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| **Supplemental Table 1.** Summary of patient characteristics by different causes of death |
|  | **Sudden Cardiac Death\* N=463** | **Non-Sudden Cardiac Death\*****N=1712** | **Non-Cardiac Death\*****N=543** | **Alive at the end of the study** **N=27,848** |
| **Age at first surgery (years)** | 0.2 (0.0, 1.1) | 0.1 (0.0, 0.7) | 1.0 (0.2, 5.3) | 1.1 (0.2, 4.3) |
| **Sex** |  |  |  |  |
|  Female | 181 (39.1%) | 718 (41.9%) | 185 (34.1%) | 13400 (48.1%) |
|  Male | 282 (60.9%) | 994 (58.1%) | 358 (65.9%) | 14448 (51.9%) |
| **Physiology** |  |  |  |  |
|  *Two Ventricle lesions* |  |  |  |  |
|  APVR | 11 (2.4%) | 40 (2.3%) | 19 (3.5%) | 1364 (4.9%) |
|  TAPVR | 8 (1.7%) | 32 (1.9%) | 12 (2.2%) | 8 (1.7%) |
|  PAPVR | 3 (0.6%) | 8 (0.5%) | 7 (1.3%) | 746 (2.7%) |
|  LHOL | 60 (13.0%) | 226 (13.2%) | 96 (17.7%) | 4849 (17.4%) |
|  Cor-Triatriatum | 0 (0.00%) | 3 (0.2%) | 0 (0.00%) | 71 (0.3%) |
|  Mitral stenosis | 2 (0.4%) | 10 (0.6%) | 3 (0.6%) | 54 (0.2%) |
|  Aortic stenosis | 18 (3.9%) | 67 (3.9%) | 30 (5.5%) | 1132 (4.1%) |
|  Coarctation | 28 (6.0%) | 126 (7.4%) | 56 (10.3%) | 3423 (12.3%) |
|  Interrupted aortic arch | 12 (2.6%) | 20 (1.2%) | 7 (1.3%) | 169 (0.6%) |
|  L-R shunts | 91 (19.7%) | 260 (15.2%) | 262 (48.3%) | 13339 (47.9%) |
|  ASD | 23 (5.0%) | 50 (2.9%) | 99 (18.2%) | 5375 (19.3%) |
|  PDA  | 6 (1.3%) | 28 (1.6%) | 67 (12.3%) | 2679 (9.6%) |
|  VSD | 45 (9.7%) | 108 (6.3%) | 87 (16.0%) | 4842 (17.4%) |
|  CCAVC | 17 (3.7%) | 74 (4.3%) | 9 (1.7%) | 443 (1.6%) |
|  RVOTO | 83 (17.9%) | 300 (17.5%) | 67 (12.3%) | 3694 (13.3%) |
|  Pulmonary stenosis  | 9 (1.9%) | 17 (1.0%) | 15 (2.8%) | 646 (2.3%) |
|  PA/IVS | 3 (0.6%) | 16 (0.9%) | 2 (0.4%) | 173 (0.6%) |
|  TOF | 71 (15.3%) | 267 (15.6%) | 50 (9.2%) | 2875 (10.3%) |
|  DTGA | 45 (9.7%) | 126 (7.4%) | 17 (3.1%) | 1533 (5.5%) |
|  Truncus arteriosus | 9 (1.9%) | 38 (2.2%) | 3 (0.6%) | 144 (0.5%) |
|  Miscellaneous  | 38 (8.2%) | 111 (6.5%) | 46 (8.5%) | 1577 (5.7%) |
|  LTGA | 10 (2.2%) | 27 (1.6%) | 3 (0.6%) | 114 (0.4%) |
|  Tricuspid Valve Anomalies | 7 (1.5%) | 15 (0.9%) | 4 (0.7%) | 118 (0.4%) |
|  Other | 36 (7.8%) | 141 (8.2%) | 11 (2.0%) | 324 (1.2%) |
|  Systemic Valvar Insufficiency | 6 (1.3%) | 40 (2.3%) | 11 (2.0%) | 326 (1.2%) |
|  *Single Ventricle* | 126 (27.2%) | 611 (35.7%) | 33 (6.1%) | 1348 (4.8%) |
|  Left  | 37 (8.0%) | 202 (11.8%) | 12 (2.2%) | 666 (2.4%) |
|  Right  | 53 (11.4%) | 268 (15.7%) | 10 (1.8%) | 358 (1.3%) |
|  Non-classifiable | 36 (7.8%) | 141 (8.2%) | 11 (2.0%) | 324 (1.2%) |
| **Severity** |  |  |  |  |
| Mild | 50 (10.8%) | 127 (7.4%) | 216 (39.8%) | 10542 (37.9%) |
| Moderate | 113 (24.4%) | 358 (20.9%) | 168 (30.9%) | 10082 (36.2%) |
| Severe 2V | 125 (27.0%) | 428 (25.0%) | 62 (11.4%) | 3533 (12.7%) |
