72 patients (77.4%) were managed in non-critical care settings [mean age 72.7 yrs (28–99)]. 48.6% (35) survived to discharge, 14.3% (5) required LTOT and 5.7% (2) died within 30 days of discharge. Flow rates ranged 20–65 L/min. In non-ICU patients, survival was negatively correlated with increasing flow rates ($r = -0.86$). Patients requiring ≥60 L/min had an 86% mortality rate ($p = 0.0001$).

Conclusion Mortality rates were higher in patients managed on NHF in a non-critical care setting. A negative correlation was present between flow rates and survival outside of ICU. This may be explained by an older patient cohort, associated comorbidities and premorbid performance status. However this information could help guide clinical decision making in acutely unwell patients with limited escalation options.

P189 OXYGEN USE IS BECOMING MORE CONSERVATIVE ON INTENSIVE CARE UNITS IN THE UK

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Background There is controversy about the optimal level of oxygenation for patients in intensive care units (ICU) and several recent publications have raised the possibility of harm from hyperoxaemia amongst ICU patients.[1] Most recent ICU publications have reported that hyperoxaemia is common. The aim of this project was to audit blood gas data at two hospitals to determine if there is evidence of changing practice in recent years.

Methods We audited all available ICU blood gas datasets for Hospital A for 2005 (n = 16,734), 2010 (n = 12,714) and 2015 (n = 17,292) and data from Hospital B from 2012–2013 (n = 11,006) and for 2015 (n = 22,223).

Results At Hospital A, the percent of ICU blood gas samples with hyperoxaemia ($SaO_2 > 98\%$) fell from 57.4% in 2005 to 45.1% in 2010 and 29.0% in 2015. Mean SaO_2 fell from 97% in 2005 to 96% in 2015. The mean PaO_2 also fell from 15.1 KpA in 2005 to 13.5 in 2015 (The reference range for PaO2 is 12.0 to 15.0 kPa). Samples from hospital B did not span such a wide time range but they demonstrated a similar fall in the proportion of hyperoxaemic samples from 42.7% in 2012–2013 to 29.7% in 2015 which was very similar to the data for Hospital A in 2010 and 2015 (45.1% and 29.0%).

Conclusions There is evidence from two hospitals that the use of oxygen in Intensive Care Units has become more conservative in recent years, possibly as a result of recent publications which have identified poor outcomes in association with hyperoxaemia. A wider survey will be undertaken to determine if this trend is taking place in Intensive Care Units throughout the UK.

Abstract P189 Table 1

Oxygen saturation SaO2 ranges	2005 Percent of Hospital A ICU blood gas samples	2010 Percent of Hospital A ICU blood gas samples	2015 Percent of Hospital A ICU blood gas samples	2015 Percent of Hospital B ICU blood gas samples
<70%	0.7%	0.7%	1.4%	2.9%
70–89.9%	1.7%	3.7%	3.7%	6.1%
90–94%	4.0%	7.8%	10.2%	12.8%
94.1–98%	36.3%	42.7%	55.6%	48.5%
>98%	57.4%	45.1%	29.0%	29.7%

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P190 CHARACTERISTICS AND OUTCOME OF PATIENTS WITH ACTIVE TUBERCULOSIS REQUIRING INTENSIVE CARE ADMISSION, 2010–2015

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Introduction Severe tuberculosis (TB) infection requiring admission to the intensive care unit (ICU) has been reported to be associated with a poor prognosis; however, no data on this cohort of patients from the UK is available. We sought to characterise and report the outcome of this patient group, looking to identify prognostic markers of a poor outcome.

Methods All patients admitted to the ICU at our London tertiary referral centre between 01/01/10 and 31/12/15 and coded as having TB were identified and cross-referenced against the London TB register.

Results 29 patients were identified which represents 4% (29/790) of all TB notified at our centre in the study period. Median age was 41 years (22–86); 72% were male. 69% had pulmonary TB; 24% were HIV-infected, with a median CD4 count on admission of 134/uL (17–277). 14% were AFB smear-positive; 79% had culture-positive TB and 86% grew fully-sensitive organisms. The most frequent indications for ICU admission were hypoxic respiratory failure (38%), haemodynamic compromise (24%) and hypercapnic respiratory failure (21%). Median A-a gradient was 12.9 kPa, median PaO_2/FiO_2 ratio was 29.9 kPa. 72% required mechanical ventilation (median ventilation days 8.4). Two patients received extracorporeal membrane oxygenation therapy for severe respiratory failure. Median APACHE II score was 16 and median SOFA score was 4. Median length of stay in ICU was 7 days and in hospital was 24. At 30 days, 35% remained inpatients (of which 14% remained in ICU), 59% had been discharged home and 21% had died.

Table 1 summarises the differences between survivors and those who died.

Abstract P190 Table 1 Patient characteristics comparing median values in the patients who survived to 30 days, against those who died. Values are displayed as median (range).

	Survived (n = 23)	Died (n = 6)
Age (years)	41 (22–79)	58 (37–86)
ICU Length of stay (days)	7 (2–54)	11 (3–64)
Hospital Length of stay (days)	22 (5–228)	44 (8–66)
CRP (mg/L)	71 (0–303)	104 (58–232)
White cell count (x10^9)	9.1 (3.2–29.9)	11 (3.3–21.3)
Haemoglobin (g/L)	94 (71–156)	88 (75–111)
Albumin (g/L)	27 (15–44)	21 (17–27)
pH (on admission)	7.38 (7.04–7.47)	7.30 (7.14–7.59)
pO2 (kPa)	10.53 (6.9–40.0)	9.12 (7.0–10.6)
pCO2 (kPa)	5.92 (3.3–14.6)	9.03 (4.2–12.1)
P/f ratio	32 (13.2–60.3)	25.2 (12.2–30.3)
Ventilator days	2 (0–47)	6 (2–56)
Days on cardiovascular support	0 (0–13)	3 (0–56)
Days on renal replacement therapy	0 (0–19)	5.5 (0–15)

Conclusion In our TB population, the requirement for ICU care was infrequent, with respiratory failure being the most common indication. ICU and overall hospital length of stay was prolonged, but with a majority of patients surviving to discharge. Possible markers of a poor outcome include age, and a requirement for cardiovascular/renal support. These markers and TB-related factors now need to be explored in a larger cohort.

