

CHI no .....  
 First name ..... DOB ..... / ..... / .....  
 Last name ..... Sex:  M  F  
 Address .....  
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 or attach addressograph label here

## Acute Non-Invasive Ventilation (NIV) Patient Care Plan and Prescription

| Indication  | Yes No N/A   |
|---|--|
| Persistent* decompensated Type 2 Respiratory Failure (T2RF)<br>H <sup>+</sup> >45 (pH<7.35) and PaCO <sub>2</sub> >6.5kPA (>45mmHg) | <input type="checkbox"/> <input type="checkbox"/>                          |
| Consent   | Yes No N/A   |
| Does the patient have capacity?   | <input type="checkbox"/> <input type="checkbox"/>                          |
| If yes, does the patient consent to NIV?  | <input type="checkbox"/> <input type="checkbox"/>                          |
| If the patient does not have capacity - is an AWI in place?   | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| If the patient does not have capacity is NIV appropriate treatment according to the patient's 'best interests' and previous wishes? | <input type="checkbox"/> <input type="checkbox"/>                          |
| Has the patient had NIV before?   | <input type="checkbox"/> <input type="checkbox"/>                          |
| Was NIV previously tolerated?   | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| Communication   | Yes No N/A   |
| Has this decision been discussed with the patient?  | <input type="checkbox"/> <input type="checkbox"/>                          |
| (If AWI/patient permits): Has this decision been discussed with next of kin?  | <input type="checkbox"/> <input type="checkbox"/>                          |
| Has senior on call/consultant on call input been sought?  | <input type="checkbox"/> <input type="checkbox"/>                          |
| Treatment Escalation Plan   | Yes No N/A   |
| In the event of failure on NIV, is invasive ventilation appropriate?  | <input type="checkbox"/> <input type="checkbox"/>                          |
| Has this been discussed with the intensive care team?   | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| In the event of failure on NIV, would palliation be most appropriate?   | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| If so, has this been discussed with the patient and next of kin?  | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| Has a Hospital Anticipatory Care Plan (HACP) been documented outlining ceiling of treatment?  | <input type="checkbox"/> <input type="checkbox"/>                          |

|                                   |   |
|-----------------------------------|---|
| <b>Completed by:</b> (PRINT NAME) | <b>Designation:</b>   |
| <b>Signature:</b>                 | <b>Date:</b> ..... / ..... / ..... <b>Time:</b> ..... : ..... (24 hour) |

\*After 1 hour's maximal medical therapy - **controlled** O<sub>2</sub>, nebulisers, steroids +/- antibiotics  
 \*Treatment for reversible causes of acute deterioration underway

**NB. NIV is not indicated in acute asthma or pneumonia with T2RF  
 → Discuss with Intensive Care Team**



CAT045  
NMAHP:NIVCPP:19\_04007.L

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**NIV Settings and Blood Gas Monitoring**

Baseline assessment/ABG following 1 hour maximal medical therapy/controlled O<sub>2</sub> (before NIV):

Date: ..... / ..... / ..... Time: ..... : .....

FiO<sub>2</sub>: ..... Respiratory Rate: (RR) .....

|                |                   |                  |                  |
|----------------|-------------------|------------------|------------------|
| H <sup>+</sup> | PaCO <sub>2</sub> | PaO <sub>2</sub> | HCO <sub>3</sub> |
| B.E.           | SpO <sub>2</sub>  | Lactate          |                  |

Initial settings for underlying COPD\* IPAP 12-14cm H<sub>2</sub>O  
 EPAP 4cm H<sub>2</sub>O

**Rapidly increase IPAP (Inspiratory Positive Airway Pressure) by 2-4cm H<sub>2</sub>O at 5 min intervals for target IPAP pressure 20-30cm H<sub>2</sub>O within 10-30 mins as tolerated**  
**Check ABGs after 1 hour established on NIV and after changes in settings/FiO<sub>2</sub>**  
**Entrain O<sub>2</sub> 0-6 litres to aim peripheral O<sub>2</sub> sats 88-92%**

\*See flow chart overleaf for alternative settings in OHS/neuromuscular disease  
 Monitoring on NIV - minimum checking of ABGs at hour 1, hour 4, and hour 12 on NIV as well as 1 hour after changes in established settings

