Post-interventions, oxygen prescriptions increased by 35% and there was an increase in nurses signing prescriptions from 7% to 46%. 13% fewer patients’ saturations were out of range.

Conclusions This audit confirms the results of BTS national audit 2012 and NPSA rapid response report that oxygen is poorly administered in NHS hospitals, putting patients, particularly those liable to CO₂ retention, at risk. We found that simple interventions raising awareness can have an impact and improve patient safety, although there is clearly room for further improvement, through further training for both clinicians and nurses.

REFERENCES
1. BTS National Emergency Oxygen Audit Report, May 2013, B. Ronan, O’Driscoll
2. NPSA Rapid Response Report – Oxygen safety in hospitals, 2009
OXYGEN, TOO MUCH OF A GOOD THING - CAN WE ELECTRONIC PRESCRIBING ALERTS SIGNIFICANTLY IMPROVE PERFORMANCE?

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Introduction Delivery of high-flow oxygen therapy (OT) to patients experiencing acute exacerbations of COPD can result in respiratory acidosis and hypercapnic respiratory failure, significantly increasing morbidity and mortality rates. BTS guidelines recommend that severe AECOPD should be managed with OT delivered at 4L/min using a 28% Venturi mask with target oxygen saturations of 88–92%. Literature suggests these guidelines are poorly adhered to due to long-standing routines and desire to rapidly correct hypoxia.

Aim Develop a model of AECOPD using the Human Patient Simulator (HPS) demonstrating the dangers of high-flow OT and the advantages of titrated OT. This could be used in the education of healthcare professionals promoting awareness of the risks and improving adherence to BTS guidelines ultimately reducing unnecessary morbidity and mortality.

Methods Creation of the AECOPD model was achieved through parameter manipulation within the HPS software. Target values for \( P_{O_2} \), \( P_{CO_2} \), respiratory rate and pH were sourced from average recorded measurements of 405 patients experiencing AECOPD found in the literature. On administration of high-flow oxygen additional parameters were altered to model the resultant hypercapnic respiratory failure.

Results An accurate model of AECOPD was achieved producing values reflective of literature: \( P_{O_2} \) 53 mmHg, \( P_{CO_2} \) 54 mmHg, \( S_{O_2} \) 84% and pH 7.34. Manipulation of additional software parameters on administration of high-flow oxygen demonstrated the rapid onset of hypercapnic respiratory failure, with \( P_{CO_2} \) increasing to 102 mmHg and pH falling to 6.98. In comparison, on 28% oxygen administration \( P_{CO_2} \) rose only to 50.6 mmHg and pH to 7.39, whilst \( P_{O_2} \) increased to levels seen in stable COPD (61 mmHg).

Conclusion These findings demonstrate that the HPS can be used to accurately demonstrate the risks of high flow OT in AECOPD. The model created here has the potential to be an excellent educational tool, which could be used to improve adherence to the evidence based guidelines and potentially reduce patient morbidity and mortality in the future.

REFERENCES
1. Austin et al. BMJ 2010;341:c5462

OXYGEN, TOO MUCH OF A GOOD THING - CAN WE SAVE LIVES USING A NOVEL SIMULATION?

H Whitehouse, E Lombard, H Blakely; University of Bristol, Bristol, UK; 10.1136/thoraxjnl-2013-204457.216

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