P191 REDUCING THE CARBON FOOTPRINT IN A REGIONAL LONG TERM VENTILATION SERVICE WITH THE USE OF REMOTE MONITORING

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Introduction There is strong emerging evidence on the devastating effect of anthropogenic climate change on lung health. In England, the NHS accounts for 30% of the public sector carbon footprint, with patient travel being accountable for 8% of overall travel (17%). The climate change act (2008) resulted in the government and NHS committing to an 80% reduction in carbon emissions by 2050.

Methods There are many studies detailed the benefit of telemonitoring in reducing carbon footprint within NHS services. Within the Lancashire and South Cumbria Long Term Ventilation Service (LSCLTVS) we have invested in a ventilator remote monitoring system (Encore*Anywhere*™). Over a 3 month time period we analysed the telephone consultations of all 138 patients under the care of the LSCLTVS (80 patients on remote monitoring systems). Patients or carers that called reporting deterioration in a clinical condition that could not be rectified over the telephone were identified. The normal intervention that would follow would be a visit from the GP or community respiratory team, hospital admission, clinic visit or home visit from the ventilation team. A ventilator review was indicated in 29 patients which would normally necessitate either a clinic visit to Royal Preston Hospital or a consultation at home. However as these patients had remote ventilator monitoring we were able to review data and make changes remotely.

Results In a 3 month time period 29 return journeys were prevented through the use of remote monitoring. This equated to 1029.3 km (623 miles), 249 kgCO_2e (0.24 t CO_2e)*saved over 28 hours in commuting time and £255 in mileage costs (40 p per mile). It also had a positive impact on patient experience and no hospital admissions or clinic visits were necessary after remote consultation. 62% (n = 18) patients required use of rescue packs including antibiotics and mucolytics as well as remote ventilator changes.

*Emission factors from DEFRA 2012 show for an average petrol car the value is 0.24234 kg CO_2e per km

Discussion The use of remote monitoring within the LSCLTVS has reduced the carbon footprint of the service on average 6.6 kg CO_2e per patient. Patients also reported improved satisfaction and compliance.

P192 IMPROVING OUTCOMES FOR PATIENTS WITH RESPIRATORY FAILURE USING PROTOCOL BASED CARE PLANS FOR NIV (NON-INVASIVE VENTILATION) AND HFNO (HIGH FLOW NASAL OXYGEN)

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Introduction and objectives Respiratory failure is a common clinical problem and a number of treatment options are available. NIV is an established treatment for hypercapenic type two respiratory failure (RF). High Flow Nasal Oxygen (HFNO) is an alternative to standard oxygen or CPAP, and its use in hypoxemic patients has been growing.

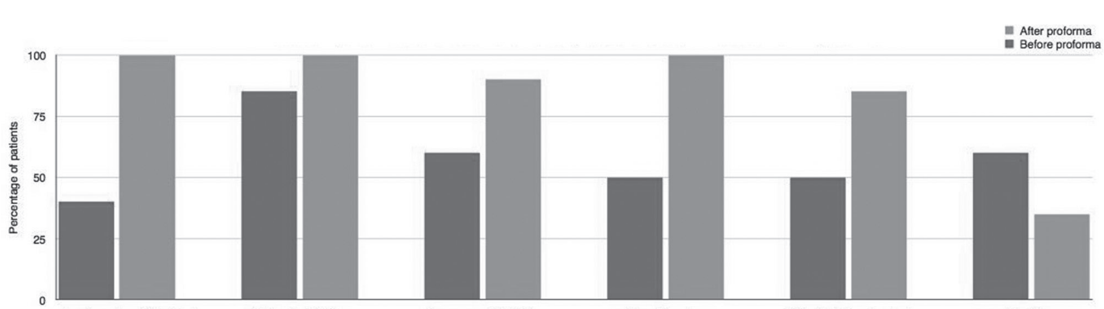
NHS adheres to evidence based guidance and protocols to improve the safety, quality and consistency of care. We developed and implemented local guidance and protocols for managing respiratory failure with HFNO and NIV in a District General Hospital.

Methods A retrospective analysis of data from inpatient type 2 respiratory failure and NIV prior and post BTS Guideline based local protocol implementation was collected. Analysis was done to assess adherence to protocol and compare quality care and outcomes with data prior to implementation. For type 1 respiratory failure a literature review was done, evidence appraised and local guidance and protocol for HFNO developed and a pilot study conducted.

Results Since introduction of NIV proforma: NIV more frequently initiated in appropriate setting. Compliance with recommended ABG monitoring improved from 85% to 100%. Documentation of escalation plans improved from 50% to 100% (Figure 1).

HFNO was successfully implemented and commenced in our Trust over 10 weeks. All patients on HFNO tolerated therapy. Prevented ITU admission in 80% of cases selected for monitored ward based care of respiratory failure.

Conclusions In the present study, we showed how to safely implement evidence based local guidance and protocol based care plans for managing type 1 and 2 respiratory failure in a DGH to



Abstract P192 Figure 1 Data comparison: documentation and mortality before and after introducation of NIV proforma