**Definition**

Consider COVID-19 in all patients presenting with:

* Clinical / radiological evidence pneumonia
* Influenza like illness (i.e. fever ≥ 37.8 plus ≥ 1 respiratory symptoms – cough, hoarseness, dyspnoea, sore throat, wheezing or sneezing)
* Acute Respiratory Distress Syndrome (ARDS)

**BEWARE - Alternative pathologies can mimic COVID-19 (i.e. bacterial sepsis)**

**Manage other medical comorbidities as per usual care**

**This guidance does not specifically cover IECOPD caused by COVID-19 infection.**

**Ensure appropriate PPE and isolate as per agreed IPC guidelines**

**COCH Guidelines for the initial management of COVID-19 as the primary diagnosis in adults (Version 2 – 29/03/20)**

**Investigations on admission**

**Bloods**

FBC, U+E, LFT, CRP, VBG or ABG (if SpO2 <92% or needing oxygen)

If High risk / severe disease: D-dimer, Ferritin, CK, Troponin (risk stratification)

**Microbiology**

Viral nose-throat swab SARS CoV2 / Influenza PCR

X2sets blood cultures (ideally prior to antibiotics)

Sputum (+ PCP/AFB if immunocompromised)

Send urine for legionella and pneumococcal antigens.

Blood for atypical pneumonia screen (Legionella, Mycoplasma, Chlamydia)

**Radiology / other**

Portable chest x-ray

Baseline ECG

Discuss with consultant prior to any CT/MRI request

**All confirmed COVID-19 patients should be referred to the research team for inclusion in clinical trials and consideration of additional treatments.**

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| **Adverse prognostic factors** |
| **Epidemiological** | **Vital Signs** | **Labs** |
| Age > 65Pre-existing: Respiratory disease, Cardiovascular disease, Hypertension, CKD or DiabetesUse biological therapyHistory transplant / immunosuppression | Respiratory Rate > 24Heart Rate > 125SaO2 < 93% (room air) | D-dimer > 1000 ng/mlCRP > 100Elevated troponinFerritin > 300  |

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| **Community Onset** | **Hospital onset** |
| **Group 1** | **Group 2** | **Group 3** | **Group 4** |
| Asymptomatic or mild symptoms without dyspnoeaAge <70, without adverse prognostic factors and negative CXR | Mild or moderate symptoms including dyspnoea. CXR with pneumonia or mild symptoms with adverse prognostic factors | Severe pneumonia with respiratory failure / ARDS or haemodynamic instability. | Variable severity of disease May be complicated by HAP  |
| Consider home to complete self-isolation | May be able to discharge following assessment | Hospital admission and consideration of intensive care if for escalation |

**On admission assess for frailty using the Clinical Frailty Scale (NICE guidance) and understand the patient’s co-morbid condition(s) to help tailor the management of critical illness and appreciate the prognosis.**

**Communicate early with the patient and family. By default, all patients not appropriate for escalation of care should have a DNAR form completed. Help will be available with ethical decision making during this time.**

**Oxygen and Ventilation Minimal flow rates to conserve oxygen supply**

* I**nitiate controlled oxygen therapy and titrate to reach target SpO2.** ≥ 92% - 96% or ≥ 88-92% in those at risk of C02 retention.
* **Do not routinely offer High-flow Nasal Oxygen (HFNO).** Lack of efficacy, high oxygen usage and potential for aerosol generation . If required discuss with critical care if appropriate for escalation.
* **Continuous Positive Airway Pressure (CPAP) may be considered after consultant discussion if can be delivered in an appropriate environment with aerosol generating PPE available for staff and appropriate filters.** Start with PEEP 10cmH2O + FiO2 60%. Review progress at least hourly.
* **Do not use Bi-level Non-Invasive Ventilation (NIV) routinely for patients with hypoxaemic respiratory failure.** If felt to be required discuss with critical care if patient appropriate for escalation.
* **NIV may be considered in patients with acute hypercapnic respiratory failure for whom NIV would normally be considered after consultant discussion. (e.g. Exacerbation of COPD or obesity hypoventilation)** **if can be delivered in an appropriate environment with aerosol generating PPE available for staff and appropriate filters.**

Escalate O2 as follows:

1. Nasal cannulae 2 - 4 L
2. 35 – 40% venturi mask
3. 10 - 15L O2 via non-rebreathe mask + critical care referral if appropriate.

