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**Title:** Web-based home telemonitoring of nocturnal pulse oximetry: Feasibility and clinical implications for amyotrophic lateral sclerosis patients

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**Body:** Amyotrophic lateral sclerosis (ALS) requires a long and closer follow-up process. Nocturnal pulse oximetry (NPO), although the inpatient variability of recordings, may be useful to screen respiratory function. Telehome monitoring (THM) of NPO in ALS patients may present an alternative for closer follow-up. AIM To test THM of NPO in patients with ALS as an easier alternative for identifying nocturnal desaturations. METHODS ALS patients without daytime hypoxemia but FVC < 80% pred received a THM device which acquires signals from an internal pulseoximeter and connects to modem by bluetooth technology. In a Web-page data are accessed. THM was conducted on 5 consecutive nights in the clinical follow-up of ALS patients or during noninvasive ventilation (NIV) adaptation. Time spent with a saturation below 90% (TB90%) for ≥5% of study time and mean nocturnal saturation (MNS) for each recording were calculated. RESULTS We studied 15 cases, 6 receiving home NIV. TB90% for ≥5% index was detected in 7 subjects (46%), including 50% of those using NIV. Desaturation and periods of nocturnal hypoventilation during spontaneous breathing were easily detected. The system allowed to monitor change parameter setting of ventilator during NIV adaptation. Little inpatient variation in MNS was seen among nights (mean difference 1.2%); larger variation was seen for TB90% (17.2%) CONCLUSIONS THM of NPO in ALS was found to be user-friendly by the patients. The system allowed to monitor nocturnal pattern breathing or asses NIV effectiveness; 5 consecutive monitorings reduced the inpatient variability. Supported by Fondazione Cassa di Risparmio Carrara.