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Title: Consistently achieving higher acute non-invasive ventilation (NIV) set-up pressures at a respiratory ward-based unit

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Body: Introduction: NIV for acute hypercapnic respiratory failure (AHRF) in COPD, obesity related morbidity, chest wall and neuromuscular conditions has become widespread in the UK. In terms of acute NIV set up, the British national guidance (2008) recommends starting with an inspiratory positive airway pressure (IPAP) of 10 cm H2O and expiratory positive airway pressure (EPAP) of 4–5 cmH2O, with small increments in IPAP aiming for a pressure target of 20 cm H2O or until therapeutic response is achieved. We analysed trends in maximum pressures achieved since 2004 in our 11-bedded ward-based NIV unit. Methods: Comparison of in-house NIV registry data 01/08/04 -31/01/06 (Period 1) with 01/01/11 – 30/06/12 (Period 2), looking at maximum IPAP and maximum EPAP achieved. There were 281 episodes of AHRF treated in Period 1; 240 in Period 2 with similar distribution of gender. Results: There were 281 episodes of AHRF in period 1 and 240 in period 2. Maximum IPAP achieved in period 2 was significantly higher than period 1 (median IPAPmax 20 cmH2O vs. 14 cmH2O; p=2.2x10-16). Maximum EPAP followed same trend (median EPAPmax 5cm H2O vs. 4cm H2O; p=8.068x10-6). Discussion: Adequate therapeutic response is achieved with median IPAP max of 16.7 and median EPAP max of 5.2 cmH2O (Ali A et al. ERJ 2011; 38: 55. 683s.). However, with more experience over an 8-year period, we are achieving significantly higher maximum IPAP and maximum EPAP. This is probably in keeping with the increasing severity of AHRF that is being treated in the unit with similar in-hospital mortality (around 22%). Further analysis of population characteristics and comparison with units of similar size are needed.