

COVID-19 Clinical Summary

Based on 'Kings Clinical Summary guidelines' on Kwiki.
Information from EMCRIT.com

Education Fellows, Kings College Hospital

Presentation

- **Fever** 43-98%
 - Often high and sustained for 10 days but may be intermittent
 - Absence of fever does not rule out diagnosis
- **Cough** 68-82%
 - Sputum 14-56%
- **Breathless** 3-64%
 - Onset around day 6
 - May be **silent hypoxia** (especially elderly)
 - No increased work of breathing but severe hypoxia
- **Less common:**
 - GI (diarrhoea, nausea, may precede fever) – up to 10%
 - Runny nose – 4-24%
 - Sore throat - 14%
 - Myalgia - 11-15%
 - Headache - 6-34%
- **Anosmia - ENT UK press release:**
 - Up to 2/3rd of patients with covid have anosmia
 - Significant amounts of patients presenting with anosmia with NO other symptoms

Disease Progression



- **Key feature: Acute Respiratory Distress Syndrome** with a cytokine storm
- Expect admission **7-10 days**
- Patients can seem relatively ok, then **rapidly deteriorate**
 - Severe hypoxia
 - May be minimal work of breathing
 - Normal CO₂
- Ward nasal cannula O₂ 2L ➡ Intubated 12 hours later
- Fulminant cardiomyopathy can be a late feature as patients recover from ARDS

BE VIGILANT OF PATIENTS WITH INCREASING O₂ REQUIREMENT

Diagnosis

- **Swabs (PCR)**
 - Take a single combined swab (throat then nose)
 - Sensitivity up to 80%
 - False negatives early in disease – repeat test a few days later (repeat swabs positive in 23%)
 - Positive for other respiratory viruses doesn't *prove* COVID-19 negative, but might reduce index of suspicion *substantially*
 - CXR / CT changes may be present before swab positive

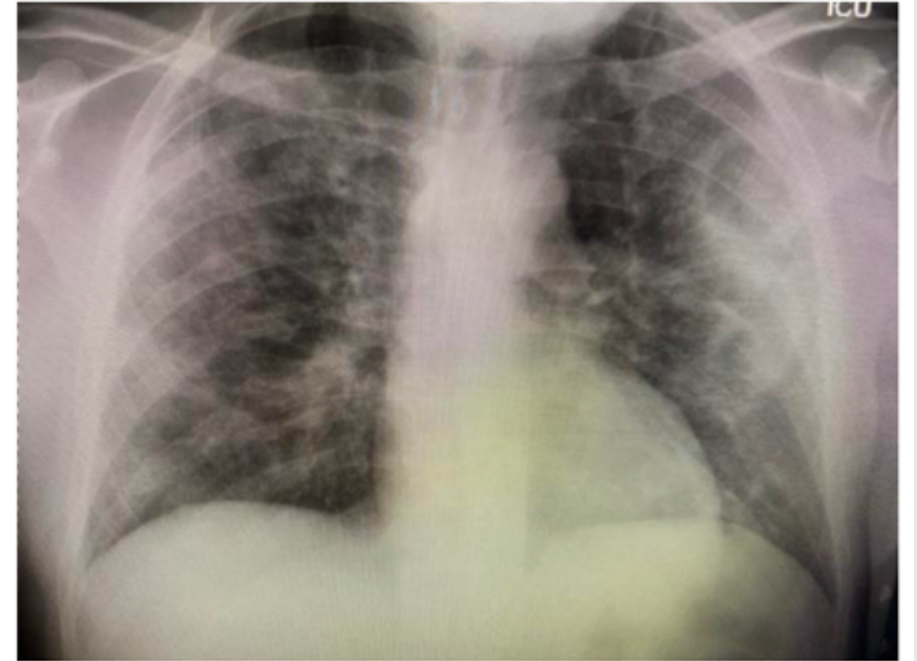
If high clinical suspicion continue isolation and PPE