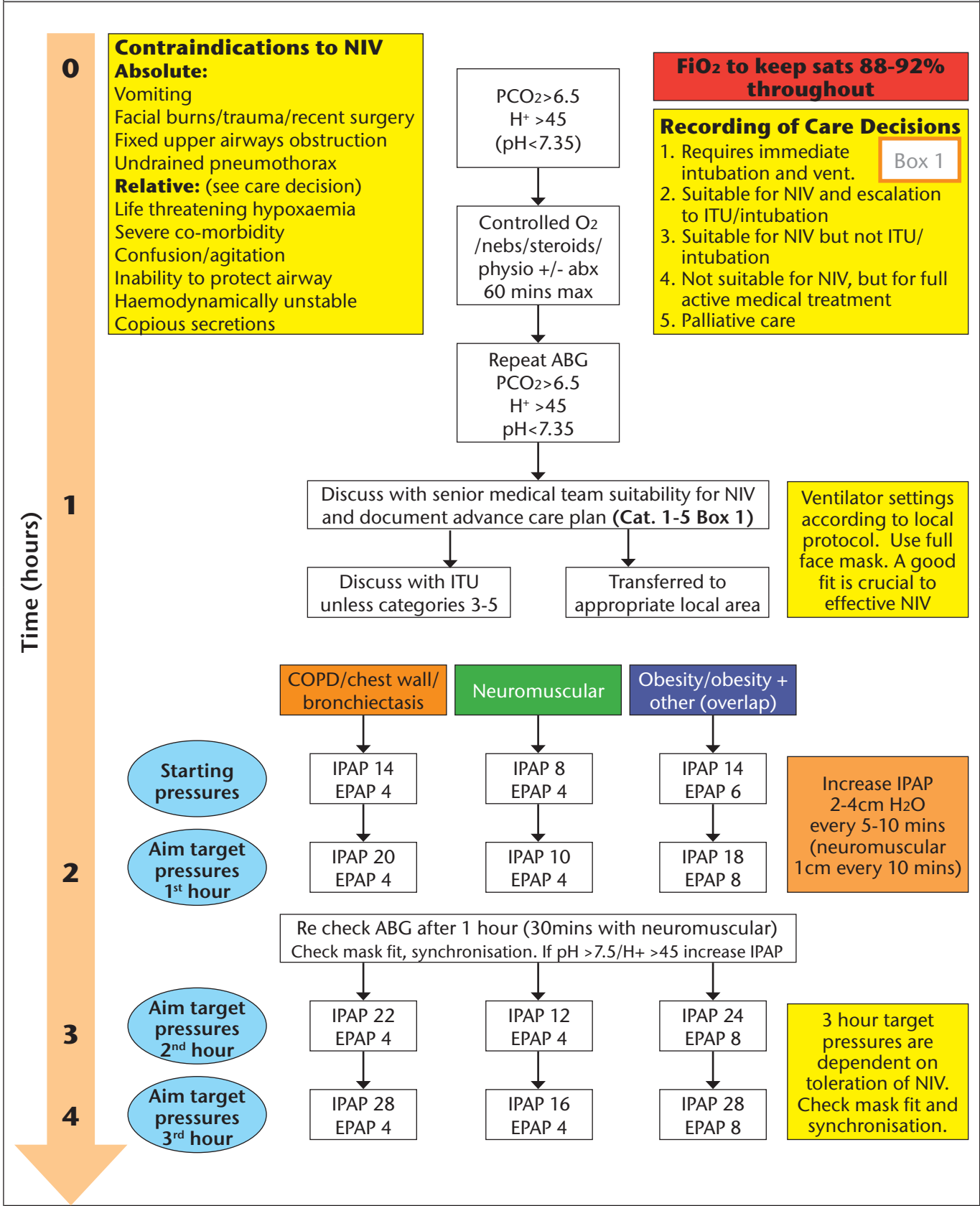
| Date/Time         |  |  |  |  |  |  |  |
|-------------------|--|--|--|--|--|--|--|
| IPAP/EPAP         |  |  |  |  |  |  |  |
| FiO <sub>2</sub>  |  |  |  |  |  |  |  |
| H <sup>+</sup>    |  |  |  |  |  |  |  |
| PaCO <sub>2</sub> |  |  |  |  |  |  |  |
| PaO <sub>2</sub>  |  |  |  |  |  |  |  |
| HCO <sub>3</sub>  |  |  |  |  |  |  |  |
| B.E.              |  |  |  |  |  |  |  |
| SpO <sub>2</sub>  |  |  |  |  |  |  |  |
| Lactate           |  |  |  |  |  |  |  |
| **RR**            |  |  |  |  |  |  |  |
| Initials          |  |  |  |  |  |  |  |

**Think C. R. A. M. P. S. regularly review:**

- **C**omplications, **R**R, **A**BG, **M**ask, **P**atient Comfort, **S**ynchronisation - check mask fit/leak
- AND** continue bronchodilators/steroids/antibiotics +/- chest physio +/- anxiolytic.
- Maximise continuous use of NIV in first 24 hours (allow 15 min breaks for nutrition, oral medication, nebulisers - if NIV dependent, nebs can be given through machine).
- If physiological parameters not improving within 1-2 hours **optimum** NIV, consider escalation of care if in line with HACF.
- If worsening acidosis despite optimising NIV therapy and patient is a ceiling of treatment, discuss with senior medical team, patient, next of kin and consider NIV withdrawal.

