



Non-invasive ventilation

Bilevel positive-pressure ventilation via a tight-fitting mask for acute hypercapnic respiratory failure, with a documented escalation plan and early blood-gas review.

Patient reference

Date

Time

Completed by

Equipment ready

- ☐ NIV ventilator with oxygen entrainment
- ☐ Full-face (oronasal) masks in several sizes, headgear; nasal mask or total-face mask as alternatives
- ☐ Non-vented or vented circuit correct for the machine, exhalation port, filter
- ☐ Oxygen supply
- ☐ Continuous SpO₂, ECG and blood pressure monitoring
- ☐ Arterial or venous blood gas analyser access
- ☐ NIV prescription and observation chart
- ☐ Nasogastric tube if distension develops

Before · Decide and document

- ☐ Confirm the indication with an arterial blood gas after optimal medical treatment
- ☐ Request a chest X-ray, but do not let it delay NIV unless pneumothorax is suspected

☐ **Exclude or drain a pneumothorax before starting NIV**

☐ **Decide and document the escalation plan before starting: whether the patient is for intubation if NIV fails, or NIV is the ceiling of care**

Discuss with the patient and family where possible; involve critical care early if the patient is for escalation.

- ☐ Write an NIV prescription: mode, pressures, oxygen, target saturations, review times

Before · Prepare the patient

- ☐ Explain the procedure, the sensation of the mask and air flow, and that it can be removed if needed
- ☐ Sit the patient upright, at least 45°
- ☐ Size the mask using the manufacturer's gauge; choose a full-face mask first in acute illness
- ☐ Let the patient hold the mask to the face before strapping it on

During · Start and titrate

- ☐ Start with EPAP 3–5 cmH₂O and IPAP 15 cmH₂O (spontaneous/timed mode)

- ☐ Increase IPAP in steps of 2–5 cmH₂O every few minutes to a target of 20–30 cmH₂O within 10–30 minutes, as tolerated
- ☐ Set a backup rate and inspiratory time per machine and local protocol
- ☐ Entrain oxygen to target SpO₂ 88–92% in hypercapnic failure
- ☐ Tighten the mask only enough to stop large leaks; a small leak is acceptable
- ☐ Stay with the patient for the first minutes to coach synchrony

During · Monitor

- ☐ Record respiratory rate, heart rate, blood pressure, SpO₂, conscious level and synchrony continuously, with observations at least every 15 minutes in the first hour
- ☐ Repeat the blood gas 1 hour after starting, and 1 hour after any setting change, then at 4 hours
- ☐ Troubleshoot asynchrony and leak: check mask fit, secretions, circuit, trigger and IPAP
- ☐ Allow short breaks for drinks, nebulisers and mouth care once stable

☐ **Do not delay intubation in a patient who is for escalation and is failing NIV**

Failure: worsening pH or PaCO₂, falling conscious level, exhaustion, or no improvement at 1–4 hours.

After · Ongoing care and weaning

- ☐ Admit to a setting with staff trained in NIV and appropriate monitoring
- ☐ Continue NIV for as much of the first 24 hours as tolerated when it is working
- ☐ Wean once the underlying cause is improving and pH and PaCO₂ have normalised
- ☐ Review the escalation plan at each senior review
- ☐ Consider a nasogastric tube for gastric distension, and venous thromboembolism prophylaxis
- ☐ Document settings, blood gases, tolerance and the escalation decision
- ☐ If NIV is the ceiling of care and is failing, move to comfort-focused care and discuss with the family



A drafted procedure checklist, awaiting senior review. Perform procedures only within your training, competence and local policy. It does not replace your clinical judgement.

EM Orbit · Emergency medicine, in one orbit · proc-niv · red rows are the steps that must not be missed