

COPD Exacerbation in the ED –NICE 2010, BTS NIV 2008

The treatment of COPD varies widely due to patients'; comorbidities, severity of exacerbation, social circumstances and wishes.

Senior support is often invaluable

Investigations – ALL if Admission

- Blood gases (note FiO_2)
- Chest X-ray.
- ECG
- FBC + U&E
- Theophylline level at admission (if person is on theophylline).
- Sputum microscopy and culture (if purulent sputum)
- Blood cultures if pyrexial.

Treatments

Will depend on the patient and severity of exacerbation

- **Initial treatment for ALL:** Neb. Controlled O_2 and Steroids [<30 mins]
- Antibiotics [if purulent sputum]
- Further treatment to Consider:
 - Back to Back Nebs (Salbutamol and Ipratropium)
 - IV Aminophylline 5mg/kg bolus (30min) upto 500mg (if not on theophylline)
 - Maintenance Aminophylline (post bolus / on theophylline)
 - NIV
 - Intubation (Often not suitable)

NIV should be considered for all COPD patients with a persisting respiratory acidosis **after a maximum of one hour** of standard medical therapy

Using NIV – position 45° , correct mask

Pressures

- IPAP
 - Starts 10cms H_2O
 - Titrated rapidly by 5cm/15min
 - Target of 20cm H_2O or therapeutic
- EPAP 4-5cm H_2O is recommended

Oxygen to achieve SpO_2 of 88-92%

ABG's after at 1, 4 and 12 hrs [minimum]

Intubation decision within 4 hrs of NIV

Contraindications

- Recent facial, upper airway or upper gastrointestinal* surgery
- Fixed obstruction of the upper airway
- Vomiting
- Inability to protect the airway*
- Copious respiratory secretions*
- Life threatening hypoxaemia*
- Severe co-morbidity*
- Confusion/agitation*
- Bowel obstruction*
- Pneumothorax [chest drain 1st]

*NIV can be used if contingency plans for tracheal intubation have been made, or if a decision has been made not to proceed to invasive ventilation.