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### Non Invasive Ventilation (NIV) Management and Settings Flowchart



**Wean down FiO<sub>2</sub> as patient improves: aim SpO<sub>2</sub> 88-92% (>92% in neuromuscular disease)**

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### NIV Settings and ABG Monitoring

- **Taper NIV during the day over the following 2-3 days before discontinuing overnight use.**
- **Continued NIV monitoring** - record IPAP/EPAP settings and inspired oxygen at time of ABG.

|              |                         |  |  |  |  |  |  |  |
|--------------|-------------------------|--|--|--|--|--|--|--|
| <b>Day 2</b> | <b>Date/Time</b>        |  |  |  |  |  |  |  |
|              | <b>IPAP/EPAP</b>        |  |  |  |  |  |  |  |
|              | <b>FiO<sub>2</sub></b>  |  |  |  |  |  |  |  |
|              | <b>H<sup>+</sup></b>    |  |  |  |  |  |  |  |
|              | <b>PaCO<sub>2</sub></b> |  |  |  |  |  |  |  |
|              | <b>PaO<sub>2</sub></b>  |  |  |  |  |  |  |  |
|              | <b>HCO<sub>3</sub></b>  |  |  |  |  |  |  |  |
|              | <b>B.E.</b>             |  |  |  |  |  |  |  |
|              | <b>SpO<sub>2</sub></b>  |  |  |  |  |  |  |  |
|              | <b>Lactate</b>          |  |  |  |  |  |  |  |
|              | <b>**RR**</b>           |  |  |  |  |  |  |  |
|              | <b>Initials</b>         |  |  |  |  |  |  |  |

|              |                         |  |  |  |  |  |  |  |
|--------------|-------------------------|--|--|--|--|--|--|--|
| <b>Day 3</b> | <b>Date/Time</b>        |  |  |  |  |  |  |  |
|              | <b>IPAP/EPAP</b>        |  |  |  |  |  |  |  |
|              | <b>FiO<sub>2</sub></b>  |  |  |  |  |  |  |  |
|              | <b>H<sup>+</sup></b>    |  |  |  |  |  |  |  |
|              | <b>PaCO<sub>2</sub></b> |  |  |  |  |  |  |  |
|              | <b>PaO<sub>2</sub></b>  |  |  |  |  |  |  |  |
|              | <b>HCO<sub>3</sub></b>  |  |  |  |  |  |  |  |
|              | <b>B.E.</b>             |  |  |  |  |  |  |  |
|              | <b>SpO<sub>2</sub></b>  |  |  |  |  |  |  |  |
|              | <b>Lactate</b>          |  |  |  |  |  |  |  |
|              | <b>**RR**</b>           |  |  |  |  |  |  |  |
|              | <b>Initials</b>         |  |  |  |  |  |  |  |

|              |                         |  |  |  |  |  |  |  |
|--------------|-------------------------|--|--|--|--|--|--|--|
| <b>Day 4</b> | <b>Date/Time</b>        |  |  |  |  |  |  |  |
|              | <b>IPAP/EPAP</b>        |  |  |  |  |  |  |  |
|              | <b>FiO<sub>2</sub></b>  |  |  |  |  |  |  |  |
|              | <b>H<sup>+</sup></b>    |  |  |  |  |  |  |  |
|              | <b>PaCO<sub>2</sub></b> |  |  |  |  |  |  |  |
|              | <b>PaO<sub>2</sub></b>  |  |  |  |  |  |  |  |
|              | <b>HCO<sub>3</sub></b>  |  |  |  |  |  |  |  |
|              | <b>B.E.</b>             |  |  |  |  |  |  |  |
|              | <b>SpO<sub>2</sub></b>  |  |  |  |  |  |  |  |
|              | <b>Lactate</b>          |  |  |  |  |  |  |  |
|              | <b>**RR**</b>           |  |  |  |  |  |  |  |
|              | <b>Initials</b>         |  |  |  |  |  |  |  |

**Authors:** Dr Grace McDowell, Dr Rosie Meharry, Dr Adeline Chia, Charge Nurse Lawrence McDonald  
**Sources:** BTS/ICS Guidelines for the Ventilatory Management of Acute Hypercapnoeic Respiratory Failure in Adults April 2016 (*Thorax* Vol 71 Supplement 2), All Wales Guidelines for Acute Non Invasive Ventilaton (NIV), Dr Sara Fairbairn