

## Supplement tables

**Supplemental table 1. Right heart dimensions and volumes in 6.5-year-old children born extremely preterm, stratified by small-for-gestational age (SGA) & appropriate-for-gestational age (AGA).**

|                       | Accepted for analysis | SGA <sup>a</sup> (n=27) | AGA <sup>a</sup> (n=142) | p-value | Adjusted mean difference <sup>b</sup> (95% CI) | p-value |
|-----------------------|-----------------------|-------------------------|--------------------------|---------|------------------------------------------------|---------|
| <b>RA dimensions</b>  |                       |                         |                          |         |                                                |         |
| RA length             | 22/122                | 31.1(4.3)               | 32.0(3.2)                | 0.24    | 0.7(-0.5;1.9)                                  | 0.25    |
| RA width              | 22/122                | 26.8(3.1)               | 28.1(3.1)                | 0.09    | -0.2(-1.6;1.1)                                 | 0.74    |
| RA SI                 | 22/121                | 1.2(0.1)                | 1.2(0.1)                 | 0.63    | 0.03(-0.03;0.09)                               | 0.31    |
| <b>RV dimensions</b>  |                       |                         |                          |         |                                                |         |
| RV length             | 21/124                | 48.1(4.7)               | 51.1(4.4)                | 0.005   | -1.5(-3.2;0.3)                                 | 0.10    |
| RV width              | 21/124                | 27.4(3.4)               | 27.1(2.7)                | 0.63    | 0.4(-0.8;1.7)                                  | 0.52    |
| RV SI                 | 21/124                | 1.8(0.2)                | 1.9(0.2)                 | 0.004   | -0.08(-0.2;0.006)                              | 0.07    |
| LV/RV length          | 21/123                | 1.1(0.7)                | 1.1(0.6)                 | 0.47    | 0.002(-0.2;0.03)                               | 0.89    |
| <b>PA dimensions</b>  |                       |                         |                          |         |                                                |         |
| PV ann                | 18/107                | 15.2(1.8)               | 16.3(2.1)                | 0.037   | -0.4(-1.3;0.5)                                 | 0.43    |
| MPA                   | 18/116                | 16.1(1.8)               | 17.2(1.8)                | 0.024   | -0.5(-1.3;0.3)                                 | 0.23    |
| LPA                   | 19/95                 | 9.7(2.4)                | 10.5(2.2)                | 0.15    | 0.2(-0.5;0.9)                                  | 0.62    |
| RPA                   | 19/101                | 9.7(2.4)                | 10.3(2.1)                | 0.23    | 0.4(-0.2;1.0)                                  | 0.22    |
| <b>Wall thickness</b> |                       |                         |                          |         |                                                |         |
| RVAW                  | 14/81                 | 2.8(1.0)                | 2.6(0.7)                 | 0.44    | 0.3(-0.2;0.7)                                  | 0.22    |
| IVS                   | 24/125                | 5.4(1.0)                | 5.6(0.9)                 | 0.41    | 0.05(-0.3;0.4)                                 | 0.78    |
| RWT                   | 12/78                 | 0.31(0.04)              | 0.32(0.04)               | 0.37    | -0.01(-0.04;0.02)                              | 0.42    |
| <b>Volumes</b>        |                       |                         |                          |         |                                                |         |
| SV, ml                | 17/95                 | 15.6(4.2)               | 15.2(3.0)                | 0.62    | 0.3(-1.3;2.0)                                  | 0.70    |
| CO, l/min             | 17/94                 | 1.28(0.26)              | 1.32(0.30)               | 0.57    | -0.05(-0.21;0.10)                              | 0.52    |

Data are expressed in mm if not indicated otherwise.

<sup>a</sup> Crude value.

<sup>b</sup> Mean difference adjusted for body surface area (m<sup>2</sup>) and site.

CO= cardiac output, IVS= interventricular septae, PA= pulmonary artery, PVann= pulmonary artery

valve annulus, MPA= main pulmonary artery, LPA= left pulmonary artery, RA= right atrium, RWT=

relative wall thickness, RPA= right pulmonary artery RV= right ventricle, RVAW=right ventricular

anterior wall, SI=sphericity index; SV=stroke volume.

