



# How to treat COPD patients with home NIV: best practices



Clinical trial data show that higher inspiratory pressures targeted at reducing elevated carbon dioxide levels contribute to the success of home NIV therapy.<sup>1,2,11</sup>

Improving elevated arterial carbon dioxide levels should be one of the main goals of home NIV.<sup>3</sup>

High-intensity NIV does not appear to have a negative impact on compliance, sleep quality, or quality of life.<sup>1,4,13</sup>

After careful selection of patients most likely to benefit from home NIV, the next step is to deliver effective therapy that is well tolerated. Establishing adequate home NIV ventilator settings and targets could be important contributors to the success of treatment,<sup>5</sup> but the most important factor when treating chronic hypercapnic respiratory failure in COPD is to ensure that treatment is delivered to ameliorate nocturnal hypoventilation and improve daytime gas exchange.<sup>6</sup>

Earlier studies of home NIV used moderate inspiratory positive airway pressure (IPAP) levels of 12–14 cmH<sub>2</sub>O and pressure support modes with a nasal mask but failed to show any overall benefit of treatment.<sup>7-9</sup>

In contrast, two more recent studies that used a different approach to home NIV, with higher IPAP, pressure-controlled ventilation or pressure-support mode and a higher back-up rate, reported significant improvements in outcome and mortality with home NIV.<sup>1,2</sup> However, another study using high intensity NIV did not show significant improvements in patient outcomes.<sup>10</sup>

**This indicates that pressure alone is not sufficient to ensure the success of home NIV. Careful selection of patients with persistent hypercapnia and, in particular, effective reduction in carbon dioxide levels during home NIV therapy are also essential.<sup>11</sup>**



## Titration and monitoring

Interfaces used in published studies of successful high-intensity NIV are usually those that cover both the nose and mouth.<sup>11</sup> Patient comfort is a key factor in mask selection and plays an important role in compliance with therapy.

Home NIV is generally initiated and titrated in hospital, with the goal of titration being to control nocturnal hypoventilation and reduce carbon dioxide using a moderate to high IPAP approach. However, rapidly evolving telemedicine technology might allow

home initiation and follow-up of NIV. Home initiation of NIV was just as good as in-hospital NIV initiation in COPD patients with chronic hypercapnic respiratory failure.<sup>12</sup>

High-intensity NIV with the higher IPAP and back-up rate required to adequately reduce CO<sub>2</sub> levels does not appear to have a negative impact on compliance, sleep quality, or quality of life.<sup>1,4,13</sup> Nevertheless, evaluation of patient tolerance of IPAP and the back-up respiratory rate should be performed during the titration process, and patients need to be given time to acclimatise to higher pressure settings.

Overall though, long-term compliance rates were 5.9–7.6 h/night.<sup>1,2,10</sup>

**Careful monitoring is essential for patients initiated on high-intensity NIV. This could be facilitated by telemedicine technology providing ventilatory data, patient-ventilator asynchrony, transcutaneous gas measures and other relevant parameters.**

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