

Methods 46 patients with chronic hypercapnic COPD commenced remote-monitored home NIV in iVAPS-autoEPAP mode (Lumis, Airview, ResMed) between Feb-17 – Jan-18. Admission-free survival was compared with a cohort of COPD patients who survived an episode requiring acute-NIV, prior to home NIV service adoption.

Results Day-case NIV initiation was possible in 15/46 patients; 29 patients commenced NIV during index acute admission, including 7 patients as outreach to regional base hospitals. 36/46 continued NIV in volume-assured mode, 10 were switched to ST mode. Auto-EPAP component was discontinued in 18 patients. Follow up was individualised, typically requiring 6 data reviews, 2 telephone consultations and 1 remote prescription change. 15 patients required additional domiciliary nurse visit and 10 required additional day-case review to consolidate therapy. 11 patients were ultimately intolerant of home NIV despite all support; remote monitoring data justified ventilator retrieval. Median decrease in bicarbonate of 4.9 mmol/L ($p<0.0151$) and PCO₂ 2.2 kPa ($p<0.032$) confirmed control of hypoventilation. Median time to re-admission or death in patients who continued optimised home NIV was 28 weeks, vs 12 weeks in historical acute NIV cohort.

Conclusions Remote monitored auto-NIV facilitates treatment uptake, optimisation of home NIV and control of hypoventilation in patients with severe COPD. Admission-free survival improved from that projected from historical cohort, mirroring RCT outcomes.

P179 PATIENT SAFETY ALERT: A PROSPECTIVE STUDY ON 100 PATIENTS HIGHLIGHTING INACCURACY OF PULSE OXIMETER FINGER PROBES USED ON EAR LOBES

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Introduction Clinicians often obtain peripheral saturation (SpO₂) readings by placing a finger probe sensor on the patient's earlobe when a reading cannot be obtained from the finger. The accuracy of this method is unknown, and is not recommended by the manufacturers of oximeters.

Objectives To assess the accuracy of oxygen saturations measured by a pulse oximeter finger probe on earlobes compared to saturations on arterial blood gases (ABGs).

Method We performed a prospective study on 100 patients attending the oxygen clinic at a teaching hospital from September 2017 to May 2018. All patients who were routinely due to have ABGs performed were included, and informed verbal consent was taken.

Saturations were recorded using a Masimo Rad5v oximeter for finger probe on the finger, finger probe on earlobe, and ear probe on earlobe. These were compared to saturations recorded on ABGs performed on the same clinic visit as a gold standard utilising a Radiometer ABL 90 flex ABG machine. We defined 'accurate' SpO₂ as being $\pm 2\%$ of the SaO₂ on the ABG. The degree of variation of SpO₂ from SaO₂ was stratified into $\leq 2\%$, $\leq 3\%$, $\leq 4\%$, and $> 4\%$.

Results As demonstrated in table 1, using a finger probe on the finger gave the most accurate SpO₂ readings compared to the ABG. Using a finger probe on the earlobe was the least accurate with only 7% readings being within $\pm 2\%$ of SaO₂. Using a more 'lenient' definition of accuracy as variation

Abstract P179 Table 1

	Finger probe on finger	Ear probe on earlobe	Finger probe on earlobe
Range of difference compared to SaO ₂	0%–7%	0%–9.6%	0.1%–12%
Mean difference compared to SaO ₂	1.7%	2.9%	5%
% accuracy ($\leq 2\%$ variation compared to SaO ₂)	68%	39%	7%
% accuracy ($\leq 3\%$ variation compared to SaO ₂)	86%	64%	23%
% accuracy ($\leq 4\%$ variation compared to SaO ₂)	94%	79%	37%

of $\leq 4\%$ compared to SaO₂, the accuracy of finger probe on finger, ear probe on earlobe, and finger probe on earlobe were 94%, 79% and 37% respectively.

In all cases ($n=100$), using a finger probe on the earlobe over-estimated the oxygen saturations with values ranging from 0.1% to 12% (mean 5%) greater than SaO₂, highlighting that this method was inaccurate, and potentially exposed patients to the risk of clinicians under-estimating the degree of hypoxemia.

Conclusions This study highlights that the practice of using pulse oximeter finger probes on ear lobes when saturations are difficult to record on a finger is inaccurate and potentially risky.

P180 USING PATIENT SPECIFIC PROTOCOLS (PSP) TO ACHIEVE APPROPRIATE OXYGENATION IN PATIENTS AT RISK OF OXYGEN TOXICITY; FROM AMBULANCE THROUGH TO INPATIENT STAY

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Introduction and objectives The London Ambulance Service (LAS) uses Patient Specific Protocols (PSPs) as directives for a range of conditions. Since 2006¹ we have worked with LAS using PSPs to prevent oxygen (O₂) toxicity during ambulance transfer in patients at risk of type 2 respiratory failure. PSPs are now 'flagged' on our records which may also influence hospital oxygen prescribing. The aim of this study was to evaluate PSP effectiveness in influencing appropriate O₂ prescribing during both ambulance transfer and hospital stay.

Methods Data from 50 patients identified as at risk of oxygen toxicity (disease severity and/or raised bicarbonate) who had PSPs initiated sequentially pre-May 2017 were reviewed for; initiation bicarbonate, ED attendances, prescription and delivery of O₂ in ambulance/ED/wards, and death in the subsequent year.

Results Hospital records were reviewed for 43/50 (86%) patients with PSPs. Patient characteristics are shown in table 1. In the year post-PSP 20/43 (46.5%) had ≥ 1 hospital attendance (overall 44 attendances); there were 2 deaths (not O₂-related).

LAS data were available for 34/44 (77%) attendances. 30/34 (88.2%) were appropriately oxygenated during ambulance