**Supplemental table 2. Right heart systolic and diastolic function in 6.5-year-old children born extremely preterm, stratified by small-for-gestational age (SGA) & appropriate-for-gestational age (AGA).**

|                           | Accepted<br>for analysis | SGA <sup>a</sup><br>(n=27) | AGA <sup>a</sup><br>(n=142) | p-<br>value | Adjusted mean<br>difference <sup>a</sup> , (95% CI) | p-<br>value |
|---------------------------|--------------------------|----------------------------|-----------------------------|-------------|-----------------------------------------------------|-------------|
| <b>Systolic function</b>  |                          |                            |                             |             |                                                     |             |
| TAPSE, mm                 | 23/116                   | 19.7(2.7)                  | 20.8(2.8)                   | 0.09        | -0.6(-1.8;0.6)                                      | 0.34        |
| TVs' septal, cm/s         | 19/117                   | 6.4(0.8)                   | 6.7(1.0)                    | 0.31        | -0.5(-1.0;0.001)                                    | 0.051       |
| TV s' free wall, cm/s     | 15/94                    | 12.1(3.2)                  | 11.3(1.9)                   | 0.21        | 0.5(-0.6;1.7)                                       | 0.39        |
| mpi', septal              | 15/92                    | 0.46(0.06)                 | 0.44(0.07)                  | 0.25        | 0.02(-0.01;0.06)                                    | 0.23        |
| mpi', free wall           | 18/107                   | 0.39(0.1)                  | 0.35(0.1)                   | 0.17        | 0.01(-0.03;0.06)                                    | 0.59        |
| PVR, TR/RVOTvti           | 17/91                    | 0.176(0.05)                | 0.182(0.04)                 | 0.58        | 0.01(-0.008;0.03)                                   | 0.28        |
| TR, m/s                   | 17/102                   | 1.96(0.34)                 | 2.04(0.29)                  | 0.27        | -0.02(-0.2;0.1)                                     | 0.75        |
| RVOTvti, m                | 23/118                   | 0.13(0.03)                 | 0.12(0.02)                  | 0.13        | 0.001(-0.008;0.01)                                  | 0.80        |
| <b>Diastolic function</b> |                          |                            |                             |             |                                                     |             |
| TVE, cm/s                 | 22/118                   | 51.1(10.9)                 | 50.6(11.4)                  | 0.84        | -2.6(-7.3;2.1)                                      | 0.27        |
| TVA, cm/s                 | 21/111                   | 32.8(8.4)                  | 32.4(7.9)                   | 0.84        | -0.3(-4.0;3.5)                                      | 0.88        |
| <b>Septal</b>             |                          |                            |                             |             |                                                     |             |
| Annular e', cm/s          | 19/117                   | 12.3(1.3)                  | 12.4(1.5)                   | 0.73        | -0.3(-1.0;0.4)                                      | 0.40        |
| Annular a', cm/s          | 19/117                   | 4.4(1.0)                   | 4.6(1.1)                    | 0.62        | -0.2(-0.8;0.3)                                      | 0.36        |
| E/e'                      | 18/107                   | 4.2(1.1)                   | 4.1(0.9)                    | 0.55        | -0.1(-0.6;0.3)                                      | 0.59        |
| ivct, msec                | 19/117                   | 63(12)                     | 59(12)                      | 0.23        | 4.5(-1.6;10.6)                                      | 0.15        |
| ivrt, msec                | 19/117                   | 60(7)                      | 57(10)                      | 0.22        | 1.6(-3.1;6.4)                                       | 0.50        |
| <b>Free wall</b>          |                          |                            |                             |             |                                                     |             |
| Tve', cm/s                | 18/109                   | 16.4(4.0)                  | 15.0(2.4)                   | 0.043       | 1.1(-0.2;2.4)                                       | 0.10        |
| TVa', cm/s                | 18/107                   | 8.4(2.0)                   | 7.4(1.9)                    | 0.027       | 0.9(-0.04;1.9)                                      | 0.059       |
| E/e'                      | 17/100                   | 3.3(0.9)                   | 3.4(0.8)                    | 0.76        | -0.2(-0.6;0.2)                                      | 0.39        |
| ivct, msec                | 18/108                   | 59(10)                     | 60(14)                      | 0.84        | -0.8(-7.9;6.2)                                      | 0.82        |
| ivrt, msec                | 18/108                   | 41(24)                     | 34(20)                      | 0.20        | 1.2(-4.7;7.0)                                       | 0.70        |

<sup>a</sup> Crude value. Values are presented in mean and SD.

<sup>b</sup> Mean difference adjusted for site.

\* Mean difference adjusted for body surface area (m<sup>2</sup>) and site.

E/e' = early emptying blood velocity/ early emptying tissue velocity; ivct= isovolumic contraction time;

ivrt= isovolumic relaxation time; MPI= myocardial performance index; PVR= estimated pulmonary

vascular resistance (=TR/RVOTvti); RVOTvti= right ventricular outflow tract velocity time integral;

TAPSE= tricuspid annular plane systolic excursion; TR= tricuspid regurgitation; TV= tricuspid valve, TVA=

trans tricuspid diastolic velocity, TVa' = tricuspid annular late diastolic velocity, TVE= transtricuspid

early diastolic velocity, Tve' = tricuspid annular early diastolic velocity, TVs' = tricuspid annular systolic

ejection velocity.