Bloods

Test	Result	Comments
WCC	Normal	N:L ratio > 3 poor prognosis
Lymphocytes	Low	Low in 80% of cases
Neutrophils	Normal / High	
Platelets	Mildly low	< 100 poor prognosis
CRP	High	> 125 poor prognosis. If normal consider alternate diagnosis eg heart failure
Lactate	Mildly High	
Troponin	High	Poor prognosis. Not MI - ECG
Urea / Creat	Mildly High	AKI usually mild
Albumen	Low	
CK	High	Rhabdomyolysis may contribute to renal failure late in disease
AST/ALT	High	5 times normal, transient, no fulminant hepatitis; rise day 14
Ferritin	High	

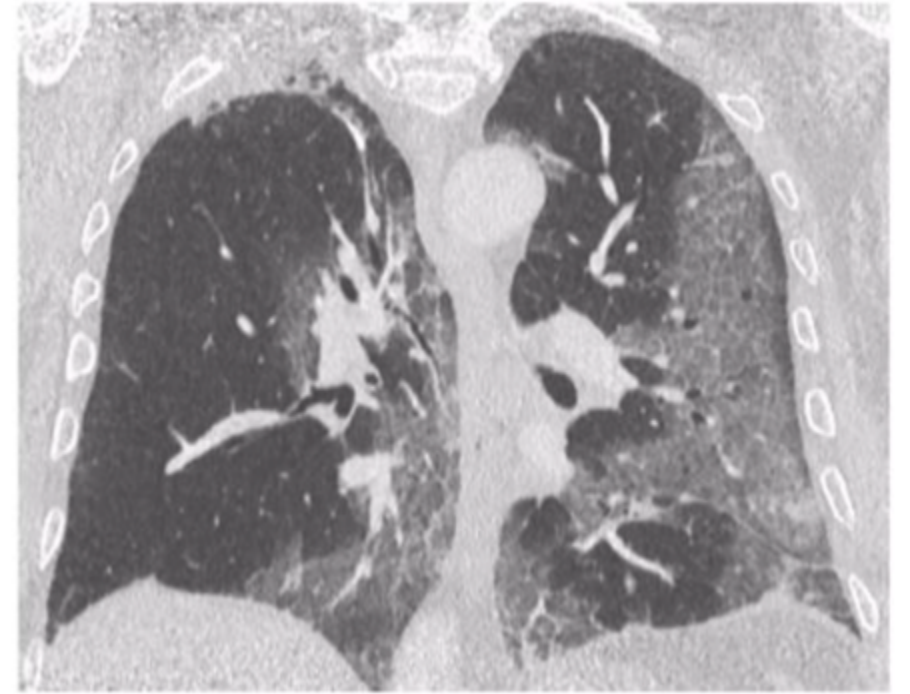
Imaging: CXR

- **Request information** – ensure ? COVID-19 + respiratory history + smoking history
- Typically patchy ground glass opacities peripheral and basal (unilateral in 25%)
- Number of lung segments increases with more severe disease
- Over time, patches coalesce into more dense consolidation
- May be subtle / appear normal (40%)
- Do not tend to see: effusions (5%), cavitation, mass, lymphadenopathy