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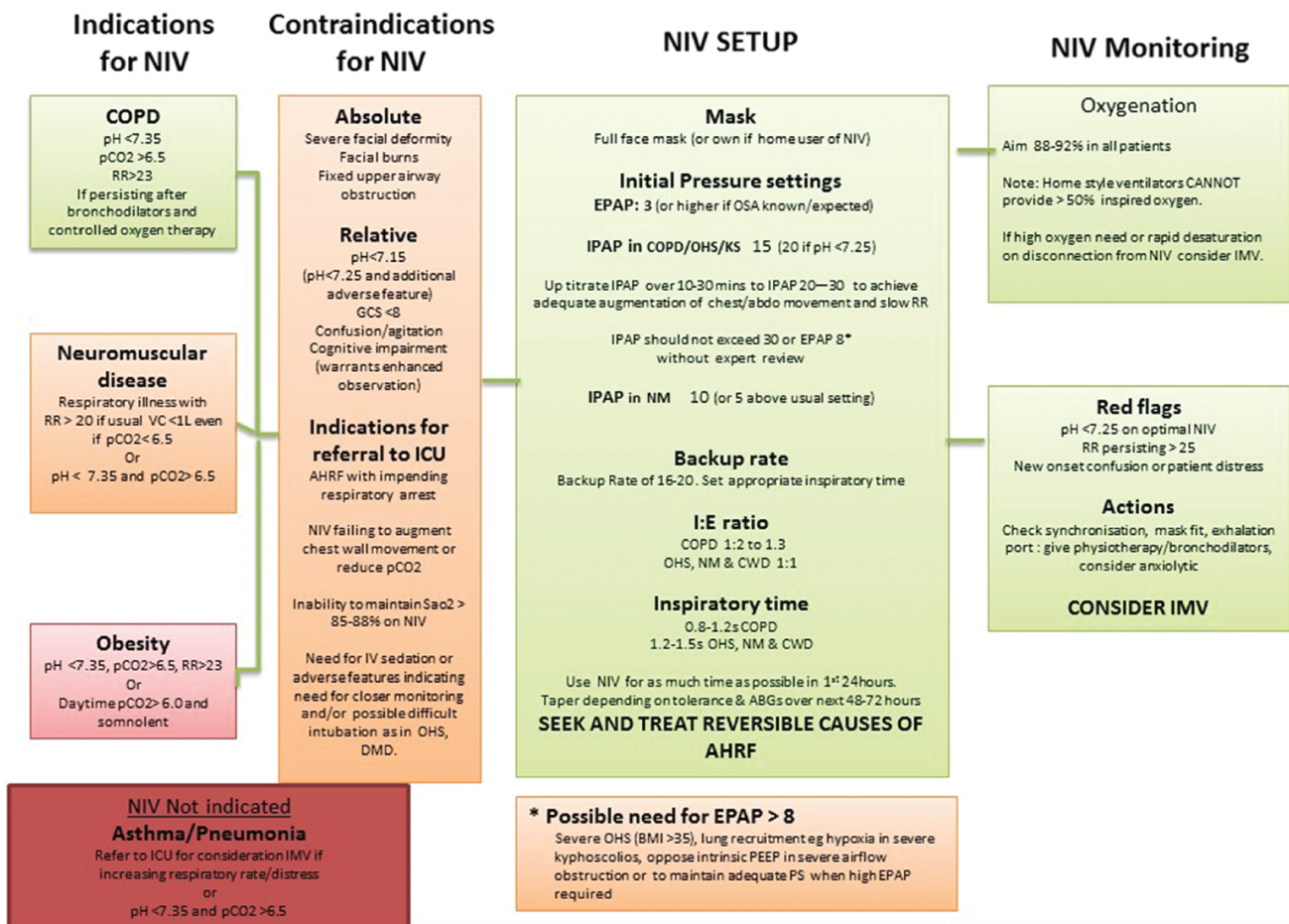


Table 3 Technical issues: a guide for when NIV is failing

Problem	Cause(s)	Solution (s)
Ventilator cycling independently of patient effort	Inspiratory trigger sensitivity is too high Excessive mask leak	Adjust trigger Reduce mask leak
Ventilator not triggering despite visible patient effort	Excessive mask leak Inspiratory trigger sensitivity too low	Reduce mask leak Adjust trigger For NM patients consider switch to PCV
Inadequate chest expansion despite apparent triggering	Inadequate Tidal volume	Increase IPAP. In NM or chest wall disease consider longer Ti
Chest/abdominal paradox	Upper airway obstruction	Avoid neck flexion Increase EPAP
Premature expiratory effort by patient	Excessive Ti or IPAP	Adjust as necessary

EPAP, expiratory positive airway pressure; IPAP, inspiratory positive airway pressure; NIV, non-invasive ventilation; NM, neuromuscular; PCV, pressure-controlled ventilation.

Discharge / Referral destination

This is frequently a difficult decision, with many medical and social influences. Information is key and utilise senior decision-making.

Where to manage – Consider these [NICE 2010]		
	Home?	Hospital?
Able to cope at home	Yes	No
Breathlessness	Mild	Severe
General condition	Good	Poor/deteriorating
Level of activity	Good	Poor/confined to bed
Cyanosis	No	Yes
Worsening peripheral oedema	No	Yes
Level of consciousness	Normal	Impaired
Already receiving LTOT	No	Yes
Social circumstances	Good	Alone/not coping
Acute confusion	No	Yes
Rapid rate of onset	No	Yes
Significant comorbidity	No	Yes
SaO ₂ < 90%	No	Yes
Changes on chest X-ray	No	Present
Arterial pH level	≥ 7.35	< 7.35
Arterial PaO ₂	≥ 7 kPa	< 7 kPa

- For those on NIV they require Respiratory ward, HDU or ICU
- Those with pH <7.26 should be considered for HDU or ICU due to high risk of treatment failure