

Supplemental Material

Appendix

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Table S1. Univariate logistic regression analysis for risk factors associated with post-operative mortality after the Norwood procedure (N=117): Odd ratio and 95% Confidence Interval.

| Variables | OR (95% CI) | P |
|------------------------|-------------------|-------|
| Female sex | 1.93 (0.79, 4.70) | 0.148 |
| Birth Weight, kg | 0.31 (0.13, 0.73) | 0.007 |
| Birth weight <2.5kg | 2.58 (0.67, 9.93) | 0.169 |
| Gestational Age, weeks | 0.73 (0.57, 0.93) | 0.011 |
| Antenatal diagnosis | 0.55 (0.23, 1.33) | 0.184 |
| Pre-Norwood | | |
| Highest lactate | 1.10 (0.98, 1.24) | 0.112 |
| Lowest pH | 0.20 (0.01, 4.59) | 0.312 |
| Lowest PaO2 | 0.95 (0.89, 1.03) | 0.211 |
| Lowest base deficit | 0.96 (0.89, 1.03) | 0.216 |
| Inotrope score | 1.00 (0.98, 1.02) | 0.964 |
| Ventilation, days | 1.08 (1.02, 1.15) | 0.010 |
| CPR | Exclude – only 4 | |

| | | |
|------------------------|----------------------|---------|
| ECMO | Exclude – only 3 | |
| Operative – Norwood | | |
| Age at Norwood, days | 1.02 (0.97, 1.09) | 0.412 |
| Norwood Sano (vs BT) | 0.25 (0.096, 0.66) | 0.005 |
| CPB, min | 1.01 (1.003, 1.02) | 0.005 |
| ACC, min | 1.00 (0.98, 1.03) | 0.913 |
| DHCA, min | 1.01 (0.99, 1.03) | 0.387 |
| Norwood POD 1 | | |
| Highest lactate | 1.09 (0.997, 1.20) | 0.059 |
| Lowest pH | 0.025 (0.0002, 2.88) | 0.127 |
| Lowest paO2 | 1 (0.94, 1.06) | 1.000 |
| Highest inotrope score | 1.03 (1.002, 1.05) | 0.035 |
| Norwood POD 2-5 | | |
| Highest lactate | 1.25 (1.11, 1.41) | <0.0001 |
| Lowest pH | 0.99 (0.98, 0.99) | 0.001 |
| Lowest paO2 | 1.01 (0.92, 1.11) | 0.829 |

| | | |
|-------------------------|--------------------|---------|
| Highest inotrope score | 1.06 (1.02, 1.09) | 0.001 |
| Norwood Overall | | |
| Convulsions | 0.42 (0.049, 3.48) | 0.418 |
| CPR | 13.6 (3.79, 48.7) | <0.0001 |
| Dialysis | 5.53 (2.17, 14.1) | <0.0001 |
| Open sternum, days | 1.13 (1.04, 1.24) | 0.004 |
| Sepsis (pre or post op) | 1.00 (0.36, 2.81) | 1.000 |

Table S2. Univariate linear regression analysis for factors associated with FSIQ (Full-Scale IQ), PIQ (Performance IQ), VIQ (Verbal IQ) and VMI (Visual-Motor Integration) at 48-72 months of age, after surgical palliation for classic HLHS (N=68):
Linear regression coefficient (beta) and 95% Confidence Interval.

