**Do predicted tidal volumes have value in setting up domiciliary non-invasive ventilation?**

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**Introduction:** In the domiciliary setting, arbitrary expired tidal volumes (VTE) are often used as a target for effective non-invasive ventilation (NIV). By contrast in critical care, VTEs from predicted body weight have been demonstrated to improve ventilation and reduce mortality (The Acute Respiratory Distress Syndrome Network. The New England Journal of Medicine, 2000; 342:1301-1308). We investigated the relationship between arbitrary and predicted VTEs and adequacy of ventilation in patients receiving domiciliary NIV.

**Method:** Patients stabilised on NIV for >1 month underwent measurement of body weight and capillary blood gases. PCO2 and HCO3- concentrations were taken as measures of ventilatory success. Arbitrary VTE was achieved VTE at stability. Predicted VTE was calculated from measured body weight (7ml/kg). Percentage predicted VTE was calculated as (arbitrary VTE/predicted VTE)\*100.

**Results:** 35 patients (16 female; 63±12 years) on NIV due to obesity (63%), lung (17%) and neuromuscular (20%) conditions were included. NIV compliance was 89±22%, nightly usage was 6.7±2.6hrs, PCO2 5.52±0.68 kPa, HCO3- 27.7±3.3mmol/L. VTE was: arbitrary, 535±102 mls, predicted 813±189mls, arbitrary as %predicted 69±19%. Using partial correlations after adjustment for cause of T2RF, %predicted VTE was inversely related to PCO2 (r=-0.342, p=0.048) and HCO3- (r=-0.347, p=0.045).

**Conclusion:** In patients stabilised on domiciliary NIV, the closer their actual VTE was to their VTE predicted from weight, the better their ventilation as assessed by PCO2 and HCO3. The use of VTEs predicted from measured body weight in setting up domiciliary NIV now needs to be tested in clinical practice.