**Supplemental table 3. Right heart dimensions and volumes in 6.5-year-old children born extremely preterm stratified by gestational week 22-24 (GW22-24) & 25-26 postmenstrual age (GW25-26).**

|                       | Accepted for analysis | GW 22-24 <sup>a</sup><br>(n=50) | GW 25-26 <sup>a</sup><br>(n=119) | p-value | Adjusted mean difference <sup>b</sup> (95% CI) | p-value |
|-----------------------|-----------------------|---------------------------------|----------------------------------|---------|------------------------------------------------|---------|
| <b>RA dimensions</b>  |                       |                                 |                                  |         |                                                |         |
| RA length             | 40/104                | 30.8(3.1)                       | 32.4(3.4)                        | 0.018   | 0.2(-0.7;1.2)                                  | 0.61    |
| RA width              | 40/103                | 27.2(3.3)                       | 28.2(3.0)                        | 0.08    | 0.3(-0.8;1.4)                                  | 0.63    |
| RA SI                 | 40/103                | 1.14(0.1)                       | 1.16(0.1)                        | 0.64    | -0.001(-0.05;0.05)                             | 0.97    |
| <b>RV dimensions</b>  |                       |                                 |                                  |         |                                                |         |
| RV length             | 42/103                | 50.2(4.7)                       | 50.8(4.4)                        | 0.46    | -1.2(-2.5;0.2)                                 | 0.09    |
| RV width              | 42/103                | 26.6(3.5)                       | 27.3(2.4)                        | 0.16    | -0.3(-0.7;1.3)                                 | 0.55    |
| RV SI                 | 42/103                | 1.90(0.2)                       | 1.87(0.2)                        | 0.23    | 0.07(-0.1;-0.004)                              | 0.038   |
| LV/RV length          | 42/102                | 1.08(0.05)                      | 1.08(0.07)                       | 0.95    | 0.01(-0.008;0.03)                              | 0.23    |
| <b>PA dimensions</b>  |                       |                                 |                                  |         |                                                |         |
| PV ann                | 33/92                 | 16.4(1.8)                       | 17.2(1.8)                        | 0.039   | 0.4(-0.2;1.1)                                  | 0.20    |
| MPA                   | 33/101                | 16.4(1.8)                       | 17.2(1.8)                        | 0.037   | 0.4(-0.2;1.1)                                  | 0.20    |
| LPA                   | 27/87                 | 10.3(2.4)                       | 10.4(2.3)                        | 0.92    | 0.2(-0.4;0.8)                                  | 0.55    |
| RPA                   | 29/91                 | 9.8(2.0)                        | 10.3(2.2)                        | 0.26    | 0.4(-0.2;0.8)                                  | 0.17    |
| <b>Wall thickness</b> |                       |                                 |                                  |         |                                                |         |
| RVAW                  | 24/71                 | 2.6(0.6)                        | 2.7(0.8)                         | 0.89    | 0.03(-0.3;0.4)                                 | 0.85    |
| IVS                   | 41/108                | 5.4(1.0)                        | 5.6(0.8)                         | 0.26    | -0.08(-0.4;0.2)                                | 0.59    |
| RWT                   | 24/66                 | 0.32(0.06)                      | 0.32(0.04)                       | 0.75    | -0.005(-0.03;0.02)                             | 0.69    |
| <b>Volumes</b>        |                       |                                 |                                  |         |                                                |         |
| SV, ml                | 30/82                 | 14.8(3.4)                       | 15.4(3.2)                        | 0.38    | -0.2(-1.1;1.6)                                 | 0.76    |
| CO, l/min             | 29/82                 | 1.28(0.35)                      | 1.33(0.27)                       | 0.44    | -0.02(-0.1;0.2)                                | 0.71    |

Data are expressed in mm if not indicated otherwise.

<sup>a</sup> Crude value.

<sup>b</sup> Mean difference adjusted for body surface area (m<sup>2</sup>) and site.

CO= cardiac output, IVS= interventricular septae, PA= pulmonary artery, PVann= pulmonary artery

valve annulus, MPA= main pulmonary artery, LPA= left pulmonary artery, RA= right atrium, RWT=

relative wall thickness, RPA= right pulmonary artery RV= right ventricle, RVAW=right ventricular

anterior wall, SI=sphericity index; SV=stroke volume.