| Variables | Full-Scale IQ | | Performance IQ | | Verbal IQ | | VMI | |
|-----------------------|-----------------------|---------|-----------------------|---------|-------------------------|---------|------------------------|---------|
| | Coefficient (95% CI) | p-value | Coefficient (95% CI) | p-value | Coefficient (95% CI) | p-value | Coefficient (95% CI) | p-value |
| Female sex | 6.43(-0.23, 0.92) | 0.134 | 4.65 (-3.73, 13.04) | 0.272 | 6.98 (-2.07, 16.03) | 0.129 | 6.37 (-1.40, 14.13) | 0.107 |
| Birth Weight, kg | 5.47 (-1.86, 12.80) | 0.141 | 5.10 (-2.1, 12.31) | 0.162 | 5.77 (-1.96, 12.80) | 0.147 | 4.98 (-1.77, 11.72) | 0.145 |
| Antenatal diagnosis | 2.26 (-5.63, 10.14) | 0.570 | 3.58 (-4.14, 11.29) | 0.358 | 2.07 (-6.37, 10.51) | 0.626 | 1.92 (-5.34, 9.18) | 0.599 |
| Pre-Fontan disability | 18.83 (-28.90, -8.76) | <0.001 | -15.2 (-25.42, -4.98) | <0.004 | -21.01 (-31.68, -10.34) | <0.002 | -11.61 (-21.40, -1.83) | 0.021 |
| Pre-Norwood | | | | | | | | |
| Highest lactate | -0.51 (-1.82, 0.80) | 0.441 | -0.44 (-1.73, 0.85) | 0.500 | -0.56 (-1.97, 0.840) | 0.426 | 0.045 (-1.17, 1.26) | 0.941 |
| Lowest pH | 30.22 (-2.23, 62.66) | 0.067 | 20.7 (-11.63, 52.04) | 0.206 | 34.96 (0.41, 69.50) | 0.047 | 19.52 (-10.71, 49.76) | 0.202 |
| Lowest PaO2 | 0.35 (-0.23, 0.92) | 0.234 | 0.17 (-.39, 0.74) | 0.543 | 0.29 (-0.33, 0.91) | 0.354 | 0.31 (-0.22, 0.84) | 0.252 |
| Lowest base deficit | 0.55 (-0.23, 1.33) | 0.164 | 0.52 (-0.25, 1.23) | 0.181 | 0.51 (-0.33, 1.35) | 0.232 | 0.24 (-0.49, 0.97) | 0.509 |
| Inotrope score | -0.11 (-0.42, 0.19) | 0.461 | -0.02 (-0.32, 0.28) | 0.910 | -0.13 (-0.46, 0.20) | 0.427 | 0.029 (-0.25, 0.31) | 0.836 |
| Ventilation time | -1.10 (-1.75, -0.44) | 0.001 | -0.72 (-1.39, -0.05) | 0.036 | -1.52 (-2.17, -0.86) | <0.001 | -0.98 (-1.58, -0.37) | 0.002 |
| Norwood - Operative | | | | | | | | |
| Age at Norwood, days | -0.97 (-1.68, -0.27) | 0.008 | -0.70 (-1.42, 0.01) | 0.052 | -1.45 (-2.16, -0.73) | <0.001 | -0.69 (-1.36, -0.03) | 0.042 |
| CPB, min | -0.03 (-0.11, 0.06) | 0.543 | -0.01 (-0.10, 0.72) | 0.761 | -0.05 (-0.14, 0.05) | 0.314 | -0.04 (-0.12, 0.03) | 0.261 |
| ACC, min | 0.04 (-0.21, 0.30) | 0.735 | -0.06 (-0.31, 0.20) | 0.661 | 0.16 (-0.11, 0.43) | 0.250 | 0.08 (-0.16, 0.32) | 0.505 |
| DHCA, min | -0.09 (0.31, 0.13) | 0.430 | -0.13 (-0.35, 0.08) | 0.230 | -0.01 (-0.25, 0.22) | 0.912 | -0.06 (-0.26, 0.15) | 0.591 |

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|------------------------|------------------------|-------|-----------------------|-------|-----------------------|--------|------------------------|-------|
| Norwood POD 1 | | | | | | | | |
| Highest lactate | -0.35 (-1.45, 0.74) | 0.520 | -0.57 (-1.64, 0.50) | 0.289 | -0.43 (-1.60, 0.73) | 0.461 | -0.13 (-1.13, 0.88) | 0.804 |
| Lowest pH | 2.79 (-52.66, 58.24) | 0.920 | -5.23 (-59.66, 49.21) | 0.849 | 5.17 (-54.12, 64.46) | 0.862 | -18.41 (-69.21, 32.39) | 0.472 |
| Lowest paO2 | 1.32 (0.30, 2.34) | 0.012 | 1.40 (0.41, 2.40) | 0.006 | 1.27 (0.17, 2.38) | 0.025 | 0.80 (-0.17, 1.76) | 0.105 |
| Highest inotrope score | 0.03 (-0.29, 0.35) | 0.843 | 0.02 (-0.30, 0.34) | 0.888 | 0.06 (-0.28, 0.40) | 0.715 | -0.06 (-0.35, 0.24) | 0.710 |
| Norwood POD 2-5 | | | | | | | | |
| Highest lactate | -0.82 (-2.82, 1.19) | 0.419 | -0.27 (-2.24, 1.71) | 0.788 | -1.10 (-3.23, 1.04) | 0.309 | 0.19 (-1.66, 2.04) | 0.841 |
| Lowest pH | 68.28 (-7.23, 143.80) | 0.076 | 42.8 (-32.46, 117.99) | 0.260 | 71.72 (-9.10, 152.55) | 0.081 | 10.86 (-60.23, 81.96) | 0.761 |
| Lowest paO2 | 0.59 (-0.41, 1.60) | 0.240 | 0.57 (-0.42, 1.55) | 0.254 | 0.92 (-0.14, 1.98) | 0.086 | 0.16 (-0.77, 1.09) | 0.739 |
| Highest inotrope score | -0.30 (-0.77, 0.18) | 0.220 | -0.18 (-0.66, 0.29) | 0.444 | -0.38 (-0.89, 0.13) | 0.139 | 0.10 (-0.344, 0.54) | 0.657 |
| Norwood overall | | | | | | | | |
| Ventilation, days | -0.52 (-0.85, -0.19) | 0.002 | -0.40 (-0.69, -0.02) | 0.038 | -0.62 (-0.97, -0.27) | <0.001 | -0.47 (-0.77, -0.16) | 0.003 |
| ICU LOS, days | -0.19 (-0.39, < 0.001) | 0.055 | -0.17 (-0.36, 0.03) | 0.089 | -0.14 (-0.36, 0.07) | 0.191 | -0.01 (-0.20, 0.18) | 0.912 |
| Hospitalization, days | -0.21 (-0.35, -0.07) | 0.004 | -0.13 (-0.28, 0.01) | 0.070 | -0.20 (-0.35, -0.05) | 0.011 | -0.08 (-0.22, 0.06) | 0.246 |
| Convulsions (patients) | -9.60 (-20.94, 1.74) | 0.096 | -6.96 (-18.21, 4.28) | 0.220 | -9.66 (-21.82, 2.502) | 0.118 | -5.49 (-16.06, 5.08) | 0.304 |
| Dialysis (patients) | 3.87 (-6.74, 14.49) | 0.469 | 7.28 (-3.04, 17.59) | 0.164 | -1.42 (-12.81, 9.98) | 0.805 | 1.60 (-8.20, 11.40) | 0.746 |

