

Indications for NIV

COPD

pH < 7.35
pCO₂ > 6.5
RR > 23

If persisting after bronchodilators and controlled oxygen therapy

Neuromuscular disease

Respiratory illness with RR > 20 if usual VC < 1L even if pCO₂ < 6.5
Or
pH < 7.35 and pCO₂ > 6.5

Obesity

pH < 7.35, pCO₂ > 6.5, RR > 23
Or
Daytime pCO₂ > 6.0 and somnolent

Contraindications for NIV

Absolute

Severe facial deformity
Facial burns
Fixed upper airway obstruction

Relative

pH < 7.15
(pH < 7.25 and additional adverse feature)
GCS < 8

Confusion/agitation
Cognitive impairment
(warrants enhanced observation)

Indications for referral to ICU

AHRF with impending respiratory arrest

NIV failing to augment chest wall movement or reduce pCO₂

Inability to maintain SaO₂ > 85-88% on NIV

Need for IV sedation or adverse features indicating need for closer monitoring and/or possible difficult intubation as in OHS, DMD.

NIV SETUP

Mask

Full face mask (or own if home user of NIV)

Initial Pressure settings

EPAP: 3 (or higher if OSA known/expected)

IPAP in COPD/OHS/KS 15 (20 if pH < 7.25)

Up titrate IPAP over 10-30 mins to IPAP 20-30 to achieve adequate augmentation of chest/abdo movement and slow RR

IPAP should not exceed 30 or EPAP 8* without expert review

IPAP in NM 10 (or 5 above usual setting)

Backup rate

Backup Rate of 16-20. Set appropriate inspiratory time

I:E ratio

COPD 1:2 to 1:3
OHS, NM & CWD 1:1

Inspiratory time

0.8-1.2s COPD
1.2-1.5s OHS, NM & CWD

Use NIV for as much time as possible in 1st 24 hours.
Taper depending on tolerance & ABGs over next 48-72 hours
SEEK AND TREAT REVERSIBLE CAUSES OF AHRF

NIV Monitoring

Oxygenation

Aim 88-92% in all patients

Note: Home style ventilators CANNOT provide > 50% inspired oxygen.

If high oxygen need or rapid desaturation on disconnection from NIV consider IMV.

Red flags

pH < 7.25 on optimal NIV
RR persisting > 25

New onset confusion or patient distress

Actions

Check synchronisation, mask fit, exhalation port: give physiotherapy/bronchodilators, consider anxiolytic

CONSIDER IMV

NIV Not indicated

Asthma/Pneumonia

Refer to ICU for consideration IMV if increasing respiratory rate/distress or
pH < 7.35 and pCO₂ > 6.5

* Possible need for EPAP > 8

Severe OHS (BMI > 35), lung recruitment eg hypoxia in severe kyphoscoliosis, oppose intrinsic PEEP in severe airflow obstruction or to maintain adequate PS when high EPAP required