**Supplemental table 4. Right heart systolic and diastolic function in 6.5-year-old children born extremely preterm stratified by gestational week 22-24 (GW22-24) & 25-26 (GW25-26) postmenstrual age.**

|                           | Accepted for analysis | GW 22-24 <sup>a</sup><br>(n=50) | GW 25-26 <sup>a</sup><br>(n=119) | p-value | Adjusted mean difference <sup>b</sup> , (95% CI) | p-value |
|---------------------------|-----------------------|---------------------------------|----------------------------------|---------|--------------------------------------------------|---------|
| <b>Systolic function</b>  |                       |                                 |                                  |         |                                                  |         |
| TAPSE, mm                 | 40/99                 | 19.9(2.5)                       | 21.0(2.9)                        | 0.048   | -0.4(-0.5;1.4)                                   | 0.36    |
| TV septal S', cm/s        | 38/98                 | 6.4(0.8)                        | 6.8(1.1)                         | 0.036   | -0.4(0.08;0.8)                                   | 0.017   |
| TV lateral S', cm/s       | 31/78                 | 11.5(1.7)                       | 11.4(2.3)                        | 0.86    | 0.1(-1.0;0.8)                                    | 0.81    |
| mpi', septal              | 30/77                 | 0.44(0.08)                      | 0.44(0.06)                       | 0.63    | 0.007(-0.02;0.04)                                | 0.63    |
| mpi', free wall           | 33/92                 | 0.38(0.1)                       | 0.35(0.1)                        | 0.19    | 0.02(-0.05;0.01)                                 | 0.26    |
| PVR                       | 32/76                 | 0.185(0.04)                     | 0.179(0.04)                      | 0.50    | 0.003(-0.02;0.01)                                | 0.67    |
| TR, m/s                   | 34/85                 | 2.05(0.2)                       | 2.02(0.3)                        | 0.59    | 0.01(-0.1;0.09)                                  | 0.80    |
| RVOTvti, m                | 41/100                | 0.12(0.02)                      | 0.12(0.02)                       | 0.90    | 0.0009(-0.006;0.008)                             | 0.82    |
| <b>Diastolic function</b> |                       |                                 |                                  |         |                                                  |         |
| TVE, cm/s                 | 39/101                | 50.0(10.6)                      | 50.9(11.6)                       | 0.66    | -1.2(-2.6;4.9)                                   | 0.53    |
| TVA, cm/s                 | 35/97                 | 31.6(7.8)                       | 32.7(8.0)                        | 0.48    | -1.4(-1.6;4.4)                                   | 0.36    |
| <b>Septal</b>             |                       |                                 |                                  |         |                                                  |         |
| Annular e', cm/s          | 38/98                 | 12.5(1.4)                       | 12.4(1.5)                        | 0.69    | -0.09(-0.6;0.4)                                  | 0.75    |
| Annular a', cm/s          | 38/98                 | 4.2(1.1)                        | 4.6(1.0)                         | 0.041   | -0.4(0.04;0.8)                                   | 0.032   |
| E/e'                      | 34/91                 | 4.0(0.9)                        | 4.2(1.0)                         | 0.34    | 0.2(-0.2;0.5)                                    | 0.28    |
| ivct, msec                | 38/98                 | 60(13)                          | 60(12)                           | 0.91    | -0.4(-5.0;4.3)                                   | 0.88    |
| ivrt, msec                | 38/98                 | 56(9)                           | 58(10)                           | 0.38    | -1.9(-1.7;5.5)                                   | 0.30    |
| <b>Free wall</b>          |                       |                                 |                                  |         |                                                  |         |
| TVe', cm/s                | 34/93                 | 15.3(2.1)                       | 15.1(2.9)                        | 0.70    | 0.2(-1.2;0.9)                                    | 0.78    |
| TVa', cm/s                | 32/93                 | 7.7(2.0)                        | 7.4(1.9)                         | 0.55    | 0.2(-1.0;0.6)                                    | 0.58    |
| E/e'                      | 31/86                 | 3.2(0.8)                        | 3.4(0.8)                         | 0.29    | -0.2(-0.1;0.5)                                   | 0.27    |
| ivct, msec                | 33/93                 | 60(16)                          | 60(13)                           | 0.86    | -0.4(-6.0;5.1)                                   | 0.88    |
| ivrt, msec                | 33/93                 | 39(21)                          | 34(21)                           | 0.25    | 2.7(-7.3;1.8)                                    | 0.24    |

<sup>a</sup> Crude value. Values are presented in mean and SD.

<sup>b</sup> Mean difference adjusted for site.

\* Mean difference adjusted for body surface area (m<sup>2</sup>) and site.

E/e' = early emptying blood velocity/ early emptying tissue velocity; ivct = isovolumic contraction time;

ivrt = isovolumic relaxation time; MPI = myocardial performance index; PVR = estimated pulmonary

vascular resistance (=TR/RVOTvti); RVOTvti = right ventricular outflow tract velocity time integral;

TAPSE = tricuspid annular plane systolic excursion; TR = tricuspid regurgitation; TV = tricuspid valve, TVA =

trans tricuspid diastolic velocity, TVa' = tricuspid annular late diastolic velocity, TVE = transtricuspid

early diastolic velocity, TVe' = tricuspid annular early diastolic velocity, TVs' = tricuspid annular systolic

ejection velocity.

