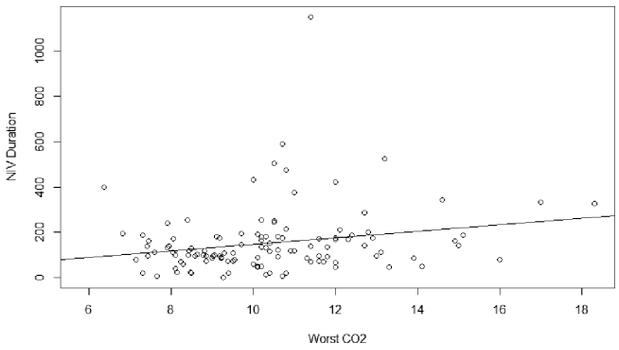
admission creatinine, pH, worst arterial carbon dioxide level (CO_2) and presence and severity of chronic kidney disease (CKD) was assessed by simple linear regression.

Results There was a statistically significant regression coefficient between worst observed CO_2 and the duration of NIV (fitted equation: NIV Duration = 4.281 + 14.357 × Worst CO_2, p = 0.019). The plotted linear relationship showed an increase in duration of NIV treatment of 14.35 h for every 1 kPa increase in CO_2 above 6 kPa. The admission creatinine and severity of CKD did not significantly alter the duration of NIV required. The presence of acute kidney injury was also not significant. The pH value did not significantly alter the duration of NIV treatment.



Abstract P42 Figure 1 NIV duration plotted against worst CO_2. Linear regression fitted equation shown (duration NIV (hours) = 4.281 + 14.357 x Worst CO_2)

Conclusion This survey shows that the level of CO_2 influences the duration of acute NIV required, in that for every 1 kPa rise in CO_2, the duration of acute NIV treatment rises by 14.35 h. The other studied variables do not correlate with treatment duration.

P43 HOW APPROPRIATELY IS NIV USED AS A CEILING OF TREATMENT?

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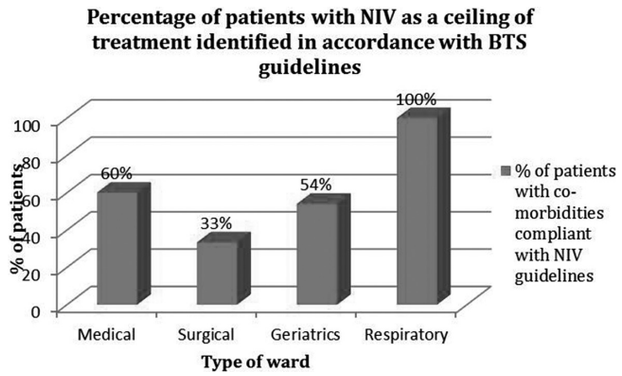
Background Treatment Escalation Plans (TEPs) were introduced at the Royal United Hospitals Bath (RUH) in 2013 to help physicians document decisions regarding ceilings of treatment. In implementing a TEP, a patient may be deemed unsuitable for resuscitation and/or Intensive Care Unit (ICU) but remain a potential candidate for ward-based non-invasive ventilation (NIV). However as ward-based NIV is indicated in relatively few respiratory conditions this option should only be available to a small cohort of patients. This study examines how appropriately patients have NIV cited as a ceiling of treatment, using 2002 BTS acute NIV guidelines as a benchmark.

Method We collected data from medical, surgical and geriatric wards at the RUH on three separate days between November 2014 and June 2015. In patients with a TEP who were deemed unsuitable for CPR, we recorded a) the ceiling of treatment decision b) reason for admission and c) co-morbidities. We reviewed how many patients with NIV as a ceiling of treatment had an indication in accordance with BTS guidelines.

Results 658 patient notes were reviewed. 109/658 patients were deemed not suitable for ICU but had NIV as a ceiling of treatment. 64/109 patients (59%) had an indication in accordance with BTS guidelines, while 45/109 patients (41%) were non-compliant. There was variation in compliance between specialties (General Medicine 60% compliant, Elderly Care 54% compliant and Surgery 33% compliant). The Respiratory ward was the most compliant (100%).

Conclusions Whilst NIV can offer significant survival benefits to patients with certain conditions (eg COPD exacerbations, obesity hypoventilation syndrome and chest wall disease) national BTS audits have repeatedly shown that ward-based NIV is often used unsuccessfully outside of these indications. The current study demonstrates that over 40% of patients admitted to our hospital inappropriately have NIV set as their ceiling of treatment, albeit with some variability between wards and specialties. This suggests that further education is required about the potential limitations of NIV, particularly for non-respiratory specialists who often make TEP decisions.



Abstract P43 Figure 1

P44 CHRONIC OBSTRUCTIVE PULMONARY DISEASE EXACERBATION AND RESPIRATORY ACIDOSIS: PATIENT OUTCOMES AT 6 MONTHS

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Introduction Recognition of hypercapnic respiratory failure is a vital part of the assessment and management of the patient with an acute exacerbation of chronic obstructive pulmonary disease (COPD). Several studies have demonstrated that respiratory acidosis in the context of an acute exacerbation is associated with worse inpatient outcomes. Our study compares the outcomes of patients admitted with an acute exacerbation, between those with respiratory acidosis and those who had a normal pH and $PaCO_2$ on arterial blood gas (ABG) analysis.

Methods Patients requiring hospital treatment for an acute exacerbation of COPD had an ABG taken on admission. Patients were subsequently assessed for the following outcomes: inpatient