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|---------------------|------------------------|-------|------------------------|-------|------------------------|-------|-----------------------|-------|
| Open sternum, days | 0.24 (-1.10, 1.58) | 0.719 | 0.39 (-0.92, 1.70) | 0.557 | 0.13 (-1.31, 1.56) | 0.862 | 0.42 (-0.81, 1.65) | 0.500 |
| Sepsis (patients) | -12.65 (-21.16, -4.13) | 0.004 | -11.65 (-20.08, -3.22) | 0.008 | -11.37 (-20.66, -2.09) | 0.017 | -7.18 (-15.33, 0.97) | 0.083 |
| BCPA | | | | | | | | |
| Age at BCPA, months | -0.28 (-2.10, 1.54) | 0.76 | -0.41 (-2.20, 1.37) | 0.648 | -0.21 (-2.15, 1.73) | 0.828 | -1.18 (-2.83, 0.46) | 0.156 |
| Weight at BCPA, kg | 2.62 (-1.10, 6.34) | 0.164 | 2.75 (-0.90, 6.39) | 0.137 | 2.25 (-1.75, 6.25) | 0.266 | 1.15 (-2.31, 4.61) | 0.511 |
| CPB, min | -0.03 (-0.20, 0.14) | 0.712 | -0.14 (-0.31, 0.03) | 0.095 | 0.03 (-0.15, 0.22) | 0.718 | -0.08 (-0.24, 0.08) | 0.302 |
| DHCA | -0.93 (-15.97, 14.11) | 0.902 | -3.09 (-17.84, 11.66) | 0.677 | -5.85 (-21.87, 10.17) | 0.468 | 1.50 (-12.32, 15.33) | 0.829 |
| BCPA POD 1 | | | | | | | | |
| Inotrope score | -0.90 (-1.63, -0.16) | 0.018 | -0.91 (-1.63, -0.19) | 0.014 | -0.82 (-1.61, -0.02) | 0.044 | -0.64 (-1.33, 0.05) | 0.069 |
| Highest lactate | -2.47 (-4.68, -0.27) | 0.029 | -3.21 (-5.32, -1.11) | 0.003 | -1.49 (-3.91, 0.93) | 0.224 | -1.68 (-3.75, 0.38) | 0.108 |
| Lowest PaO2 | 0.76 (0.15, 1.36) | 0.015 | 0.80 (0.20, 1.39) | 0.009 | 0.58 (0.08, 1.25) | 0.084 | 0.31 (-0.27, 0.89) | 0.291 |
| Highest creatinine | -0.34 (-0.65, -0.04) | 0.029 | -0.29 (-0.60, 0.008) | 0.056 | -0.29 (-0.62, 0.04) | 0.085 | -0.30 (-0.58, -0.02) | 0.038 |
| Highest glucose | -0.41 (-1.28, 0.46) | 0.348 | -0.32 (-1.18, 0.54) | 0.456 | -0.61 (-1.53, 0.32) | 0.196 | -0.35 (-1.15, 0.45) | 0.387 |
| Lowest pH | 35.91 (-38.63, 110.46) | 0.340 | 22.70 (-50.80, 96.18) | 0.540 | 43.60 (-35.95, 123.16) | 0.278 | -1.34 (-70.38, 67.70) | 0.969 |
| BCPA POD 2-5 | | | | | | | | |
| Highest lactate | -4.32 (-8.60, -0.05) | 0.048 | -5.8 (-9.88, -1.72) | 0.006 | -2.01 (-6.70, 2.67) | 0.395 | -3.05 (-7.03, 0.93) | 0.131 |

