

BSUH In-patient care of the COVID-19 patient for active management ± escalation

Scope

This document addresses the inpatient care of COVID-19 patients on a general ward. This applies to all patients with escalation plans encompassing all levels of active treatment from ward-based to full escalation to ITU.

It does not address the management of patients who are for end of life (EOL) care

The immediate investigation and management of the presumptive COVID-19 patient is covered elsewhere.

Introduction

Clinical management primarily involves supportive treatment, while protecting staff and other patients with appropriate infection prevention measures.

Specific treatments may be beneficial in selected patients. Detailed Trust guidance for these is available here: [prescribing guidelines for the treatment of COVID-19](#). These are now approved within the UK for use in certain COVID-19 patients. The NICE COVID-19 rapid guidelines is available here: <https://www.nice.org.uk/guidance/ng191>

- **Dexamethasone**
 - hospitalised patients requiring any level of supportive oxygen therapy including ventilatory support. This will be the majority of hospitalised COVID-19 patients
 - decision to treat rests with consultant responsible for patient
 - document decision-making process in patient notes
- **Remdesivir**
 - hospitalised patients, early in the clinical course of their illness requiring low-flow supportive oxygen therapy but NOT ventilatory support.
 - decision to be made by a multi-disciplinary team including the clinical team, the ID consultant and the Infection Specialist Pharmacist.
 - **decision to be made within working hours**
- **Tocilizumab / sarilumab**
 - hospitalised patients, as adjuvant treatment to dexamethasone, with strict eligibility / exclusion criteria
 - decision to be made by a multi-disciplinary team including the clinical team, the ID consultant and the Infection / Critical Care Specialist Pharmacist.
 - **decision to be made within working hours**

Please check you are using the most recent version of this document (available on Microguide) as the situation is changing rapidly as clinical experience grows.

Routine care: daily review:

BEFORE DONNING PPE:

- Check working diagnosis: proven / presumptive COVID-19 or still unsure?
- **Treatment escalation plan (TEP) – ensure TEP completed (with consultant input) and that you know the goal of care for an individual patient.**
- Calculate number of days since symptom onset. Most tend to deteriorate day 7-10.
- Review NEWS score and its components; especially respiratory rate (RR), oxygen sats and oxygen flow rate (FiO₂).
- Review fluid balance – total input / output over 24 hours. Calculate average hourly urine output (UO) – should be >0.5mL/kg/hour.
- Check drug chart, especially antimicrobials, thromboprophylaxis, nebulized therapies, steroids.
- Check results to date (see investigations section below).
- Ask nursing staff re eating / skin integrity / any other issues.

PPE

Check appropriate PPE. Minimise number of staff exposed. Do not take equipment / notes / personal belongings into the room. Do not hang your stethoscope around your neck. Tuck lanyards away.

WHEN IN WITH PATIENT:

- **Compassion** – address anxiety, delirium, symptom control especially cough and breathlessness
- **Breathing** – is the patient stable or is their oxygen need increasing? Target SaO₂ >92% for all via nasal specs, simple facemask or reservoir mask. (>94% if pregnant)
 - **Only auscultate if essential as risk of contamination**; clean stethoscope thoroughly after use / on exiting; do NOT put it round your neck.
 - **Consider** whether this could be due to either fluid overload or PE.
 - **Follow [respiratory failure management flow chart](#) for the deteriorating hypoxic patient or patients on FiO₂>0.35**
 - ABG – only if patient IS for full escalation AND ABG would change immediate management (close contact procedure)

- CPAP and bilevel ventilation (BiPaP) **cannot be started UNDER ANY CIRCUMSTANCES** without senior ICU / respiratory team / CCOT input (including patients already established at home [click here for home NIV flowchart](#))
- **Circulation**
 - Clinically assess fluid status (mucous membranes, peripheral oedema, JVP, BP, pulse, capillary refill, urine output)
 - Aim to keep clinically **euvolemic** – optimizing filling/lung perfusion, risk of acute kidney injury (AKI) and increased VTE risk
 - Patients are often tachycardic, but are not usually hypotensive. If BP low (systolic <90mmHg) consider another cause, and give crystalloid bolus 250-500mL.
- **Exposure** - check cannula site clean, review need for peripheral access and consider removal, assess calves and arms for signs of DVT, check pressure areas.
- **Ask:**
 - **Appetite and thirst**
 - **Bowels** - diarrhoea is common; if Bristol 5-7 $\geq 2x$ in 24 hours, send 1 sample for CDT; if constipated, consider need for laxatives
 - **Communication** – can the patient keep family / friends updated by telephone or do team need to call next of kin?
 - **Pain**

AFTER DOFFING (REMOVING) PPE

(Remove in order: gloves-> hand hygiene -> apron-> wash hands -> leave room-> visor-> hand hygiene-> mask -> hand hygiene)

- Document clinical review
- Reassess TEP on daily basis
- **Antibiotic** review daily – compare admission procalcitonin (PCT) with a repeat PCT at 48 hours, together with clinical progress; use [Guidelines on the Use of Procalcitonin in COVID19](#) to guide decision making. Orals are preferred when possible to reduce volume load and nursing contact.
- **Fluids:** Aim clinical **euvolemia**
 - Both fever and tachypnea increase insensible fluid loss which will not be captured on the fluid balance chart.
 - Input should be **preferably oral**, but may need IV
 - If clinically dry start maintenance fluids at **0.5mL/kg/hour**. This should be **0.9% NaCL or Hartmann's**.
 - Do not routinely give diuretics; only use if clinically fluid overloaded.

