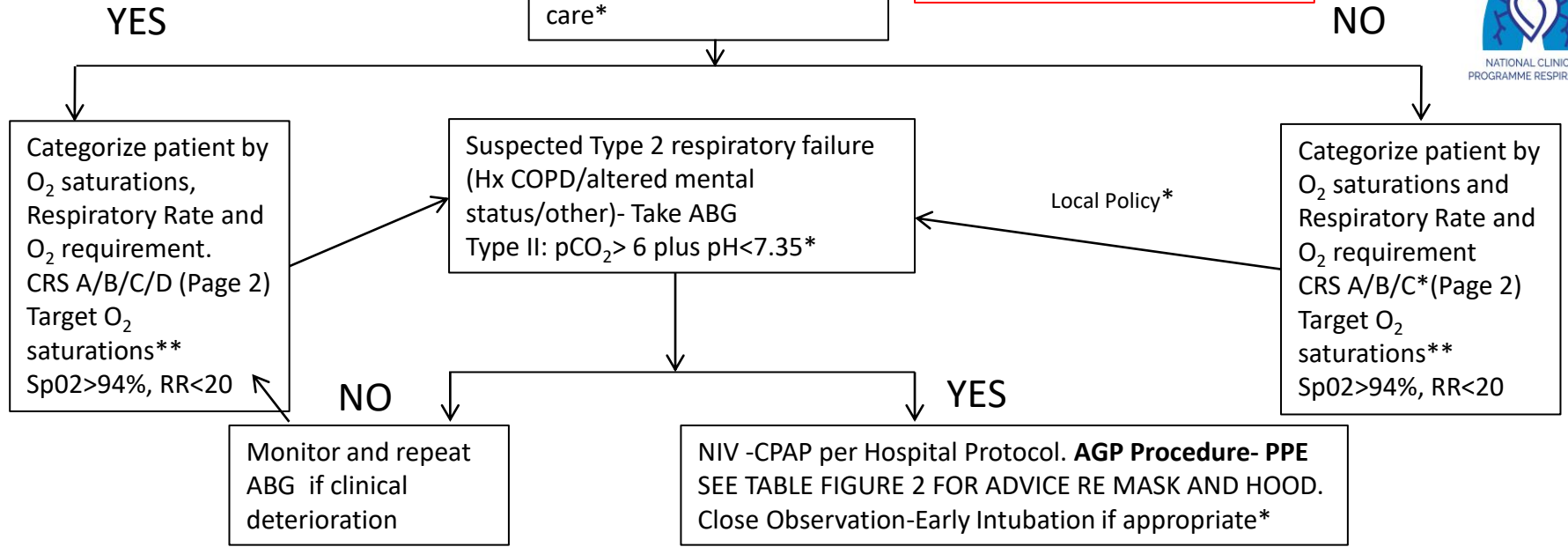


Respiratory symptoms
 COVID-19 +ve or suspected

↓

For resuscitation/ ICU level care*

Isolate/Full PPE.
NIV/HFNO only in -ve pressure (preferred) or single room.



COVID RESPIRATORY SCALE (CRS) A/B/C/D***	
A: Nasal cannula ≤ 3L min	
B: Nasal cannula >3 L min/ Venturi Mask 24-60%	
C1: High Flow Nasal Oxygen C2: CPAP/NIV	
D: ICU +/- Intubate	

In patients for intubation failing O₂ therapy (hypoxia/agitation/ Confusion) **Escalate Directly to CRS D (Intubate +/- ICU)**

*Resus status and decision for **ICU level Respiratory Care (Intubation/NIV/HFNO)** will depend on patients advanced directive, frailty, co-morbidities and local hospital ICU protocol and availability.