**Supplemental table 5. Right heart dimensions and volumes in 6.5-year-old children born extremely preterm (EXP) and in controls born at term (CTRL) stratified by girls.**

|                       | Accepted for analysis | Girls EXP <sup>a</sup> (n=78) | Girls CTRL <sup>a</sup> (n=55) | p-value | Adjusted mean difference <sup>b</sup> (95% CI) | p-value |
|-----------------------|-----------------------|-------------------------------|--------------------------------|---------|------------------------------------------------|---------|
| <b>RA dimensions</b>  |                       |                               |                                |         |                                                |         |
| RA length             | 67/50                 | 31.9(3.2)                     | 34.8(3.1)                      | <0.001  | -0.7(-1.8;0.4)                                 | 0.23    |
| RA width              | 67/50                 | 27.2(3.0)                     | 30.1(2.4)                      | <0.001  | -1.5(-2.6;-0.5)                                | 0.004   |
| RA SI                 | 67/50                 | 1.2(0.1)                      | 1.2(0.1)                       | 0.32    | 0.04(-0.004;0.9)                               | 0.07    |
| <b>RV dimensions</b>  |                       |                               |                                |         |                                                |         |
| RV length             | 68/52                 | 51.0(4.1)                     | 53.2(4.7)                      | 0.007   | -0.4(-2.0;1.2)                                 | 0.65    |
| RV width              | 68/52                 | 27.3(2.9)                     | 28.3(2.4)                      | 0.036   | -0.8(-1.9;0.2)                                 | 0.11    |
| RV SI                 | 68/52                 | 1.9(0.2)                      | 1.9(0.2)                       | 0.86    | 0.05(-0.03;0.1)                                | 0.23    |
| LV/RV length          | 68/52                 | 1.07(0.06)                    | 1.10(0.06)                     | 0.005   | -0.03(-0.05;-0.006)                            | 0.016   |
| <b>PA dimensions</b>  |                       |                               |                                |         |                                                |         |
| PV ann                | 55/33                 | 15.8(2.0)                     | 17.4(1.9)                      | 0.0003  | -0.6(-1.5;0.2)                                 | 0.13    |
| MPA                   | 60/50                 | 16.9(1.6)                     | 17.8(1.8)                      | 0.006   | -0.3(-0.9;0.4)                                 | 0.46    |
| LPA                   | 52/46                 | 10.1(2.1)                     | 11.6(1.3)                      | 0.0001  | -0.2(-0.8;0.4)                                 | 0.47    |
| RPA                   | 53/48                 | 10.0(2.0)                     | 11.3(1.3)                      | 0.0001  | 0.04(-0.5;0.6)                                 | 0.87    |
| <b>Wall thickness</b> |                       |                               |                                |         |                                                |         |
| RVAW                  | 42/47                 | 2.7(0.8)                      | 2.7(0.6)                       | 0.92    | 0.02(-0.3;0.4)                                 | 0.88    |
| IVS                   | 67/54                 | 5.5(0.9)                      | 5.9(0.9)                       | 0.005   | -0.2(-0.5;0.2)                                 | 0.35    |
| RWT                   | 41/45                 | 0.31(0.04)                    | 0.30(0.05)                     | 0.50    | 0.008(-0.01;0.03)                              | 0.50    |
| <b>Volumes</b>        |                       |                               |                                |         |                                                |         |
| SV, ml                | 49/33                 | 14.7(3.0)                     | 17.2(2.8)                      | 0.0002  | -2.1(-3.6;-0.6)                                | 0.006   |
| CO, l/min             | 48/31                 | 1.3(0.3)                      | 1.4(0.2)                       | 0.013   | -0.1(-0.3;0.01)                                | 0.070   |

Data are expressed in mm if not indicated otherwise.

<sup>a</sup> Crude value.

<sup>b</sup> Mean difference adjusted for body surface area (m<sup>2</sup>) and site.

CO= cardiac output, IVS= interventricular septae, PA= pulmonary artery, PVann= pulmonary artery valve annulus, MPA= main pulmonary artery, LPA= left pulmonary artery, RA= right atrium, RWT= relative wall thickness, RPA= right pulmonary artery RV= right ventricle, RVAW=right ventricular anterior wall, SI=sphericity index; SV=stroke volume.