| Single ventricle | 126 (27.2%) | 611 (35.7%) | 33 (6.1%) | 1348 (4.8%) |
| Non-classifiable | 49 (10.6%) | 188 (11.0%) | 64 (11.8%) | 2343 (8.4%) |
| **Surgical era** |  |  |  |  |
| Early (1982-1992) | 240 (51.8%) | 680 (39.7%) | 223 (41.1%) | 7765 (27.9%) |
| Middle (1993-1997) | 126 (27.2%) | 536 (31.3%) | 187 (34.4%) | 9309 (33.4%) |
| Late (1998-2003) | 97 (21.0%) | 496 (29.0%) | 133 (24.5%) | 10774 (38.7%) |
| **Duration of follow-up in years (IQR)** | 1.2 (0.3, 11.2) | 1.0 (0.2, 8.4) | 13.6 (3.1, 20.5) | 23.6 (20.2, 27.6) |
| **Age at death in years (IQR)** | 1.7 (0.6, 16.5) | 1.5 (0.5,12.8) | 18.3 (5.1, 24.7) | -- |
| Numbers in parentheses represent % by columns in each category, except if otherwise indicated. IQR=interquartile range (Q1, Q3). The number of patients studied by lesion are listed Table 1.APVR=anomalous pulmonary venous return, TAPVR=total APVR, PAPVR=partial APVR, L-R=left-to-right, ASD=atrial septal defect, PDA=patent ductus arteriosus, VSD=ventricular septal defect, CCAVC=complete common atrioventricular canal, RVOTO=right ventricular outflow tract obstruction, PA/IVS=pulmonary atresia with intact ventricular septum, DTGA=dextro-transposed great arteries (transposition physiology), LTGA=levo-transposed great arteries, 2V=two-ventricle |

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| **Supplemental Table 2.** Other underlying or contributing causes of death among patients with a code consistent with sudden cardiac death |
| **Classification of diseases and injuries** | **N (%)** |
| Disease of the Circulatory System | 463 (100) |
| Congenital Heart Disease | 318 (68.7) |
| Symptoms, signs, and ill-defined conditions | 76 (16.4) |
| Disease of the respiratory system | 59 (12.7) |
| Other Congenital Disease | 51 (11.0) |
| External causes of injury and poisoning  | 53 (11.5) |
| Infectious and parasitic diseases | 37 (8.0) |
| Disease of the nervous system  | 38 (8.2) |
| Endocrine, nutritional, metabolic and immunity disorders | 32 (6.9) |
| Diseases of the digestive system | 24 (5.2) |
| Disease of the genitourinary system | 19 (4.1) |
| Certain conditions originating in the perinatal period | 11 (2.4) |
| Diseases of the blood and blood-forming organs | 7 (1.5) |
| Neoplasms | 6 (1.3) |
| Mental Disorders | 5 (1.1) |
| Disease of musculoskeletal system and connective tissue | 1 (0.2) |

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| **Supplemental Table 3. Other cardiac conditions at time of death (excluding SCD)** |
| **Condition** | **N (%)** |
| CHD | 318 (68.7) |
| Heart Failure | 63 (13.6) |
| Arrhythmia or Conduction Disorder | 33 (7.1) |
| Pulmonary Heart Disease | 19 (4.1) |
| Cerebrovascular Disease | 18 (3.9) |
| Ischemic Heart Disease | 15 (3.2) |
| Cardiomyopathy | 15 (3.2) |
| Other Heart Disease | 69 (14.9) |
| SCD=sudden cardiac death, CHD=congenital heart disease |