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|------------------------|-----------------------|-------|-----------------------|-------|-----------------------|-------|------------------------|-------|
| Lowest pH | 97.3 (12.34, 182.31) | 0.025 | 93.97 (10.41, 177.53) | 0.028 | 87.97 (-3.94, 179.87) | 0.060 | 104.03 (26.96, 181.10) | 0.009 |
| Lowest PaO2 | 0.81 (0.19, 1.43) | 0.011 | 0.80 (0.19, 1.40) | 0.011 | 0.78 (0.11, 1.45) | 0.023 | 0.68 (0.11, 1.26) | 0.020 |
| Highest creatinine | -0.23 (-0.51, 0.05) | 0.107 | -0.30 (-0.57, -0.02) | 0.034 | -0.15 (-0.45, 0.15) | 0.329 | -0.19 (-0.45, 0.07) | 0.148 |
| Highest inotrope score | -0.50 (-1.54, 0.53) | 0.336 | -1.17 (-2.16, -0.19) | 0.020 | 0.16 (-0.95, 1.27) | 0.774 | -0.26 (-1.21, 0.70) | 0.590 |
| BCPA overall | | | | | | | | |
| Ventilation, days | -1.60 (-2.79, -0.40) | 0.010 | -1.90 (-3.04, -0.75) | 0.002 | -1.31 (-2.62, -0.01) | 0.048 | -1.41 (-2.51, 0.31) | 0.013 |
| ICU LOS, days | -0.66 (-1.46, 0.14) | 0.106 | -1.15 (-1.90, -0.40) | 0.003 | -0.33 (-1.20, 0.53) | 0.444 | -0.80 (-1.53, -0.08) | 0.030 |
| Hospitalization, days | -0.21 (-0.41, -0.01) | 0.035 | -0.19 (-0.38, 0.01) | 0.061 | -0.18 (-0.39, 0.04) | 0.105 | -0.13 (-0.31, 0.06) | 0.181 |
| Fontan | | | | | | | | |
| Age at Fontan, years | -6.84 (-11.28, -2.28) | 0.004 | -6.36 (-11.1, -1.92) | 0.005 | -5.88 (-11.1, -0.96) | 0.020 | -4.08 (-8.4, -0.24) | 0.065 |
| Year of Fontan | 0.02 (-0.98, 1.03) | 0.963 | 0.41 (-0.58, 1.39) | 0.410 | -0.30 (-1.38, 0.77) | 0.573 | 0.46 (-0.46, 1.38) | 0.322 |
| Weight at Fontan, kg | -1.82 (-4.13, 0.49) | 0.120 | -1.63 (-3.91, 0.64) | 0.156 | -1.60 (-4.08, 0.89) | 0.204 | -1.47 (-3.60, 0.66) | 0.173 |
| CPB, min | -0.08 (-0.25, 0.08) | 0.322 | -0.04 (-0.206, 0.12) | 0.622 | -0.14 (-0.32, 0.03) | 0.107 | -0.06(-0.21, 0.10) | 0.469 |
| DHCA | 4.08 (-12.58, 20.73) | 0.627 | 2.64 (-13.73, 19.01) | 0.748 | 2.58 (-15.25, 20.41) | 0.774 | -1.28 (-16.62, 14.06) | 0.868 |
| Fontan type | 1.61 (-6.06, 9.28) | 0.676 | 1.13 (-6.41, 8.67) | 0.78 | 1.48 (-6.73, 9.69) | 0.720 | -1.70 (-8.75, 5.35) | 0.632 |

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|---------------------------------|-----------------------|-------|---------------------------|-------|------------------------|-------|-----------------------|-------|
| Fenestration | -5.61 (-16.18, 4.96) | 0.293 | -8.79 (-19.04, 1.45) | 0.091 | -5.63 (-16.95, 5.68) | 0.324 | -2.68 (-12.47, 7.10) | 0.586 |
| Transferred to ICU intubated | -2.87 (-10.72, 4.98) | 0.467 | -6.09 (-13.69, 1.50) | 0.114 | -0.80 (-9.23, 7.63) | 0.851 | -6.38 (-13.46, 0.70) | 0.077 |
| Fontan POD 1 | | | | | | | | |
| Highest lactate | -2.16 (-4.45, 0.13) | 0.064 | -2.32 (-4.55, -0.08) | 0.042 | -1.68 (-4.16, 0.80) | 0.181 | -2.31 (-4.40, -0.23) | 0.030 |
| Lowest PaO2 | 0.10 (-0.19, 0.38) | 0.509 | 0.22 (-0.06, 0.50) | 0.119 | 0.07 (-0.23, 0.38) | 0.636 | 0.14 (-0.13, 0.40) | 0.301 |
| Highest pH | 35.0 (-60.91, 130.95) | 0.469 | 20.90 (-73.54, 115.33) | 0.660 | 54.80 (-47.36, 156.88) | 0.288 | 18.7 (-69.79, 107.13) | 0.675 |
| Highest creatinine | -0.10 (-0.29, 0.09) | 0.302 | -0.11 (-0.30, 0.08) | 0.263 | -0.06 (-0.27, 0.15) | 0.584 | -0.03 (-0.21, 0.15) | 0.723 |
| Highest inotrope score | -0.11 (-0.55, 0.33) | 0.617 | -0.11 (-0.537, 0.33) | 0.629 | -0.07 (-0.54, 0.40) | 0.759 | -0.23 (-0.63, 0.17) | 0.259 |
| Fontan POD 2-5 | | | | | | | | |
| Highest lactate | -1.07 (-4.29, 2.15) | 0.508 | -1.17 (-4.33, 2.00) | 0.464 | -0.98 (-4.43, 2.47) | 0.573 | -0.93 (-3.90, 2.03) | 0.532 |
| Lowest PaO2 | 0.12 (-0.25, 0.48) | 0.522 | 0.21 (-0.14, 0.56) | 0.240 | 0.22 (-0.17, 0.60) | 0.270 | 0.13 (-0.20, 0.46) | 0.441 |
| Highest pH | 38.0 (-33.61, 109.64) | 0.293 | 33.6 (-36.82, 104.07) | 0.344 | 43.1 (-33.40, 119.64) | 0.265 | 17.7 (-48.59, 84.01) | 0.595 |
| Highest creatinine | -0.09 (-0.17, -0.02) | 0.013 | -0.07 (-0.14, 0.01) | 0.073 | -0.12 (-0.19, -0.04) | 0.004 | -0.07 (-0.14, -0.003) | 0.042 |
| Highest inotrope score | -0.28 (-0.68, 0.12) | 0.165 | -0.33 (-0.72, 0.06) | 0.093 | -0.26 (-0.68, 0.17) | 0.234 | -0.25 (-0.61, 0.12) | 0.183 |
| Fontan overall | | | | | | | | |
| Dialysis (patients) | 3.87 (-6.74, 14.49) | 0.469 | 7.28 (-3.04, 17.59) | 0.163 | -1.42 (-12.81, 9.98) | 0.805 | 1.60 (-8.20, 11.40) | 0.746 |