**Supplemental table 6. Right heart systolic and diastolic function in 6.5-year-old children born extremely preterm (EXP) and in controls born at term (CTRL) stratified by girls.**

|                           | Accepted for analysis | Girls EXP <sup>a</sup> (n=78) | Girls CTRL <sup>a</sup> (n=55) | p-value | Adjusted mean difference <sup>b</sup> , (95% CI) | p-value |
|---------------------------|-----------------------|-------------------------------|--------------------------------|---------|--------------------------------------------------|---------|
| <b>Systolic function</b>  |                       |                               |                                |         |                                                  |         |
| TAPSE, mm                 | 65/52                 | 20.1(2.5)                     | 20.6(2.3)                      | 0.26    | 0.09(-0.9;1.1)*                                  | 0.86    |
| TVs' septal, cm/s         | 63/45                 | 6.6(1.1)                      | 6.5(0.8)                       | 0.36    | -0.08(-0.5;0.3)                                  | 0.69    |
| TVs' free wall, cm/s      | 49/28                 | 11.1(1.9)                     | 11.8(1.7)                      | 0.15    | -1.1(-2.1;-0.2)                                  | 0.019   |
| mpi', septal              | 53/33                 | 0.44(0.06)                    | 0.45(0.06)                     | 0.67    | -0.007(-0.04;0.02)                               | 0.64    |
| mpi', free wall           | 59/45                 | 0.37(0.1)                     | 0.32(0.08)                     | 0.020   | -0.004(-0.04;0.03)                               | 0.84    |
| PVR                       | 51/48                 | 0.182(0.04)                   | 0.172 (0.3)                    | 0.21    | 0.02(0.007;0.03)                                 | 0.003   |
| TR, m/s                   | 56/49                 | 2.0(0.3)                      | 2.0(0.1)                       | 0.70    | 0.09(0.008;0.2)                                  | 0.032   |
| RVOTvti, cm               | 65/53                 | 11.6(1.9)                     | 12.0(2.0)                      | 0.24    | -0.9(-1.6;-0.2)                                  | 0.014   |
| <b>Diastolic function</b> |                       |                               |                                |         |                                                  |         |
| TVE, cm/s                 | 64/53                 | 49.2(11.5)                    | 47.9(10.1)                     | 0.51    | -1.5(-5.4;2.5)                                   | 0.45    |
| TVA, cm/s                 | 60/51                 | 31.6(7.6)                     | 31.6(7.8)                      | 0.99    | -1.0(-4.0;2.1)                                   | 0.54    |
| <b>Septal</b>             |                       |                               |                                |         |                                                  |         |
| Annular e', cm/s          | 63/45                 | 12.3(1.7)                     | 11.9(1.4)                      | 0.12    | 0.2(-0.4;0.9)                                    | 0.47    |
| Annular a', cm/s          | 63/45                 | 4.4(1.0)                      | 4.4(1.0)                       | 0.96    | -0.2(-0.6;0.3)                                   | 0.48    |
| E/e'                      | 57/45                 | 4.0(1.0)                      | 4.0(1.0)                       | 0.64    | -0.2(-0.6;0.2)                                   | 0.42    |
| ivct, msec                | 63/45                 | 62(11)                        | 65(12)                         | 0.16    | -2.0(-7.0;3.0)                                   | 0.43    |
| ivrt, msec                | 63/44                 | 57(10)                        | 57(9)                          | 0.79    | -0.9(-4.5;2.8)                                   | 0.64    |
| <b>Free wall</b>          |                       |                               |                                |         |                                                  |         |
| TVe', cm/s                | 61/45                 | 14.7(2.4)                     | 14.1(1.9)                      | 0.16    | -0.2(-1.1;0.6)                                   | 0.61    |
| TVa', cm/s                | 60/45                 | 7.4(1.8)                      | 6.8(1.9)                       | 0.07    | 0.4(-0.4;1.2)                                    | 0.32    |
| E/e'                      | 55/45                 | 3.4(0.8)                      | 3.4(0.9)                       | 0.93    | -0.09(-0.5;0.3)                                  | 0.62    |
| ivct, msec                | 60/45                 | 60(14)                        | 64(15)                         | 0.14    | -3.9(-10.2;2.2)                                  | 0.21    |
| ivrt, msec                | 60/45                 | 38(22)                        | 23(11)                         | <0.001  | 2.0(-2.4;6.1)                                    | 0.37    |

<sup>a</sup> Crude value. Values are presented in mean and SD.

<sup>b</sup> Mean difference adjusted for site.

\* Mean difference adjusted for body surface area (m<sup>2</sup>) and site.

E/e' = early emptying blood velocity/ early emptying tissue velocity; ivct= isovolumic contraction time;

ivrt= isovolumic relaxation time; MPI= myocardial performance index; PVR= estimated pulmonary

vascular resistance (=TR/RVOTvti); RVOTvti= right ventricular outflow tract velocity time integral;

TAPSE= tricuspid annular plane systolic excursion; TR= tricuspid regurgitation; TV= tricuspid valve, TVA=

trans tricuspid diastolic velocity, TVa'= tricuspid annular late diastolic velocity, TVE= transtricuspid

early diastolic velocity, TVe'= tricuspid annular early diastolic velocity, TVs'= tricuspid annular systolic

ejection velocity.