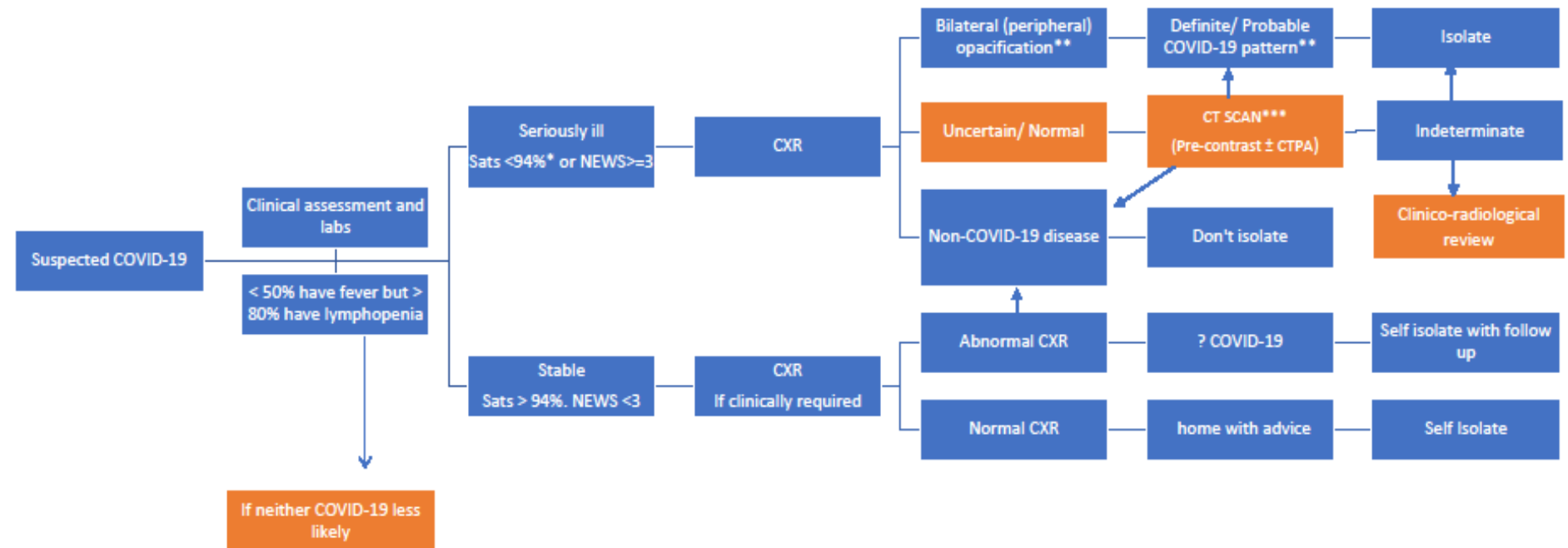
Imaging: CT

- **Consultant request**
- Sensitivity around 80% - may be normal in early stages
- Peripheral ground-glass opacities
- 'Crazy paving' may be present
- Diffuse alveolar damage
- Organising pneumonia
- Less likely: non-peripheral, effusions, lymph nodes
- Not: lobar pneumonia, cavitating, Tree-in bud changes
- Does not change management
- Deep clean CT 2 hours +



Radiology Guidelines

Radiology decision tool for suspected COVID-19



*94% unless known COPD in which case <90%

** Unsuspected/ unexpected cases may be incidentally discovered on CXR/ CT at this stage; should be reviewed in the context of clinical suspicion as to likelihood of COVID-19.

***Classic and Indeterminate CTs should be scored either: 'mild' or 'moderate/severe'

Please upload all COVID 19 cases to BSTI database: <https://www.bsti.org.uk/training-and-education/covid-19-bsti-imaging-database/>

Investigations at Kings

- Blood samples from confirmed or suspected patients must be double-bagged and delivered by hand only (do not use the pod system)
- Indicate “**special processing required**” clearly on all bags containing confirmed or suspected COVID-19 samples
- Biochemistry Lab will **NOT accept add-ons**
- CXRs will need to be portable – phone Radiology to make them aware and state on request form
- Always think before requesting...**is this investigation essential/will it change management?**

Treatment

- **Fluids** **CAUTION**
 - Main issue is ARDS, not shock – even if elevated lactate
 - BP usually normal
- **Antibiotics**
 - Consider - 16% secondary bacterial infection
- **Antivirals / HIV meds**
 - Clinical trials ongoing eg Remdesivir
- **Steroids**
 - May be harmful in early stages - increase viral shedding
 - Might be beneficial in ARDS / cytokine storm
- **Chloroquine Phosphate**
 - World Health Organization says that so far there is no definitive evidence of its effectiveness
 - FDA: set up large clinical trial as requested by Trump

NHS advice: NSAIDs

Ibuprofen

There is currently no strong evidence that ibuprofen can make coronavirus (COVID-19) worse.

