0 (0%) | 8 (27%) | 1 (9.1%) | 36 (9.4%) |  |
| Shunt | 2 (1.6%) | 22 (27%) | 8 (19%) | 25 (69%) | 13 (39%) | 0 (0%) | 4 (13%) | 5 (45%) | 79 (21%) |  |
| TAPVRR | 0 (0%) | 4 (4.9%) | 1 (2.4%) | 0 (0%) | 0 (0%) | 0 (0%) | 1 (3.3%) | 0 (0%) | 6 (1.6%) |  |
| **Cardiac & Valvular Function** |
| Moderate/Severe Dominant Ventricular Dysfunction | 7 (5.7%) | 0 (0%) | 0 (0%) | 1 (2.8%) | 0 (0%) | 3 (12%) | 0 (0%) | 0 (0%) | 11 (2.9%) | **0.03** |
| Moderate/Severe Atrioventricular Valve Regurgitation | 11 (9.0%) | 9 (11%) | 5 (12%) | 4 (11%) | 0 (0%) | 2 (7.7%) | 0 (0%) | 0 (0%) | 31 (8.1%) | 0.20 |
| **Late Era** |
| Late Era | 62 (51%) | 51 (63%) | 26 (62%) | 19 (53%) | 18 (55%) | 14 (54%) | 23 (77%) | 9 (82%) | 222 (58%) | 0.13 |

AA/AS=Aortic Atresia/Aortic Stenosis, HLHS=Hypoplastic Left Heart Syndrome, uCAVC=Unbalanced Complete Atrioventricular Canal Defect, DORV=Double Outlet Right Ventricle, PA/IVS=Pulmonary Atresia with Intact Ventricular Septum, Tri Atresia=Tricuspid Atresia, DILV=Double Inlet Left Ventricle, PAB=Pulmonary Artery Banding, TAPVRR=Total Anomalous Pulmonary Venous Return Repair, ECMO=Extracorporeal Membrane Oxygenation