

## Additional file 2

Patient characteristics subdivided based on changes in diaphragm thickness < first 4 days of mechanical ventilation

| Characteristics                               | >10% decrease<br>(n =15) | ≤10% change<br>(n = 10) | >10% increase<br>(n = 9) | P Value |
|-----------------------------------------------|--------------------------|-------------------------|--------------------------|---------|
| Age, months                                   | 23 (6-68)                | 2 (1-5.5)               | 1 (1-8)                  | 0.013   |
| Sex, female                                   | 9 (6)                    | 5 (50)                  | 5 (55.6)                 | 0.885   |
| Body weight, kg                               | 10 (6.4-27.0)            | 5.7 (4.2-9.7)           | 5.1 (4.3-7.5)            | 0.071   |
| Pediatric Index of Mortality 2 score, %       | 2.31 (0.6-5.8)           | 1.25 (0.9-3.7)          | 1 (0.4-3)                | 0.515   |
| Admission diagnosis                           |                          |                         |                          | 0.600   |
| Bronchiolitis                                 | 5 (33.3)                 | 6 (60)                  | 6 (66.7)                 |         |
| Pneumonia                                     | 3 (20)                   | 2 (20)                  | 2 (22.2)                 |         |
| Upper airway obstruction                      | 2 (13.3)                 | 1 (10)                  | 0                        |         |
| Status asthmatic                              | 2 (13.3)                 | 0                       | 0                        |         |
| Post cardiac arrest                           | 1 (6.7)                  | 0                       | 0                        |         |
| Neurological disease/trauma                   | 2 (13.3)                 | 0                       | 1 (11.1)                 |         |
| Severe sepsis                                 | 0                        | 1 (10)                  | 0                        |         |
| Subjects with co morbidities                  | 6 (40)                   | 3 (30)                  | 2 (22.2)                 | 0.654   |
| Initial ventilator mode                       |                          |                         |                          | 0.183   |
| Controlled (PCV, PRVC, VCV)                   | 9 (60)                   | 5 (50)                  | 8 (88.9)                 |         |
| Partial assist (PSV)                          | 6 (40)                   | 5 (50)                  | 1 (11.1)                 |         |
| Initial ventilator settings                   |                          |                         |                          |         |
| V <sub>T</sub> , ml/kg                        | 7.0 (5.9-8)              | 6.4 (5.5-6.8)           | 6.1 (5.8-6.5)            | 0.249   |
| PEEP, cmH <sub>2</sub> O                      | 5 (2-7)                  | 5 (3.75-6.0)            | 6 (4-7)                  | 0.743   |
| FiO <sub>2</sub>                              | 0.4 (0.3-0.5)            | 0.4 (0.3-0.6)           | 0.4 (0.4-0.7)            | 0.700   |
| Peak - PEEP, cmH <sub>2</sub> O               | 15 (10-27)               | 21.5 (11.5-6.3)         | 18 (13.5-21.5)           | 0.757   |
| Ventilator settings<br>(average first 4 days) |                          |                         |                          |         |
| V <sub>T</sub> , ml/kg                        | 7.1 (6.4-7.8)            | 6.1 (5.3-6.7)           | 6.2 (5.8-6.4)            | 0.012   |
| PEEP, cmH <sub>2</sub> O                      | 5 (3.3-6.7)              | 5.3 (4-5.7)             | 6 (4.7-7.2)              | 0.410   |
| FiO <sub>2</sub>                              | 0.4 (0.3-0.5)            | 0.4 (0.3-0.5)           | 0.4 (0.4-0.7)            | 0.679   |
| Peak – PEEP, cmH <sub>2</sub> O               | 15 (10.8-18)             | 17.5 (11.6-23.2)        | 18 (13.5-20.3)           | 0.629   |
| Kidney failure                                | 0                        | 1 (10)                  | 1 (11.1)                 | 0.430   |
| Inotropes (>12 hrs)                           | 2 (13.3)                 | 1 (10)                  | 0                        | 0.531   |
| Vasopressors (>12 hrs)                        | 4 (26.7)                 | 1 (10)                  | 1 (11.1)                 | 0.471   |
| Neuromuscular blockade (>12 hrs)              | 3 (20)                   | 0                       | 0                        | 0.124   |
| Systemic corticosteroids (>24 hrs)            | 3 (20)                   | 2 (20)                  | 1 (11.1)                 | 0.835   |
| Failed extubation                             | 2 (13.3)                 | 0                       | 1 (11.1)                 | 0.495   |
| Duration of MV, hours                         | 148 (94-268)             | 69.5 (65-112.5)         | 120 (76-157.5)           | 0.080   |
| PICU length of stay, days                     | 7 (4-16)                 | 5 (4.8-7.5)             | 7 (4-8.5)                | 0.771   |
| Mortality                                     | 2 (13.3)                 | 0                       | 1 (11.1)                 | 0.495   |