But until we have more information, take paracetamol to treat the symptoms of coronavirus, unless your doctor has told you paracetamol is not suitable for you.

Text

If you are already taking ibuprofen or another non-steroidal anti-inflammatory (NSAID) on the advice of a doctor, do not stop taking it without checking first.

Oxygen Delivery

Imobile have highlighted issues with O₂ delivery on Covid wards

- Take time to ensure colleagues are confident with oxygen delivery
eg. maximum through nasal cannula is 4L

Venturi valve

Color	FiO ₂	O ₂ Flow
Blue	24%	2 L/min
White	28%	4 L/min
Orange	31%	6 L/min
Yellow	35%	8 L/min
Red	40%	10 L/min
Green	60%	15 L/min

Target oxygen saturations 94-98% (as per trust guidelines) (unless COPD)

Start with 2-4L O₂ via nasal cannula and progress to venturi and then non-rebreathe mask if required

Consider humidified oxygen (multiple pts complaining of dry mouth)

If patient still hypoxic despite FiO₂ > 40% escalate early to ITU on bleep 809

Organ Support

- **Optiflow/CPAP/BiPAP** **NOT USED ROUTINELY**
 - Aerosol Generating Procedures and likely to require intubation anyway
 - Case by Case basis - Needs discussion with consultant
 - Mainly will be used for NON-covid patients and ITU step downs
- **Intubation**
 - Early intubation in those in which it is indicated
 - See RSI checklist with adaptations for COVID 19
- **Dialysis**
 - Renal failure in 7% - strong predictor of mortality – 92%
 - Acute tubular necrosis as part of multi-organ failure
 - Rhabdomyolysis may contribute
- **ECMO**
 - Considered in young / single organ failure

Prognosis

- **Risk factors for severe disease:**
 - Age over 70
 - Diabetes mellitus
 - Ischaemic Heart Disease
 - Hypertension
 - COPD
 - Immunosuppression
 - Homelessness or vulnerable adults
- BUT unfortunately young, healthy patients can get severe disease
- **Overall:**
 - 80% mild
 - 20% severe (admitted)
 - 3-10% Intubated
 - 1-5% die
- **Morbidity:**
 - Lung fibrosis and ventilator dependent

Treatment Escalation Plans and DNARs at King's

- CPR in fulminant cardiomyopathy / refractory ARDS is likely to be futile
- Ensure **ALL Covid positive** patients have a documented resuscitation status and TEP on EPR
- Conversations about appropriate TEP levels and advance care planning **EARLY** – as patients deteriorate it becomes too late to discuss their wishes
- DNACPR decision-making remains the same – every decision must be made on the basis of a careful assessment of each individual's situation and expected chances of success
- Any decisions must be communicated to patients (if they have capacity) + those close to them

Palliative Care

- In the acute phase it is important that patients have their symptoms controlled alongside active medical treatment.
- Should their condition deteriorate despite active management then this deterioration is often rapid and acute management of symptoms, in particular breathlessness and cough, is needed.
- **Guidance has been compiled** (Management of the COVID-19 Patient) to support staff to be used alongside the ICARE framework already in use.
- If you are concerned at all then please contact/refer to the palliative care teams for further support and advice.

Look After Yourself and Each Other

Covid-19: Looking after your mental wellbeing - managing stress

Many of us will be feeling stressed and anxious. Stress is normal in this situation and by no means a reflection that you cannot do your job or are failing. Remember you have your team around you. Here are some tips to help you.



Limit checking in with the news/social media to once or twice a day. Constant outbreak updates can contribute to stress and anxiety.



