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Title: Immediate non-invasive ventilatory (NIV) support in patients with severe respiratory failure on the emergency ward (ED)

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Body: Patients with severe respiratory failure (SRF) are often in need for rapid ventilatory support. Acute NIV is frequently limited to the intensive care unit (ICU). We hypothesized that initiation of NIV in the ED may benefit these patients. In a multidisciplinary consensus we created the following ED NIV protocol: - Patients admitted to the ED with SRF defined as either respiratory rate (RR)>25/min, SpO₂<92% despite 6L/min supplemental oxygen and/or hypoventilation (paCO₂>7.4kPa). - Initiation of NIV by respiratory therapists (RTs) within 30 min after calling the RTs - NIV in the ED was limited to office hours (otherwise standard care) Results: Within 6 months, 55 patients qualified. 44 cases were assessed on the ED, 31 during office hours. 2 did not receive NIV (improvement or abdominal distress). Main reasons for SRF were COPD, pulmonary edema and pneumonia. RR, acidosis and hypercarbia improved in all but 2 patients within 60 min of NIV (RR 30+/-8/min to 19+/-6/min, pH 7.32+/-0.11 to 7.39+/-0.07, and pCO₂ 8.13+/-2.21kPa to 6.32+/-2.26kPa). 13 patients were placed on ICU, 4 had been intubated. 5 of 13 patients with a no-resuscitation order died. An important indication in such cases was palliation of dyspnea. Conclusion: NIV on the ED resulted in substantial and rapid clinical benefit, even in palliative settings. NIV in SRF bridges optimal patient management between ED, ICU and medical ward.