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|-----------------------------------|------------------------|--------|------------------------|--------|------------------------|--------|------------------------|--------|
| Ventilation, days | -1.27 (-2.77, 0.24) | 0.098 | -1.06 (-2.55, 0.42) | 0.158 | -1.34 (-2.95, 0.26) | 0.100 | -0.71 (-2.11, 0.70) | 0.315 |
| ICU LOS, days | -1.47 (-2.58, -0.37) | 0.010 | -1.41 (-2.5, -0.32) | 0.012 | -1.59 (-2.77, 0.40) | 0.009 | -1.30 (-2.33, -0.29) | 0.013 |
| Hospitalization, days | -0.29 (-0.83, 0.26) | 0.295 | -0.34 (-0.87, 0.20) | 0.212 | -0.28 (-0.86, 0.30) | 0.341 | -0.28 (-0.78, 0.22) | 0.271 |
| Sepsis (patients) | -12.65 (-21.16, -4.13) | 0.004 | -11.65 (-20.08, -3.22) | 0.008 | -11.37 (-20.66, -2.09) | 0.017 | -7.18 (-15.33, 0.97) | 0.015 |
| Convulsions (patients) | -16.7 (-25.80, -7.60) | <0.001 | -14.88 (-23.97, -5.78) | <0.001 | -16.43 (-26.31, -6.54) | <0.001 | -12.71 (-21.35, -4.08) | 0.001 |
| Demographics | | | | | | | | |
| Blishen Index | 0.16 (-0.12, 0.43) | 0.252 | 0.20 (-0.07, 0.46) | 0.142 | 0.10 (-0.19, 0.40) | 0.491 | 0.09 (-0.16, 0.34) | 0.472 |
| Mothers Education | 0.74 (-0.86, 2.33) | 0.360 | 0.76 (-0.80, 2.33) | 0.333 | 0.72 (-0.99, 2.42) | 0.405 | -0.14 (-1.61, 1.34) | 0.853 |
| Guardianship – both parents | -5.63 (-18.47, 7.21) | 0.384 | -7.67 (-20.21, 4.88) | 0.227 | -5.45 (-19.20, 8.30) | 0.431 | -11.87 (-23.39, -0.36) | 0.044 |
| European vs other | 5.76 (-4.44, 15.96) | 0.264 | 8.92 (-0.95, 18.79) | 0.076 | 8.99 (-1.79, 19.78) | 0.101 | 5.71 (-3.65, 15.08) | 0.228 |
| Cardiac hospitalizations | -2.03 (-5.90, 1.85) | 0.300 | -1.36 (-5.19, 2.46) | 0.479 | -2.27 (-6.42, 1.87) | 0.278 | -1.66 (-5.23, 1.92) | 0.357 |
| Non-cardiac hospitalizations | -6.09 (-9.93, -2.36) | 0.002 | -5.51 (-9.32, -1.69) | 0.005 | -7.64 (-11.63, -3.66) | <0.001 | -7.12 (-10.47, -3.76) | <0.001 |
| Non-cardiac medical specialist | -1.74 (-4.14, 0.65) | 0.151 | -2.12 (-4.50, 0.16) | 0.068 | -1.99 (-4.55, 0.55) | 0.123 | -2.33 (-4.50, -0.17) | 0.035 |

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|-------------------------------|--------------------|-------|--------------------|-------|--------------------|-------|---------------------|-------|
| Chronic cardiac medications | 0.53 (-3.18, 4.24) | 0.776 | 1.27 (-2.36, 4.90) | 0.487 | 0.30 (-3.67, 4.27) | 0.881 | -1.09 (-4.49, 2.32) | 0.526 |
| Chronic pulmonary medications | 0.81 (-5.84, 7.45) | 0.810 | 2.41 (-4.09, 8.91) | 0.463 | 0.03 (-7.08, 7.14) | 0.994 | -1.94 (-8.04, 4.15) | 0.526 |