Take a break away from the clinical area - decompress, stop and take some deep breaths. If you can, go outside into natural light - it will help your mood and help your sleep.



Eat as healthily as you can, keep hydrated. Avoid unhelpful coping strategies such as excessive caffeine, alcohol and nicotine.



Keep communicating with family, friends and colleagues. Talk over difficult cases and consider formal debriefs later, especially if you feel worried or upset. We can all support each other.



Prioritise sleep - it is important to keep you healthy and performing well at work. Anxiety can make it harder to sleep - try not to worry if this happens. There are some sleep settings on meditation apps which might help.



Exercise is good for physical and mental health. It is one of the best ways to reduce stress. Even a few minutes of activity can help.



Continue to make time for the things you enjoy outside of work. These can be a welcome distraction and a good way to reduce stress

Work as a team and be there for each other

Look After Yourself and Each Other

- Dedicated spaces at Denmark Hill and PRUH for all staff to rest and recuperate (8am and 6pm everyday)
 - The Boardroom (Denmark Hill)
 - The Education Centre (PRUH)
- Tea, coffee, biscuits and fruit will be provided.
- Plans will be published this week for **on site or near by accommodation** for those finding it difficult to get to and from work.

Keep Up to
Date

- The situation is evolving **daily**
- Make sure you regularly check your NHS email and KingsWeb for daily updates as policies/guidance are changing regularly.

The screenshot shows the Kingsweb portal homepage. At the top is a blue header with the 'Kingsweb' logo, a search bar labeled 'Search Kingsweb...', and the 'NHS King's College Hospital NHS Foundation Trust' logo. Below the header is a navigation menu with links: Home, Directory, Kwiki, Kingsdocs, Clinical Guidelines, News, Career, Training, Videos, Noticeboard, ICT Portal, and NHSmail. The main content area is divided into several sections. On the left, there's a large blue box titled 'Trust escalates response to COVID-19' with a photo of a woman and the text 'Sent on behalf of Bernie Bluhm, Interim Site Chief Executive (Denmark Hill)'. Below this is a smaller box titled 'Coronavirus (COVID-19)' with the text 'Guidance for staff regarding COVID-19' and a virus icon. In the center, there's a 'News at a glance' section with a list of links: 'Safeguarding team: new referral pathway starting today', 'COVID-19 training for medical and surgical teams', 'Cancellation of Schwartz Round', 'Outpatient Appointment Centre - Denmark Hill', 'Overseas doctors development programme', and 'Denmark Hill Grand Round'. On the right, there's a 'King's Jobs' section with a link to 'See all internal jobs' and a 'Jobs Closing Soon' section with links for 'Quality Manager for Islet & Hepatocyte Team Band 7 - Denmark Hill' and 'Clinical Trial Manager - PROSPECTS Band 7 - Denmark Hill'. At the bottom right, there's a '60 seconds with Helen Fletcher' section with a photo of a woman and text about her role in the Executive Nursing Team.

PHE Guidance:

Suspected or Positive Covid Patients

STANDARD PPE

All contact with suspected or positive covid patients



- Apron
- Gloves
- Surgical mask

FULL PPE

Aerosol Generating Procedures ONLY
eg.