** In patients with known COPD target Oxygen saturations to 88-92%

*** Device options in C should be overseen by local hospital Oxygen and Devices group

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<p>CRS CATEGORY A NO O₂ REQUIREMENT/ NASAL CANNULA ≤ 3L Target: SpO₂≥94%, RR<20</p>	<ul style="list-style-type: none"> • These patients can be managed in the first instance while stable on designated isolation general medical wards. However, single side rooms should in the first instance be reserved for patients requiring High flow Nasal Oxygen (HFNO) or NIV. • Nasal cannula up to 3 L/ min
<p>CRS CATEGORY B NASAL CANNULA > 3 L min/ VENTURI 24-60% Target: SpO₂≥94%, RR<20</p>	<ul style="list-style-type: none"> • These patients can be managed as above BUT need an increased level of vigilance as may escalate to categories C and D QUICKLY. • Use tight fitting Venturi mask e.g. 40% RED Valve (venturi available from 24-60%) • Non re-breather/reservoir mask (100% at 15 L/min with tight fitting mask) OPTION if no response as a bridge to Category C/D • See WHO guidance on Clinical Management of severe acute respiratory infection when Covid-19 infection is suspected
<p>IF FAILURE OF CRS A/B Consider Escalation to C1 or C2 for Trial Period</p> <p>Patients who have haemodynamic instability, multiorgan failure or abnormal mental status should not receive HFNO or NIV in place of invasive ventilation and should be escalated to Category D if for Intubation</p>	
<ul style="list-style-type: none"> • These patients need to be managed INITIALLY IF APPROPRIATE on designated COVID ISOLATION WARD with RESPIRATORY MEDICINE input in close consultation with ICU colleagues. Ensure a clearly established ceiling of care and whether patient is deemed suitable for escalation to CRS CATEGORY D – intubation and ventilation. 	
<p>CRS CATEGORY C1¹ HIGH FLOW NASAL CANNULA (HFNO) (2AGP) EVALUATE AFTER 1 HOUR. CONSIDER NIV or ESCALATION IF FAILURE</p>	<ul style="list-style-type: none"> • HFNO-Flow rate³ – Initial setting 30 L/min, FiO₂ >70% via nasal cannula or mask. Titrate FiO₂ to target O₂ sat ≥ 94%. • VIDEO Link: How to set up AIRVO • Use of these devices influenced by Medicinal Oxygen Availability • Consider placing surgical face mask if tolerated on patient using HFNO
<p>CRS CATEGORY C2¹ NIV (2AGP) HIGH RISK OF FAILURE WITH DELAYED INTUBATION, EVALUATE AFTER 1 HOUR. CONSIDER ESCALATION IF FAILURE CPAP preferred mode</p>	<ul style="list-style-type: none"> • NIV with CPAP and high flow oxygen – initial pressures of 8-10 cm H₂O and O₂ at 10L/min and titrate to O₂ sats ≥ 94% - Ventilate using HOOD or non-vented face mask to minimise aerosolization. • BOTH HOOD AND MASK REQUIRE 2 HEALTHCARE PROVIDERS TO PLACE PROPERLY (OR PATIENT TO HOLD MASK IF CAPABLE). VIRAL FILTERS should be placed ON EXPIRATORY PORT. • NHS link for set up of NIV with well-fitting full facial mask and filter on exhalation port • VIDEO Link: How to place HOOD • Titrate CPAP as required to pressure 10-15 cm H₂O and titrate oxygen for target saturation ≥ 94%. • NIV with Bi-level ventilation is appropriate in type 2 respiratory failure as per usual practice.
<p>CRS CATEGORY D: ICU +/- INTUBATE (2AGP) SaO₂<94%, RR>20 but poor response to HFNO/ NIV</p>	<ul style="list-style-type: none"> • Inform ICU on call IMMEDIATELY IF patient previously deemed suitable for ventilation. • Do not delay transfer for endotracheal intubation and mechanical ventilation in appropriate patients with COVID-19. • These patients need to go straight to ICU depending on ventilator availability and proposed ceiling of care.

¹ Hospitals should convene local groups to oversee location and usage of Respiratory Support Devices. Group should Include representatives from Respiratory Medicine, Nursing, ICU and Clinical Engineering/Estates taking account of **Hospital Oxygen Supply and Local Respiratory Device Expertise**. Oxygen consumption from devices can be considerable and varies depending on equipment used and leak. Decision on which Respiratory Support to use will depend on staff training, equipment availability, infrastructure and oxygen supply as well as patient factors such as tolerability.

Evidence for outcomes in COVID respiratory failure for CPAP versus HFNO is awaited. Experience to date would suggest both may avoid further escalation to invasive mechanical ventilation. Patient Tolerability is key to successful use. Aerosol generation has not yet been directly compared.

²**AGP Procedures:** Because of uncertainty around the potential for aerosolization, HFNO, NIV, including hood CPAP, should be used with airborne precautions See: [HSE PPE Guidance for Staff](#)
 Do not use HFNO therapy for patients with COVID-19 in shared wards, emergency department cubicles or during inter-hospital patient transfer. Link to AGP guidance: <https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/guidance/infectionpreventionandcontrolguidance/aerosolgeneratingprocedures/>

³**HFNO Flow Rate:** [AIRVO-Fisher & Paykel](#) recommend no less than 30L/ min (influence of flow on aerosolization potential not studied formally).

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Notes:

- A. Use of **Steroids**: For hospitalized patients with COVID-19 requiring oxygen, the suggested regimen of corticosteroid use is 6 mg of dexamethasone (oral or intravenous) daily, intravenous hydrocortisone 50mg tid or equivalent for 7-10 days. <https://www.hse.ie/eng/about/who/acute-hospitals-division/drugs-management-programme/>. **Do not** routinely use corticosteroids to treat COVID-19 in **adults who do not require oxygen unless there is another indication e.g. co-existent Asthma or COPD**.
- B. Use **prophylactic doses of anticoagulants**, preferably low molecular weight heparin (LMWH) (e.g. enoxaparin 40 mg once daily) in **adults with moderate COVID-19 or other indications**, unless there is a contraindication, such as risk for major bleeding. <https://www.hse.ie/eng/about/who/acute-hospitals-division/drugs-management-programme/covid19-evidence-review-group-for-medicines-rer-for-thromboprophylaxis-in-the-management-of-covid19.pdf>
- C. **Prone position** for awake, spontaneously breathing patients may also improve oxygenation and the ventilation/perfusion ratio. For adults with COVID-19 who are receiving any form of supplemental oxygen therapy and have not yet been intubated, consider prone positioning for at least 3 hours per day as tolerated. When positioning a patient in prone, ensure it is used with caution and accompanied by close monitoring of the patient. Use of prone positioning should not delay endotracheal intubation and mechanical ventilation in patients with COVID-19 who are deteriorating
- D. **Nebulizers**: Although nebulisers are not considered AGP procedure, the use of bronchodilators through a spacer in asthma and COPD patients may have advantages including shorter duration of administration, ability to deliver through NIV Hood and patient can self-administer medication without health care provider entering room. If nebulisation absolutely required, perform in a single room where feasible. Nebulizer can be delivered through an in-line connector if using NIV Facemask ([Video Link to demonstration](#))

Further Information: [Irish Thoracic Society](#)