Table S3. Demographic, all three perioperative and overall variables for all classic HLHS patients having undergone neurocognitive assessment post Fontan procedure (N=68). Data are presented as median (IQR) and counts (%).

| Variables | Overall N=68 | Median age < 40 mths, N=33 | Median age >= 40 mths, N=35 | P-value |
|-------------------------|-------------------|-------------------------------|--------------------------------|---------|
| Female sex | 20 (29.4%) | 10 (30.3%) | 10 (28.6%) | 1.00 |
| Norwood RVPA (vs. MBTS) | 44 (64.7%) | 22 (67%) | 22 (63%) | 0.94 |
| Birth Weight, kg | 3.28 (3.03, 3.55) | 3.18 (3.05, 3.67) | 3.28 (2.98, 3.59) | 0.65 |
| Gestational Age, weeks | 39.0 (38.0, 40.0) | 39.0 (38.0, 40.0) | 39.0 (38.0, 40.0) | 0.48 |
| Chromosomal anomaly | 2 (2.9%) | 0 (0%) | 2 (6%) | 0.49 |
| Antenatal diagnosis | 38 (56.9%) | 20 (61%) | 18 (51%) | 0.60 |
| Pre-Fontan disability | 10 (14.7%) | 3 (9%) | 7 (20%) | 0.31 |
| Motor/hearing/vision | | | | |
| Pre-Norwood | | | | |
| Highest lactate | 2.7 (2.0, 4.4) | 2.7 (2.2, 4.5) | 2.7 (2.0, 3.8) | 0.54 |
| Lowest pH | 7.2 (7.2, 7.3) | 7.2 (7.2, 7.3) | 7.2 (7.2, 7.3) | 0.77 |
| Lowest PaO2 | 31.0 (28.5, 35.0) | 31.0 (29.0, 36.0) | 30.0 (28.0, 35.0) | 0.23 |

| | | | | |
|------------------------|--------------------|--------------------|--------------------|------|
| Lowest base deficit | -5.0 (-7.5, -3.0) | -4.9 (-9.0, -3.0) | -5.0 (-7.0, -2.5) | 0.87 |
| Inotrope score | 5.0 (0.0, 10.0) | 0.6 (0.0, 10.0) | 5.0 (0.0, 10.0) | 0.31 |
| Ventilation time | 6.0 (4.0, 9.0) | 7.0 (3.0, 9.0) | 6.0 (4.0, 9.0) | 0.90 |
| CPR | 2 (3%) | 0 (0) | 2 (3%) | 0.49 |
| ECMO | 1 (1.5%) | 0 (0%) | 1 (3%) | 1.00 |
| Norwood - Operative | | | | |
| Age at Norwood, days | 8.0 (7.0, 12.0) | 8.0 (7.0, 13.0) | 8.0 (7.0, 11.0) | 0.97 |
| Year of surgery | 2004 (2000, 2006) | 2005 (2001, 2008) | 2004 (1999, 2005) | 0.13 |
| CPB, min | 97.0 (81.0, 142.0) | 96.0 (82.0, 129.0) | 98.0 (80.0, 146.0) | 0.81 |
| ACC, min | 42.0 (33.0, 52.5) | 41.0 (33.0, 51.0) | 42.0 (32.0, 53.0) | 0.98 |
| DHCA, min | 31.0 (19.0, 42.0) | 26.0 (20.0, 40.0) | 33.0 (15.0, 43.0) | 0.41 |
| Norwood POD 1 | | | | |
| Highest lactate | 6.9 (4.8, 10.1) | 7.7 (5.0, 9.3) | 6.5 (4.7, 10.2) | 0.93 |
| Lowest pH | 7.3 (7.2, 7.3) | 7.3 (7.2, 7.3) | 7.3 (7.2, 7.3) | 0.41 |
| Lowest paO2 | 31.5 (29.5, 34.0) | 32.0 (29.0, 34.0) | 31.0 (30.0, 34.0) | 0.77 |
| Highest inotrope score | 12.0 (10.0, 19.5) | 12.5 (10.0, 20.0) | 12.0 (9.0, 19.0) | 0.89 |

| | | | | |
|------------------------|-------------------|-------------------|-------------------|-------|
| Norwood POD 2-5 | | | | |
| Highest lactate | 2.4 (1.9, 3.2) | 2.5 (1.8, 3.5) | 2.3 (1.9, 3.0) | 0.65 |
| Lowest pH | 7.3 (7.3, 7.4) | 7.3 (7.3, 7.4) | 7.3 (7.3, 7.4) | 0.62 |
| Lowest paO2 | 34.0 (31.0, 36.0) | 34.0 (31.0, 35.0) | 35.0 (32.0, 36.0) | 0.33 |
| Highest inotrope score | 10.0 (7.0, 17.5) | 12.0 (6.0, 17.0) | 10.0 (7.5, 20.0) | 0.91 |
| Norwood overall | | | | |
| Ventilation, days | 19.0 (14.5, 25.0) | 18.0 (13.0, 23.0) | 21.0 (17.0, 27.0) | 0.15 |
| ICU LOS, days | 18.5 (15.0, 26.5) | 18.0 (16.0, 24.0) | 20.0 (14.0, 34.0) | 0.68 |
| Hospitalization, days | 30.0 (22.0, 44.0) | 29.0 (24.0, 44.0) | 31.0 (21.0, 52.0) | 0.57 |
| Convulsions | 9 (13%) | 1 (3%) | 8 (23%) | 0.028 |
| CPR, pre& post | 4 (6%) | 1 (3%) | 3 (8%) | 0.61 |
| Dialysis | 11 (16%) | 7 (21%) | 4 (11%) | 0.34 |
| ECMO, PO | 1 (1.5%) | 0 (0%) | 1 (3%) | 1.00 |
| Open sternum, days | 5.0 (3.0, 6.0) | 5.0 (3.0, 6.0) | 5.0 (3.0, 6.0) | 0.62 |
| Sepsis | 17 (25.0%) | 8 (24%) | 9 (26%) | 1.00 |
| BCPA | | | | |