- Intubation
- Cardiac Arrest



- Full length gown
- Gloves
- Visor
- FFP₃ respirator

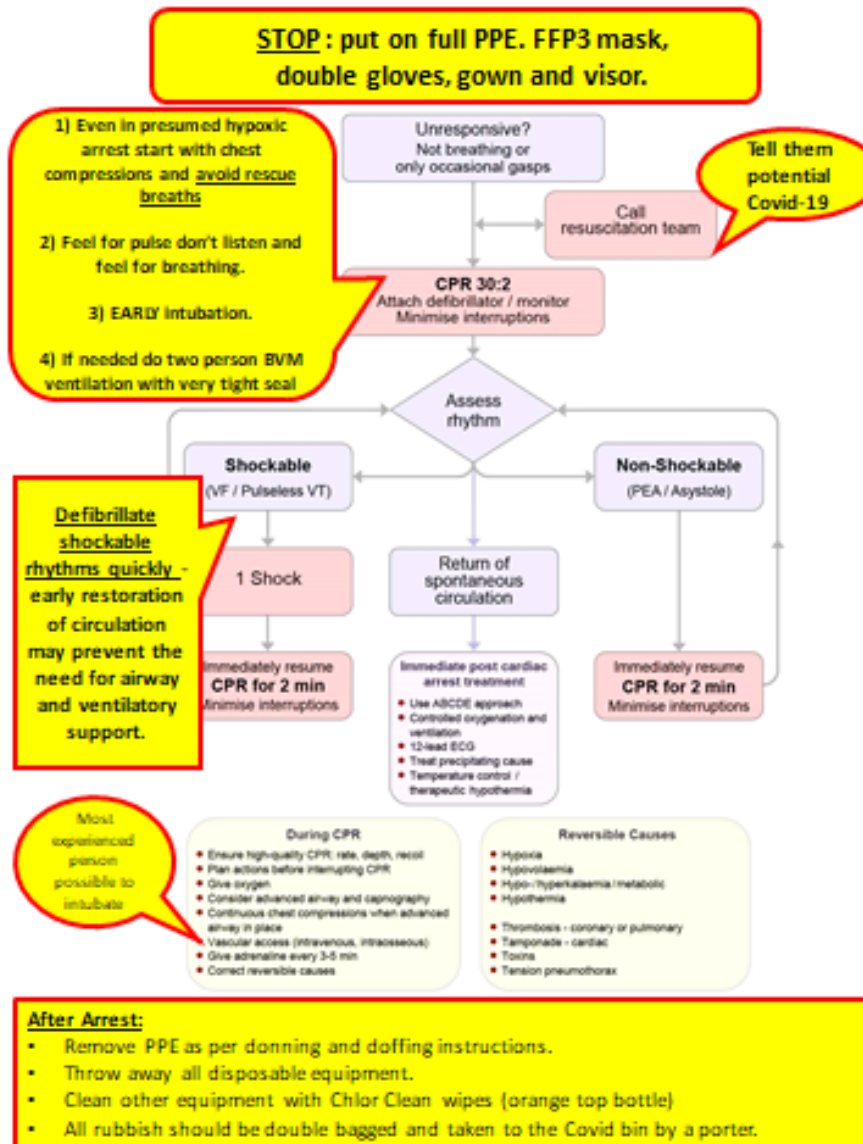
Aerosol Generating Procedures (AGPs)

- Intubation, extubation and related procedures
- Manual ventilation
- Open suctioning
- Bronchoscopy
- Non-invasive ventilation (NIV); High-flow Nasal Oxygen (HFNO)
- Surgery and post-mortem procedures in which high-speed devices are used
- Some dental procedures (e.g. high speed drilling).