**Supplemental table 7. Right heart dimensions and volumes in 6.5-year-old children born extremely preterm (EXP) and in controls born at term (CTRL) stratified by boys.**

|                       | Accepted for analysis | Boys EXP <sup>a</sup><br>(n=90) | Boys CTRL <sup>a</sup><br>(n=79) | p-value | Adjusted mean difference <sup>b</sup> , (95% CI) | p-value |
|-----------------------|-----------------------|---------------------------------|----------------------------------|---------|--------------------------------------------------|---------|
| <b>RA dimensions</b>  |                       |                                 |                                  |         |                                                  |         |
| RA length             | 84/76                 | 32.0(3.5)                       | 36.2(3.6)                        | <0.001  | -1.3(-2.4;-0.3)                                  | 0.014   |
| RA width              | 83/76                 | 28.5(3.1)                       | 32.4(3.3)                        | <0.001  | -2.4(-3.5;-1.2)                                  | <0.001  |
| RA SI                 | 83/76                 | 1.1(0.1)                        | 1.1(0.1)                         | 0.69    | 0.04(-0.005;0.09)                                | 0.08    |
| <b>RV dimensions</b>  |                       |                                 |                                  |         |                                                  |         |
| RV length             | 84/76                 | 50.5(4.8)                       | 53.4(3.6)                        | <0.001  | -0.5(-1.9;0.9)                                   | 0.49    |
| RV width              | 84/77                 | 27.2(2.8)                       | 30.2(2.8)                        | <0.001  | -2.2(-3.2;-1.2)                                  | <0.001  |
| RV SI                 | 84/76                 | 1.9(0.2)                        | 1.8(0.2)                         | 0.008   | 0.1(0.05;0.2)                                    | 0.001   |
| LV/RV length          | 83/75                 | 1.1(0.07)                       | 1.1(0.06)                        | 0.18    | -0.02(-0.04;0.003)                               | 0.08    |
| <b>PA dimensions</b>  |                       |                                 |                                  |         |                                                  |         |
| PV ann                | 75/57                 | 16.5(2.3)                       | 17.9(1.7)                        | 0.0002  | -0.001(-0.7;0.7)                                 | 1.00    |
| MPA                   | 81/75                 | 17.1(2.0)                       | 18.1(1.8)                        | 0.002   | 0.2(-0.5;0.8)                                    | 0.62    |
| LPA                   | 68/66                 | 10.6(2.4)                       | 12.3(1.4)                        | <0.001  | -0.2(-0.7;0.4)                                   | 0.59    |
| RPA                   | 72/70                 | 10.4(2.2)                       | 12.2(1.4)                        | <0.001  | -0.06(-0.5;0.4)                                  | 0.80    |
| <b>Wall thickness</b> |                       |                                 |                                  |         |                                                  |         |
| RVAW                  | 58/65                 | 2.6(0.7)                        | 2.7(0.8)                         | 0.49    | -0.02(-0.3;0.3)                                  | 0.92    |
| IVS                   | 89/78                 | 5.6(0.9)                        | 6.2(0.7)                         | <0.001  | -0.04(-0.3;0.2)                                  | 0.77    |
| RWT                   | 54/64                 | 0.32(0.04)                      | 0.30(0.04)                       | 0.006   | 0.02(0.004;0.04)                                 | 0.019   |
| <b>Volumes</b>        |                       |                                 |                                  |         |                                                  |         |
| SV, ml                | 68/52                 | 15.6(3.3)                       | 16.8(2.6)                        | 0.041   | -0.4(-1.6;0.9)                                   | 0.54    |
| CO, l/min             | 67/52                 | 1.3(0.3)                        | 1.4(0.2)                         | 0.20    | -0.03(-0.2;0.09)                                 | 0.61    |

Data are expressed in mm if not indicated otherwise.

<sup>a</sup> Crude value.

<sup>b</sup> Mean difference adjusted for body surface area (m<sup>2</sup>) and site.

CO= cardiac output, IVS= interventricular septae, PA= pulmonary artery, PVann= pulmonary artery

valve annulus, MPA= main pulmonary artery, LPA= left pulmonary artery, RA= right atrium, RWT=

relative wall thickness, RPA= right pulmonary artery RV= right ventricle, RVAW=right ventricular

anterior wall, SI=sphericity index; SV=stroke volume.