| | | | | |
|-------------------------|-------------------|-------------------|-------------------|------|
| Age at BCPA, months | 6.0 (5.0, 7.2) | 5.9 (5.0, 7.0) | 6.3 (5.5, 7.4) | 0.16 |
| Weight at BCPA, kg | 6.4 (5.6, 7.0) | 6.4 (5.8, 7.0) | 6.4 (5.4, 7.0) | 0.24 |
| CPB, min | 54.5 (45.5, 65.0) | 52.0 (47.0, 61.0) | 58.0 (45.0, 67.0) | 0.65 |
| DHCA (used) | 5 (7%) | 3 (9%) | 2 (6%) | 0.67 |
| BCPA POD 1 | | | | |
| Inotrope score | 0.0 (0.0, 5.0) | 0.0 (0.0, 3.0) | 0.0 (0.0, 5.0) | 0.18 |
| Highest lactate | 1.7 (1.5, 2.8) | 1.7 (1.5, 2.8) | 1.7 (1.5, 2.6) | 0.55 |
| Lowest PaO ₂ | 39.0 (35.0, 44.0) | 39.0 (35.0, 43.0) | 39.0 (35.0, 44.0) | 0.86 |
| Highest creatinine | 44.0 (36.0, 49.5) | 43.0 (36.0, 51.0) | 44.0 (36.0, 49.0) | 0.97 |
| Highest glucose | 9.2 (7.3, 12.4) | 10.2 (7.6, 11.9) | 9.0 (7.2, 13.1) | 0.69 |
| Lowest pH | 7.3 (7.3, 7.4) | 7.3 (7.3, 7.4) | 7.3 (7.3, 7.4) | 0.89 |
| BCPA POD 2-5 | | | | |
| Highest lactate | 1.2 (1.0, 1.7) | 1.1 (0.9, 1.6) | 1.2 (1.0, 1.8) | 0.28 |
| Lowest pH | 7.4 (7.3, 7.4) | 7.4 (7.3, 7.4) | 7.4 (7.3, 7.4) | 0.74 |
| Lowest PaO ₂ | 38.0 (35.0, 43.0) | 37.0 (35.0, 43.0) | 39.0 (34.0, 43.0) | 0.87 |
| Highest creatinine | 37.0 (29.5, 48.5) | 40.0 (31.0, 50.0) | 35.0 (29.0, 42.0) | 0.25 |

| | | | | |
|------------------------|---------------------|-------------------|-------------------|--------|
| Highest inotrope score | 0.0 (0.0, 0.0) | 0.0 (0.0, 0.0) | 0.0 (0.0, 0.0) | 0.71 |
| BCPA overall | | | | |
| Ventilation, days | 2.0 (0.0, 2.0) | 2.0 (0.0, 2.0) | 2.0 (0.0, 2.0) | 0.81 |
| ICU LOS, days | 4.0 (3.0, 6.0) | 4.0 (3.0, 5.0) | 4.0 (3.0, 6.0) | 0.87 |
| Hospitalization, days | 8.0 (7.0, 13.0) | 8.0 (7.0, 9.0) | 9.0 (8.0, 14.0) | 0.01 |
| Fontan | | | | |
| Age at Fontan, months | 40.1 (34.8, 47.4) | 34.5 (31.2, 36.2) | 46.9 (42.7, 55.1) | <0.001 |
| Year of Fontan | 2007 (2003, 2009.5) | 2007 (2004, 2011) | 2007 (2003, 2009) | 0.61 |
| Weight at Fontan, kg | 13.7 (12.8, 15.4) | 13.2 (12.6, 14.2) | 14.4 (13.0, 16.1) | 0.002 |
| CPB, min | 76.5 (60.0, 94.0) | 76.0 (60.0, 89.0) | 77.0 (60.0, 96.0) | 0.67 |
| DHCA, used | 4 (6%) | 3 (9%) | 1 (3%) | 0.35 |
| Fontan type | | | | 0.18 |
| Intra-extra | 11 (16%) | 8 (24%) | 3 (9%) | |
| Extra-cardiac | 50 (74%) | 21 (64%) | 29 (83%) | |
| Lateral Tunnel | 7 (10%) | 4 (12%) | 3 (9%) | |
| Fenestration | 57 (84%) | 28 (85%) | 29 (83%) | 1.000 |

