Thirty-one patients were successfully decannulated and weaned from IMV, including the use of nocturnal NIV. Twelve required no ventilatory support, 19 were discharged using nocturnal NIV and 5 continued nocturnal IMV (one of own choice). Twenty-two were discharged directly home, 7 to rehabilitation or the referring hospital and 6 to long-term nursing care. Thirty-four patients were alive 6 months after hospital discharge.

Seven transfers had undergone neurosurgery, five having posterior fossa surgery. Compared with allcomers they were significantly more likely to have permanent bulbar dysfunction, require feeding gastrostomy, tracheostomy on discharge, have a longer LOS (106 vs 51 days) and were less likely to be discharged home. Long-term NIV was used in two neurosurgical patients compared with 17 allcomers.

Conclusions Patients with weaning failure can be effectively managed outside ICU. NIV enabled weaning in 50% of cases; consistent with published experience[1]. Six month survival is good and most are discharged directly home. Patients after neurosurgery present a specific challenge. NIV may not possible, and ongoing bulbar dysfunction may necessitate the retention of a tracheostomy for ventilation, airway protection and suction.

REFERENCES

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S86 CHANGE IN PATIENT DEMOGRAPHICS AND HOME MECHANICAL VENTILATION (HMV) SET UP FOR PATIENTS WITH CHRONIC RESPIRATORY FAILURE BETWEEN 2006 AND 2012

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Introduction HMV is standard therapy for long term management of chronic respiratory failure in patients with neuromuscular disease (NMD), chest wall disease (CWD), chronic obstructive pulmonary disease (COPD) and obesity related respiratory failure (ORRF). This study investigated changing trends in patient demographics and HMV ventilator set up over a 7-year period.

Methods Data from a bespoke discharge summary system (Carevue, Philips Corporation, US) of patients established on HMV from 2006 to 2012 were analysed. Patient demographic and anthropometric data, including spirometry and arterial blood gas values were analysed. Difference in length of stay (LOS) for non-invasive ventilation (NIV) set up and trends in the ventilator pressures was performed. A p-value <0.05 was considered significant.

Results 952 patients (518 male) were reviewed with a mean age of 57 ± 16 years. HMV set ups rose by 32.1% over the 7 years. The largest increase was observed in the ORRF group from 44% to 53% of the cohort. In comparison with 2006, NMD/CWD patients were started on HMV with lower arterial partial pressure of carbon dioxide (P_aCO_2) in 2012, whilst COPD patients were initiated on HMV at a higher P_aCO_2 (Table 1). LOS for elective NIV set up fell between 2006 and 2012 (4 (2–7) vs 2 (1–3) days; <0.0001). An increase in inspiratory positive airway pressure (IPAP) was demonstrated across all groups with a decrease in expiratory positive airway pressure (EPAP) demonstrated in NMD/CWD and COPD groups (Table 1).

Conclusions This study demonstrated an increasing demand for HMV in the UK. This was most marked in the ORRF group in line with rising levels of obesity. In 2012, NMD/CWD patients were being initiated on HMV earlier in the course of chronic respiratory failure, whereas COPD patients were being initiated when chronic respiratory failure was well established. A significant increase was observed in the inspiratory pressures delivered across all groups with a reduction in the expiratory pressures in the NMD/CWD patients as well as the patients with COPD. Efficiency of HMV set up has improved, as reflected by the reduced LOS and this is the result of a more structured clinical pathway.

Abstract S86 Table 1. Changes in spirometric measurement, arterial blood gas measurements and ventilator settings of patients initiating HMV between 2006 and 2012.

Analysed parameters	2006		2012		p value
	mean	SD	mean	SD	
FEV1 (L/s)	0.9	0.5	1.1	0.4	0.2
NMD/CWD	0.7	0.3	0.6	0.2	0.8
COPD	1.6	0.7	1.9	1.2	0.1
ORRF	1.1	0.5	1.4	0.4	0.04*
FVC (L)	1.2	0.5	1.4	0.5	0.4
NMD/CWD	2.0	0.8	2.4	1.4	0.1
COPD	9.9	1.4	9.8	2.5	0.9
ORRF	8.0	1.2	8.5	1.9	0.3
PaO_2 (kPa)	9.1	1.6	8.9	1.5	0.6
NMD/CWD	7.7	0.6	7.5	1.6	0.01*
COPD	7.5	1.1	8.6	1.2	<0.01*
ORRF	6.9	1.1	6.6	1.4	0.2
$PaCO_2$ (kPa)	30	3	33	5	0.04*
NMD/CWD	33	4	37	5	<0.01*
COPD	31	4	29	4	0.03*
ORRF					
HCO_3 (mmol/L)					
NMD/CWD					
COPD					
ORRF					
IPAP (cmH2O)	Median	IQR	Median	IQR	
NMD/CWD	16	14-18	20	17-24	<0.01
COPD	24	20-25	26	24-28	<0.01
ORRF	22	18-25	24	19-28	<0.05
EPAP (cmH2O)					
NMD/CWD	5	4-8	4	3-5	<0.01
COPD	6	5-10	4	3-5	<0.01
ORRF	12	10-16	12	10-19	0.1

*Significant difference (p value <0.05) between 2006 and 2012

S87 THE EFFECT OF ON PATIENT COMFORT AND NEURAL RESPIRATORY DRIVE (NRD) OF VENTILATOR TRIGGER DELAY DURING NON-INVASIVE VENTILATION (NIV)

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Introduction Optimising patient-ventilator interaction (PVI) has been shown to enhance patient comfort and respiratory muscle unloading. A major cause of poor PVI is ventilator trigger delay,