**Supplemental table 8. Right heart systolic and diastolic function in 6.5-year-old children born extremely preterm (EXP) and in controls born at term (CTRL) stratified by boys.**

|                           | Accepted for analysis | Boys EXP <sup>a</sup> (n=90) | Boys CTRL <sup>a</sup> (n=79) | p-value | Adjusted mean difference <sup>b</sup> , (95% CI) | p-value |
|---------------------------|-----------------------|------------------------------|-------------------------------|---------|--------------------------------------------------|---------|
| <b>Systolic function</b>  |                       |                              |                               |         |                                                  |         |
| TAPSE, mm                 | 81/71                 | 21.1(3.1)                    | 21.5(2.9)                     | 0.36    | 1.32(0.3;2.4)*                                   | 0.013   |
| TVs' septal, cm/s         | 80/69                 | 6.7(1.0)                     | 6.7(0.7)                      | 0.97    | -0.2(-0.4;0.1)                                   | 0.29    |
| TVs' free wall, cm/s      | 66/49                 | 11.6(2.4)                    | 11.9(1.8)                     | 0.52    | -0.2(-1.0;0.7)                                   | 0.69    |
| mpi', septal              | 61/50                 | 0.43(0.07)                   | 0.45(0.07)                    | 0.12    | -0.02(-0.05;0.01)                                | 0.23    |
| mpi', free wall           | 73/65                 | 0.34(0.1)                    | 0.34(0.1)                     | 0.80    | -0.04(-0.08;-0.01)                               | 0.009   |
| PVR                       | 63/69                 | 0.183(0.04)                  | 0.176(0.03)                   | 0.22    | 0.02(0.006;0.03)                                 | 0.002   |
| TR, m/s                   | 69/72                 | 2.1(0.2)                     | 2.0(0.1)                      | 0.036   | 0.10(0.03;0.2)                                   | 0.005   |
| RVOTvti, cm               | 83/73                 | 12.1(2.7)                    | 11.6(1.5)                     | 0.17    | -0.3(-0.9;0.3)                                   | 0.36    |
| <b>Diastolic function</b> |                       |                              |                               |         |                                                  |         |
| TVE, cm/s                 | 83/76                 | 51.4(10.9)                   | 49.9(10.4)                    | 0.36    | -0.5(-3.6;2.5)                                   | 0.73    |
| TVA, cm/s                 | 79/75                 | 33.3(7.9)                    | 32.3(8.0)                     | 0.43    | 0.004(-2.7;2.7)                                  | 1.00    |
| <b>Septal</b>             |                       |                              |                               |         |                                                  |         |
| Annular e', cm/s          | 80/68                 | 12.4(1.2)                    | 12.2(1.3)                     | 0.51    | -0.02(-0.5;0.4)                                  | 0.95    |
| Annular a', cm/s          | 80/69                 | 4.6(1.1)                     | 4.5(0.8)                      | 0.31    | 0.09(-0.2;0.4)                                   | 0.59    |
| E/e'                      | 75/67                 | 4.1(0.9)                     | 4.0(0.9)                      | 0.44    | -0.04(-0.3;0.2)                                  | 0.78    |
| ivct, msec                | 80/68                 | 58(12)                       | 65(13)                        | 0.0009  | -6.5(-11.0;-2.1)                                 | 0.004   |
| ivrt, msec                | 80/68                 | 57(10)                       | 56(8)                         | 0.75    | -0.5(-3.5;2.4)                                   | 0.73    |
| <b>Free wall</b>          |                       |                              |                               |         |                                                  |         |
| TVe', cm/s                | 73/68                 | 15.4(3.0)                    | 14.1(2.2)                     | 0.006   | 1.1(0.9;1.9)                                     | 0.032   |
| TVa', cm/s                | 72/68                 | 7.7(2.0)                     | 6.9(1.6)                      | 0.016   | 0.6(-0.09;1.2)                                   | 0.09    |
| E/e'                      | 69/67                 | 3.4(0.8)                     | 3.6(0.9)                      | 0.17    | -0.3(-0.6;-0.02)                                 | 0.038   |
| ivct, msec                | 73/68                 | 59(14)                       | 66(16)                        | 0.007   | -7.4(-12.7;-2.2)                                 | 0.006   |
| ivrt, msec                | 73/66                 | 32(21)                       | 26(14)                        | 0.038   | -2.5(-7.2;2.3)                                   | 0.30    |

<sup>a</sup> Crude value. Values are presented in mean and SD.

<sup>b</sup> Mean difference adjusted for site.

\* Mean difference adjusted for body surface area (m<sup>2</sup>) and site.

E/e' = early emptying blood velocity/ early emptying tissue velocity; ivct= isovolumic contraction time;

ivrt=isovolumic relaxation time; MPI=myocardial performance index; PVR= estimated pulmonary

vascular resistance (=TR/RVOTvti); RVOTvti= right ventricular outflow tract velocity time integral;

TAPSE=tricuspid annular plane systolic excursion; TR=tricuspid regurgitation; TV=tricuspid valve, TVA=

trans tricuspid diastolic velocity, TVa' = tricuspid annular late diastolic velocity, TVE= transtricuspid

early diastolic velocity,  $TVe'$  = tricuspid annular early diastolic velocity,  $TVs'$  = tricuspid annular systolic ejection velocity.