| Concomitant Surgeries | | | | |
|------------------------------|-------------------|-------------------|-------------------|-------|
| Arch Repair | 4 (6%) | 3 (9%) | 1 (3%) | 0.349 |
| Systemic AV valve repair | 16 (24%) | 6 (18%) | 10 (29%) | 0.396 |
| Systemic VA valve repair | 2 (3%) | 1 (3%) | 1 (3%) | 0.999 |
| Pulmonary artery plasty | 2 (3%) | 1 (3%) | 1 (3%) | 0.999 |
| Atrial septostomy | 1 (1.5%) | 1 (3%) | 0 | 0.485 |
| Transferred to ICU intubated | 37 (54%) | 17 (52%) | 20 (57%) | 0.82 |
| Fontan POD 1 | | | | |
| Highest lactate | 4.3 (3.4, 5.8) | 4.1 (3.3, 5.4) | 4.5 (3.5, 6.0) | 0.45 |
| Lowest PaO2 | 55.0 (45.0, 62.0) | 50.0 (43.0, 57.0) | 58.0 (50.0, 64.0) | 0.037 |
| Highest pH | 7.3 (7.3, 7.3) | 7.3 (7.3, 7.3) | 7.3 (7.3, 7.3) | 0.38 |
| Highest creatinine | 61.0 (50.0, 71.5) | 61.0 (50.0, 71.0) | 62.0 (50.0, 79.0) | 0.70 |
| Highest inotrope score | 6.5 (4.5, 12.0) | 5.0 (5.0, 12.0) | 7.0 (4.0, 12.0) | 0.93 |
| Fontan POD 2-5 | | | | |
| Highest lactate | 1.9 (1.4, 2.6) | 1.7 (1.1, 2.3) | 2.0 (1.5, 2.6) | 0.10 |
| Lowest PaO2 | 52.0 (43.0, 59.5) | 50.0 (43.0, 59.0) | 53.0 (48.0, 62.0) | 0.23 |

| | | | | |
|----------------------------|-------------------|-------------------|-------------------|-------|
| Highest pH | 7.3 (7.3, 7.4) | 7.3 (7.3, 7.4) | 7.3 (7.3, 7.4) | 0.39 |
| Highest creatinine | 49.5 (36.0, 69.5) | 52.0 (35.0, 74.0) | 49.0 (37.0, 62.0) | 0.65 |
| Highest inotrope score | 1.0 (0.0, 5.5) | 0.0 (0.0, 5.0) | 1.0 (0.0, 8.0) | 0.72 |
| Fontan overall | | | | |
| CPR | 1 (1.5%) | 0 (0%) | 1 (3%) | 1.000 |
| Convulsions | 4 (6%) | 1 (3%) | 3 (9%) | 0.61 |
| Dialysis | 1 (1.5%) | 0 (0%) | 1 (3%) | 0.49 |
| Ventilation, days | 1.0 (0.0, 2.0) | 1.0 (0.0, 2.0) | 1.0 (0.0, 2.0) | 0.59 |
| ICU LOS, days | 3.0 (3.0, 6.0) | 3.0 (2.0, 6.0) | 3.0 (3.0, 6.0) | 0.97 |
| Hospitalization, days | 12.0 (9.0, 19.0) | 12.0 (8.0, 19.0) | 12.0 (9.0, 19.0) | 0.88 |
| Overall for all operations | | | | |
| Sepsis at any point | 20 (29%) | 9 (27%) | 11 (31%) | 0.79 |
| ECMO at any point | 2 (3%) | 0 (0%) | 2 (6%) | 0.49 |
| CPR at any time | 5 (7%) | 1 (3%) | 4 (11%) | 0.36 |
| Dialysis at any point | 12 (18%) | 7 (21%) | 5 (14%) | 0.53 |
| Convulsions | 13 (19%) | 2 (6%) | 11 (31%) | 0.012 |

| | | | | |
|-----------------------------|-------------------|-------------------|-------------------|------|
| All ventilation, days | 22.5 (17.0, 31.5) | 21.0 (15.0, 27.0) | 23.0 (19.0, 33.0) | 0.14 |
| All ICU LOS, days | 36.5 (32.0, 44.0) | 38.0 (33.0, 42.0) | 35.0 (27.0, 54.0) | 0.82 |
| All hospitalization, days | 57.5 (44.5, 71.5) | 57.0 (49.0, 62.0) | 58.0 (44.0, 81.0) | 0.62 |
| Demographics | | | | |
| Blishen | 43.0 (34.0, 56.0) | 42.0 (35.0, 53.0) | 44.0 (34.0, 60.0) | 0.60 |
| Mothers Education | 14.0 (12.0, 15.5) | 14.0 (12.0, 16.0) | 13.0 (12.0, 15.0) | 0.48 |
| Guardianship – both parents | 61 (90%) | 29 (88%) | 32 (91%) | 0.78 |
| European vs other | 56 (82%) | 28 (85%) | 28 (80%) | 1.00 |

AV: atrio-ventricular, VA:ventriculo-arterial.