

Table C.1: Multivariable association of a) BPD, defined as oxygen supplementation for ≥ 28 days of life, and its severity defined at b) 36 and c) 40 weeks' PMA and results of Bayley-II test at mean (SD) corrected age 23.1 (3.6) months.

a)

| | No BPD Reference N = 193 | BPD N = 267 | OR/MD (95% CI) | p-value |
|-----------------------------|--------------------------------|----------------|----------------------|---------|
| MDI <70 N (%) | 15 (8%) | 50 (19%) | 2.2 (1.0, 4.6) | 0.028 |
| PDI <70 N (%) | 26 (14%) | 63 (23%) | 1.4 (0.7, 2.5) | 0.280 |
| MDI Mean (SD) | 92 (17) | 89 (17) | -2.5 (-8.5, -1.0) | 0.012 |
| PDI Mean (SD) | 88 (16) | 85 (17) | -1.8 (-5.5, 1.8) | 0.326 |

b)

| | No BPD Reference N=193 | Mild BPD at 36 PMA N=162 | OR/MD (95% CI) | p-value | Moderate BPD at 36 PMA N=61 | OR/MD (95% CI) | p-value | Severe BPD at 36 PMA N=44 | OR/MD (95% CI) | p-value |
|-----------------------------|------------------------------|--------------------------------|---------------------|---------|-----------------------------------|-----------------------|---------|---------------------------------|------------------------|---------|
| MDI <70 N (%) | 15 (8%) | 21 (13%) | 2.0 (0.9, 4.4) | 0.104 | 14 (23%) | 1.8 (0.6, 5.3) | 0.280 | 15 (35%) | 6.8 (1.8, 26.2) | 0.005 |
| PDI <70 N (%) | 26 (14%) | 34 (21%) | 1.3 (0.7, 2.5) | 0.449 | 17 (28%) | 1.7 (0.7, 3.9) | 0.231 | 12 (28%) | 2.6 (0.8, 7.9) | 0.104 |
| MDI Mean (SD) | 92 (17) | 89 (17) | -3.4 (-7.6, 0.6) | 0.941 | 82 (18) | -7.6 (-13.4, -1.7) | 0.011 | 79 (20) | -11.4 (-18.5, -4.3) | 0.002 |
| PDI Mean (SD) | 88 (16) | 85 (17) | -0.8 (-4.8, 3.2) | 0.698 | 81 (17) | -4.0 (-9.8, 1.8) | 0.179 | 79 (17) | -7.8 (-14.9, -0.6) | 0.033 |

c)

| | No BPD Reference N=193 | Mild BPD at 40 PMA N=222 | OR/MD (95% CI) | p-value | Moderate BPD at 40 PMA N=24 | OR/MD (95% CI) | p-value | Severe BPD at 40 PMA N=18 | OR/MD (95% CI) | p-value |
|-----------------------------|---|---|---------------------------|----------------|--|---------------------------|----------------|--|---------------------------|----------------|
| MDI <70 N (%) | 15 (8%) | 32 (15%) | 1.9 (0.9, 3.9) | 0.112 | 5 (21%) | 2.2 (0.4, 10.6) | 0.345 | 13 (72%) | 32.347 (5.0, 210.9) | < 0.001 |
| PDI <70 N (%) | 26 (14%) | 47 (21%) | 1.2 (0.7, 2.2) | 0.607 | 8 (33%) | 2.740 (0.8, 9.4) | 0.108 | 8 (44%) | 10.2 (1.9, 53.9) | 0.006 |
| MDI Mean (SD) | 92 (17) | 88 (17) | -3.9 (-7.6, -0.1) | 0.045 | 83 (18) | -6.3 (-14.6, 1.9) | 0.133 | 65 (19) | -25.7 (-36.0, -15.5) | < 0.001 |
| PDI Mean (SD) | 88 (16) | 84 (17) | -0.7 (-4.5, 3.0) | 0.705 | 79 (15) | -6.2 (-14.4, 2.0) | 0.139 | 69 (19) | -20.1 (-30.7, -9.5) | < 0.001 |

Table C.2: Multivariable association of a) BPD, defined as oxygen supplementation for ≥ 28 days of life, and its severity defined at b) 36 and c) 40 weeks' PMA and results of Bayley-III test at mean (SD) corrected age 23.1 (3.6) months.

