

Non-Invasive Ventilation (NIV) Guideline

Goals

Improved Oxygenation and Ventilation
Stabilize/Improve pH (respiratory acidosis)
Reduce Work of Breathing
Avoid (Re)Intubation

Indications

COPD exacerbation – Grade I
CHF / Cardiogenic Pulmonary Edema – Grade I
DNI patients – if accept therapy – Grade I
+/- Pneumonia – only if low volume secretions and able to clear – Grade II
Prevention Post-Operative Respiratory Complications – Grade II
Post-Operative Respiratory Failure – Grade II

Contraindications

Severe altered mental status
Inability to clear secretions
Inability to protect airway (cough, gag)
High risk for aspiration
UGI bleeding
*Post-Extubation Respiratory Failure – do not use, may increase mortality, no decrease in re-intubation rate

Interface

1st Line – Face mask – improved oxygenation and ventilation
2nd Line – Nasal mask – improved tolerance (claustrophobia), improved clearance of secretions

Predictors of Success / Failure

Improvement in Oxygenation / Ventilation within 1 hour
Decreased Respiratory Rate
Small Air Leak
Good patient coordination/cooperation

Indicators of Failed NIV and Need for (Re)Intubation

No improvement or stabilization of O₂/CO₂ within 2 hours
Worsening tachypnea or increased work of breathing
Declining mental status or agitation
Inability to clear secretions or increased secretion burden / need for suctioning
Inability to tolerate mask or ventilator

NIV Modes

1) Spontaneous/Timed (S/T) Mode – standard NIV mode

CPAP – set single continuous (CPAP) pressure

BIPAP – set inspiratory (IPAP) and expiratory (EPAP/PEEP) pressure

- Also set backup/emergency RR (8 or 10), do not depend on this value for ventilation, if patient is not breathing above set rate → intubate

2) Average Volume Assured Pressure Support (AVAPS) Mode – similar to APV in intubated patient

Set EPAP/PEEP, TV, and RR (machine will adjust IPAP support needed to achieve set TV)

- Requires close monitoring for achievement of tidal volumes and compliance/tolerance of patient

Pearls

- 1) Start with low pressures in NIV virgins, titrate up pressure as needed after achievement of patient compliance with mask and ventilator
- 2) Titrate pressure support until you see a decrease in the patient's work of breathing and RR, goal RR 20s or less
- 3) Reassess at set intervals (10m, 30m, 1hr) after initiation, if no improvement in 1-2 hours → intubate patient
- 4) Utilize Respiratory Therapists to help with ventilator settings and evaluation of success/failure