

**\* Would your patient benefit from High Flow Nasal Prong oxygen (HFNP) as an alternative to NIV? Follow local guidelines**

## Acute COPD NIV pathway in ED

### 1. ASSESS FOR NIV INDICATIONS:

- Severe work of breathing (tachypnoeic, use of accessory muscles)
- Hypercapnea and acidosis (Ph <7.35)
- Pre-oxygenation prior to RSI

### 2. ANY CONTRAINDICATIONS TO NIV?:

- Patient requires immediate intubation
- NIV inappropriate (end stage COPD, palliative – d/w pt's specialist)
- Respiratory arrest
- Unprotected airway (coma, sedation)
- Upper airway obstruction
- Untreated pneumothorax
- Inability to clear secretions
- Marked haemodynamic instability
- Oesophageal or maxillofacial surgery
- Base of skull fracture

### 3. DECISION TO START NIV INFORM SENIOR ED CLINICIAN EARLY HDU/ICU REVIEW

### 4. NIV PRESCRIPTION:

IPAP 8-12cm H2O

EPAP 5cm H2O

FiO2 1.0, rapidly down-titrate aiming sats 88-92%

Comfortable mask and minimal leaks

Patient reassurance

### TROUBLESHOOTING AND FAILURE TO RESPOND TO NIV

#### General Problems

- ✓ Loss of seal and poor compliance
  - Reassurance, adequate mask fit, low dose ketamine (d/w senior ED physician)
- ✓ Bronchoconstriction, sputum retention and pain
  - Continue to nebulise through the BIPAP circuit
- ✓ Development of pneumothorax
  - May only be small on initial CXR

#### Respiratory acidosis not improving

- ✓ Ensure expiratory port functioning
- ✓ Loss of hypoxic drive -> minimise FiO2
- ✓ If patient not synchronising with ventilator consider:
  - Excessive IPAP -> reduce
  - Adjust inspiratory trigger sensitivity/ inspiratory time
  - Not triggering due to Auto-PEEP -> increase EPAP gradually
- ✓ Inadequate ventilation
  - Adjust IPAP upwards to increase the IPAP/EPAP pressure difference (pressure support, PS)
  - Increase inspiratory time
  - Consider changing mode of ventilation (pressure control or volume cycle ventilation)

#### Worsening hypoxaemia

- ✓ Increase EPAP
- ✓ Consider cautiously increasing FiO2, if develops worsening hypercarbia then IPAP will need to be increased
- ✓ Sputum retention -> induced coughing/physio
- ✓ High failure rate of NIV in pneumonia

**Troubleshooting failure?  
Always consider need for intubation**

### 5. ASSESS CLINICAL RESPONSE:

- Is the patient triggering the ventilator and is respiratory effort synchronous with the machine?
- Adequate chest wall movement
- Improving tidal volumes (TV), ideally 8ml/kg
- Patient less breathless, more alert, less agitated

### 6. ASSESS PHYSIOLOGICAL RESPONSE:

- ABG/VBG: Improving respiratory acidosis. Repeat 30 minutes after initiating NIV and then every 1-2 hours. Minimum of every 4hr.
- Continuous sats and CO2 monitoring