a)

| | No BPD Reference N = 45 | BPD N = 64 | OR/MD (95% CI) | p-value |
|------------------------|----------------------------|---------------|---------------------|---------|
| Cognitive <85 N (%) | 6 (13%) | 6 (2%) | 0.5 (0.1, 2.7) | 0.499 |
| Motor <85 N (%) | 6 (13%) | 8 (3%) | 1.3 (0.3, 6.0) | 0.680 |
| Cognitive Mean (SD) | 99 (15) | 98 (10) | -0.9 (-5.8, 7.8) | 0.779 |
| Motor Mean (SD) | 95 (16) | 93 (12) | 0.9 (-5.3, 7.2) | 0.766 |

b) Multivariable association of BPD severity defined at 36 weeks' PMA and neurodevelopmental impairment

| | No BPD Reference N=45 | Mild BPD at 36 PMA N=40 | OR/MD (95% CI) | p-value | Moderate BPD at 36 PMA N=19 | OR/MD (95% CI) | p-value | Severe BPD at 36 PMA N=5 | OR/MD (95% CI) | p-value |
|------------------------|--------------------------|----------------------------|---------------------|---------|--------------------------------|----------------------|---------|-----------------------------|-----------------------|---------|
| Cognitive <85 N (%) | 6 (13%) | 4 (10%) | 0.4 (0.1, 2.3) | 0.293 | 2 (11%) | 3.4 (0.3, 44.4) | 0.349 | 0 | - | N.A. |
| Motor <85 N (%) | 6 (13%) | 6 (15%) | 1.3 (0.23, 7.7) | 0.750 | 2 (11%) | 13.5 (0.4, 418.3) | 0.137 | 2 (40%) | 2.0 (0.2, 25.0) | 0.976 |
| Cognitive Mean (SD) | 99 (15) | 101 (16) | 3.0 (-4.9, 10.8) | 0.454 | 97 (13) | -5.4 (-15.5, 4.8) | 0.293 | 96 (7) | -1.9 (-22.3, 18.4) | 0.850 |
| Motor Mean (SD) | 95 (16) | 97.0 (12) | 3.2 (3.8, 10.1) | 0.368 | 95 (12) | -2.1 (-12.2, 8.0) | 0.680 | 86 (9) | -0.5 (-20.3, 19.3) | 0.958 |

c) Multivariable association of BPD severity defined at 40 weeks' PMA and neurodevelopmental impairment.

| | No BPD Reference N=45 | Mild BPD at 40 PMA N=57 | OR/MD (95% CI) | p-value | Moderate BPD at 40 PMA N=3 | OR/MD (95% CI) | p-value | Severe BPD at 40 PMA N=4 | OR/MD (95% CI) | p-value |
|-----------------------------------|-----------------------------|-------------------------------|--------------------|---------|----------------------------------|------------------------|---------|--------------------------------|-----------------------|---------|
| Cognitive <85 N (%) | 6 (13%) | 5 (9%) | 0.2 (0.1, 2.0) | 0.254 | 0 | - | N.A. | 1 (25%) | 5.2 (0.1, 185.0) | 0.368 |
| Motor <85 N (%) | 6 (13%) | 7 (12%) | 1.2 (0.2, 6.0) | 0.795 | 1 (33%) | 0.00 | 1.000 | 2 (50%) | 2.3 (0.1, 77.8) | 0.644 |
| Cognitive Mean (SD) | 99 (15) | 101 (14) | 2.4 (-4.3, 9.2) | 0.475 | 95.0 (0.0) | -10.0 (-48.6, 28.7) | 0.600 | 85 (22) | -14.3 (-37.0, 8.3) | 0.207 |
| Motor Mean (SD) | 95 (11) | 97 (11) | 2.4 (-3.7, 8.5) | 0.434 | 89.0 (12.4) | 2.7 (-33.8, 39.1) | 0.882 | 77 (16) | -13.8 (-36.0, 8.4) | 0.216 |

BPD, bronchopulmonary dysplasia; NDI, neurodevelopmental impairment; MDI/PDI, mental/psychomotor development index (Bayley-II); Cognitive/Motor, cognitive/motor composite score (Bayley-III); PMA, postmenstrual age; OR, odds ratio; MD, mean difference; 95% CI, 95% confidence interval; 'No BPD' used as reference for groups comparison (i.e. versus Mild, versus Moderate, and versus Severe BPD forms, respectively); logistic regression models adjusted for gestational age, sex, birthweight z-score, intraventricular haemorrhage > grade 2, persistent ductus arteriosus, days of mechanical ventilation, surfactant, sepsis.