Nebulisers and humidified oxygen are not AGPs

Resuscitation in Covid suspected or positive patients

ALS Algorithm in pts with POTENTIAL or confirmed COVID-19

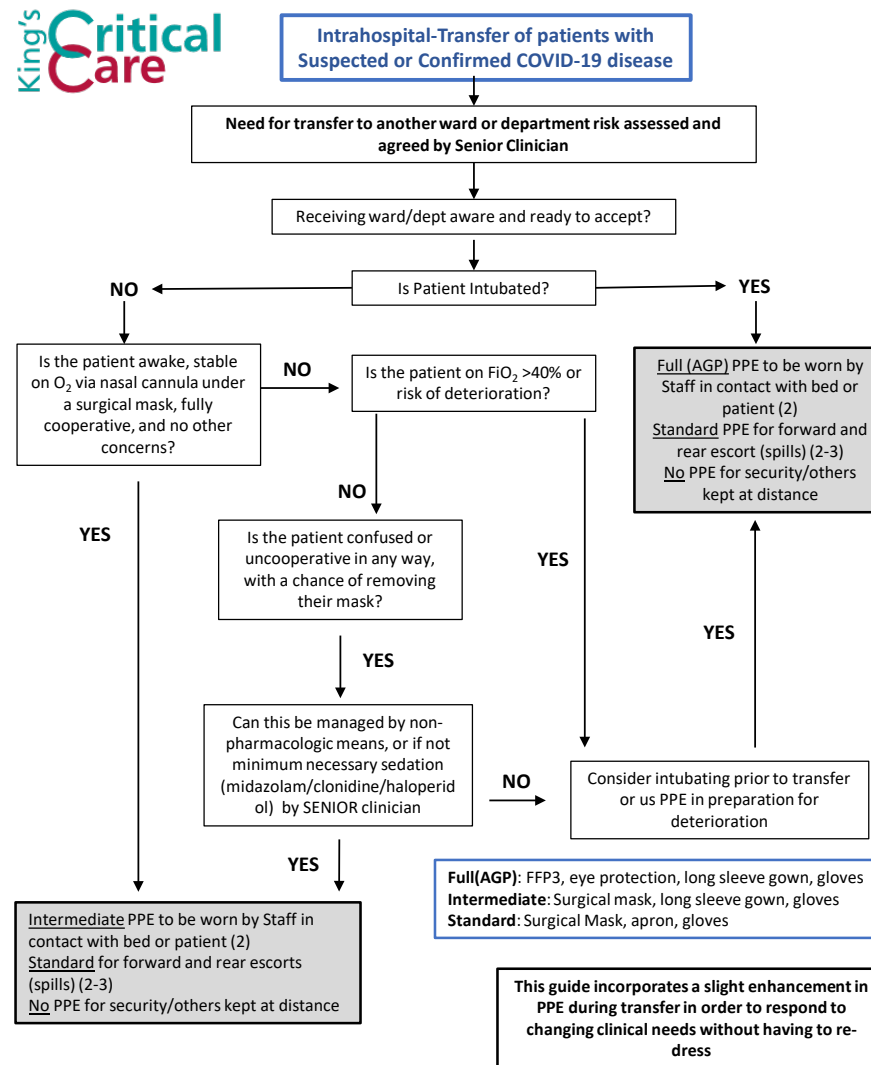


Kings Guidance

- Leave cardiac arrest trolley outside
- Bring in AED, BVM, guedel/I-gel only
- Leader stays outside of the room

Please see the Kings video of a resuscitation of a covid patient

Intrahospital Transfer



Top Tips

- Arranging to have the nurse who will be looking after the patient coming to collect them may decrease workforce pressures and PPE use during transfer
- Maintaining a 2m cordon around the patient will likely require the forward escort to be much further ahead and block off junctions with other corridors/lifts/stairs
- Try to avoid the busiest routes – see section on recommended routes from ED in full document
- Going from ED to JSCCU may require security on hospital street
- Use the forward escort(s) to carry 'clean' equipment (notes, transfer bag)

Further reading/ resources

Infection prevention and control guidance:

<https://www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control>

Intensive Care Medicine, Intensive Care Society, Association of Anaesthetists, Royal College of Anaesthetists guidance:

<https://icmanaesthesiacovid-19.org/clinical-guidance>

World Health Organization (WHO) – e-learning package on ARDS

<https://www.dropbox.com/sh/t25zvm9jb6xvlei/AABQxyRwJMJm0gN3eckNvQDpa?dl=0>

Webinars:

Association of Anaesthetists:

<https://register.gotowebinar.com/recording/viewRecording/4619521543726101772/5332585620774399500/claire.mallinson@gstt.nhs.uk?registrantKey=7487531654179104523&type=ATTENDEEEMAILRECORDINGLINK>

European Society of Intensive Care Medicine:

<https://www.esicm.org/resources/coronavirus-public-health-emergency/>

Questions?