- **Venous thromboembolism** – COVID-19 patients are **high risk for VTE** (DVTs in arms/legs and PEs). See [Thromboprophylaxis, thrombosis and coagulopathy in COVID-19 guidance](#) to inform decisions re therapeutic or prophylactic tinzaparin. Consider imaging if clinically indicated (see below).
- **Glucose** – patients receiving dexamethasone as treatment for COVID-19 should have regular capillary blood glucose monitoring as [per Trust guidance](#)
- **Appetite and nutrition** – commence Fortisip Compact as per [MUST=2 starter regimen](#), request food charts and refer to dietitian if concerned
- Drug chart review again (try and minimize nursing contacts if possible)
 - use paracetamol for fever; patients may have high fevers for several days, and although not related to outcome, do add to the patient feeling miserable.
 - address symptoms – see [BSUH clinical guideline for symptom control for patients with COVID-19](#)
 - avoid nebulisers where possible - would a spacer work instead?
 - review need for polypharmacy and potential drug interactions
- Update nursing staff
- Update family – this is an essential part of caring for the patient with COVID-19.

Investigations

- Bloods:
- **Unwell patients: Daily = FBC / U&E; every 72 hours = LFT / CRP / D-dimer / INR / LDH**
 - Reduce frequency if patient stable and improving.
 - Need **repeat procalcitonin (PCT) 48 hours after admission** ($\geq 0.25\mu\text{g/L}$ clinically significant, plus compare with admission value).
 - Check an HbA1C was sent on admission.
 - Rationale:
 - Rising or persistently elevated D-dimer, CRP and/or LDH, or low albumin correlate with worse prognosis; this may be useful to inform escalation decisions.
 - AKI can develop at any time (before, during or after hospital admission) and is an independent risk factor for in-hospital death.
 - AKI may be associated with haematuria, proteinuria and abnormal serum electrolytes (both increased and decreased serum sodium and potassium)
 - COVID-19 tends to cause an elevated CRP but PCT is usually within reference range; a raised PCT ($\geq 0.25\mu\text{g/L}$) may indicate secondary bacterial infection.
- **Patients who have a ward-based ceiling of care do not need regular bloods;** these may be done as clinically indicated.
- Microbiology/virology:
 - If cough becomes purulent, send sputum.
 - If develops diarrhea, send stool for *C. difficile* toxin (CDT) testing.

- Send blood cultures if clinical suspicion of bacterial infection.
- If receives tocilizumab, send serology for Hepatitis B/C, HIV, VZV, EBV, and CMV
- Imaging:
 - No routine repeat imaging required if patient is stable / improving.
 - Low threshold for CTPA / Doppler USS in patients who may have developed VTE. Use red zone imaging.

ESCALATION OF CARE

When to refer to critical care:

Escalation State	Trigger	Plan
Green	NEWS <5	<ul style="list-style-type: none"> • Continue usual ward care
Amber	New NEWS 5 and/or FiO ₂ 35% to achieve 92% sats	<ul style="list-style-type: none"> • Ensure TEP completed • Escalate to ward Medical team and CCOT • Complete O₂ Demand flag on Patienttrack • Hourly TPR observations
Red	NEWS 7 and/or FiO ₂ 40% to achieve 92% sats	<ul style="list-style-type: none"> • Confirm escalation plan • Refer to ICU Registrar if appropriate for escalation for consideration of transfer

Contacts:

CCOT: 24 hours /day: RSCH Bleep 8495 PRH Bleep 6331

ICU registrar: RSCH Bleep 8413, PRH Bleep 6010

Infectious diseases consultant: ext 65207 Mon-Fri 9am-5pm, Sat/Sun 8am-2pm, otherwise microbiology on-call via switch.

Respiratory consultants 24/7: Via switch

DE-ESCALATION OF CARE

If the decision is made that the ceiling of care is going to change (to ward-based management or for EOL care), document the decision in the clinical notes, update the TEP and ensure nursing staff, patient and family are informed. The patient may be moved to an alternative place of care as appropriate.

If a patient has reached their ceiling of care but deteriorates, use [BSUH palliative care advice / guidance](#) to achieve symptom control and apply Priorities for Care of the Dying Person. Prescribe anticipatory medications, change to comfort observations rather than NEWS scores and agree who is going to inform the family.

PREGNANCY – key differences

[RCOG guidelines available here](#)

Priority of care should be on stabilizing the woman's condition with standard supportive measures. **Aim for sats >94%**. Imaging should be performed as for the non-pregnant patient, using abdominal shielding as per normal protocol. Individual assessment by the multidisciplinary team to decide whether an elective birth is indicated. **Steroids if needed for fetal lung maturation should be given when indicated.**