**Circulation**

* **Conservative fluid management. Aggressive fluid resuscitation may worsen oxygenation.**
* **Avoid IV fluid unless evidence of shock / hypovolaemia**
* **Recognize septic shock (systolic BP ≤ 90 / MAP <65) when infection is suspected AND lactate is ≥2 mmol/L.** Refer to inpatient sepsis screening and action tool.
* **For resuscitation in septic shock give a 250-500mls bolus of isotonic crystalloid and review the response.**
	+ If no response to fluid loading and/or signs of volume overload then discontinue fluid resuscitation. If improvement consider repeat.
* **Consider early vasopressors/critical care referral if shock persists during or after fluid resuscitation**

**Antimicrobial Therapy (excluding critical care)**

**Give empirical therapy within 1 hour of initial assessment when bacterial respiratory tract infection is suspected of complicating COVID-19 – see further details on trust COVID 19 antibiotic policy.**

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| Community Acquired | Hospital Onset |
| Group 1 | Group 2 | Group 3 | Group 4  |
| Not usually required | Amoxicillin 500mg TDS (PO)Penicillin allergyAzithromycin\* 500 mg OD (PO) | Ceftriaxone 1g OD IV plusAzithromycin\* 500mg OD PO/IV(+ teicoplanin if MRSA colonisation)Severe Penicillin AllergyTeicoplanin plus Levofloxacin 500 mg BD (PO/IV) | Ertapenem 1g OD (IV)(+ teicoplanin if MRSA colonisation)Severe Penicillin AllergyTeicoplanin plus Ciprofloxacin BD (PO/IV) |
| **If severe sepsis: Consider addition gentamicin IV 24-48 hrs (see aminoglycoside policy)**\* Doxycycline 200mg stat then 100mg OD if Azithromycin contraindicated (QTc prolongation). Monitor LFTs pre-existing hepatic disease / hepatotoxic medications. |

* Consider the need for Influenza testing and empirical treatment with Oseltamivir (Tamiflu)
* Consider increased antibiotic resistance profiles in travel related bacterial sepsis - liaise with Microbiology.
* Do not routinely give systemic corticosteroids for treatment of viral pneumonia or ARDS unless they are indicated for another reason.
* **Additional treatment as per RECOVERY trial – all confirmed COVID-19 patients**

**Critical Care Referral** **Use Clinical Frailty Scale to help guide decision making (see below)**

Patients are at risk of rapidly progressive respiratory failure and sepsis / septic shock. Patients should be discussed with critical care only if escalation has been deemed appropriate by their primary consultant if;

- **NEWS2 score 5 – 7 (refer to CCOT)**

**- NEWS2 score ≥ 8 (contact ICU registrar / refer CCOT)**

**- FiO2 ≥ 40% to achieve target oxygen saturation or rapidly escalating oxygen requirement.**

**- Type II respiratory failure deemed to require ventilatory support**

**- Hypotension despite initial fluid resuscitation**

NB. Patients considered for respiratory / cardiovascular support in critical care should demonstrate likely reversible pathology and have the physiological reserve to survive 2-3 weeks of invasive ventilation and multi-organ support, resulting in an acceptable quality of life to the patient. Severe cardiovascular disease, respiratory disease and frailty (CFS ≥ 5) will have a significant adverse effect on prognosis.

***If your patient may require immediate intubation, please let ICU team know so that they can come prepared in correct PPE.***

**Monitoring**

* **Closely monitor patients using NEWS2 for signs of clinical deterioration and act accordingly.**
* **Recognize worsening hypoxemic respiratory failure when a patient has increasing oxygen requirements and work of breathing.**

