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**Title:** Observation cohort study of outcome of patients referred to a UK regional weaning centre

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**Body:** Data on referral pattern and outcome of weaning failure patients referred to weaning and rehabilitation centres are limited. We evaluated the outcome of patients between 2006 and 2011 from the clinical database. Of 369 patients referred, 298 were accepted and 194 were eventually admitted to the unit. 63 (32.5%) had neuromuscular disease or chest wall deformity (NMD/CWD), 40 (20.6%) were post surgery, 37 (19.1%) has chronic obstructive pulmonary disease (COPD), 7(3.6%) had obstructive sleep apnoea/obesity hypoventilation (OSA/OHS) and 47 (24.3%) had other neurological or spinal conditions (Other). 87(44.9%) were completely weaned from ventilation and 42 (21.7%) were weaned from invasive to non-invasive. Median time from admission to weaning (TTW) was 18 days. 36 (18.6%) remained dependent on tracheostomy ventilation (TV) and 29 (15.0%) died before discharge. This compares with a mortality rate of 25% in the group of patients accepted, but not transferred.

Weaning outcomes at the LFU

Diagnosis	Ventilator free n (%) Ventilator free n (%)	NIV n (%)	TV n (%)	Median TTW (days)	Mortality n (%)
NMD/CWD	21 (33.3)	22 (34.9)	15 (23.8)	20	5 (7.9)
COPD	19 (51.4)	5 (13.5)	2 (5.4)	12	11 (29.7)
Post Surgical	24 (60.0)	4 (10.0)	5 (12.5)	14	7 (17.5)
OSA/OHS	2 (28.6)	3 (42.9)	0 (0.0)	23	2 (28.6)
Other	21 (44.7)	7 (14.9)	13 (27.7)	18	6 (12.8)

Mortality has decreased by 12% compared to previous data (Pilcher et al Thorax 2005). Mortality is lowest in the NMD and other neurological conditions groups. Complete ventilator independence was most common in the COPD and post surgery groups. The data indicates improved survival and weaning success in the group admitted to the LFU compared to those accepted but not transferred.