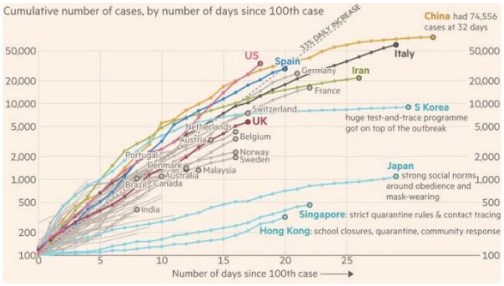
Clinical update no. 556
25 March 2020

While hardly pretending to add to the detailed information circulated daily, the attached may provide some useful information and links to expert opinion, including new Surviving Sepsis Campaign Guidelines, WHO, MJA Consensus Guidelines and some algorithms from Brigham and Women's in Boston (they're just what was available, not necessarily better than others).

It's an evolving field with a new disease and recommendations will evolve. As with every disease, blanket recommendations cannot apply to all cases, and provided reducing spread and staff safety is held paramount then they can adapted to an individual patient

There is substantial concern about viral spread with oxygenation and airway management, and the varying conclusions and interpretation of available data is worth knowing. However it won't change the absolute requirement to follow local protocols for management.



Quarantine works (sensible neighbours also help, but Singapore won't let anyone else in).

The Medical Journal of Australia – Preprint only

Consensus statement: Safe Airway Society principles of airway management and tracheal intubation specific to the COVID-19 adult patient group

https://www.mja.com.au/system/files/2020-03/Updated%20PREPRINT%20SAS%20COVID19%20consensus%20statement%2017%20March%202020.pdf

2002 SARS-CoV in Canada

half of all cases were nosocomial transmission to healthcare workers

Aerosol generating procedures include NIV, +ve pressure bag valve mask, HFNO, nebs, suction. Intubation itself requires an additional event generating gas flow, eg coughing, PPV.

Non-invasive ventilation (NIV)

Limited data

Influenza A (H1N1)

NIV failed in 57-85%

Failing patients

Higher ICU mortality than with mechanical ventilation

COVID-19

Wuhan data showed similar failure rate

29 on NIV, 22 subsequently intubated

Mortality approx. 80% in both NIV and intubation

HFNO

Utility in viral pandemics is unknown

Risk of virus aerosolisation

Difficult to quantify

NIV and HFNO

Airborne isolation rooms

Full PPE (including N95/P2 masks)

Should not be used for

Severe respiratory failure

Trajectory where invasive ventilation is inevitable

Intubation and invasive ventilation without delay

The SAS Guidelines

Airway Management

Pre-oxygenation

Avoid high flow oxygen (nasal, facemask, non-rebreather) when the team is in position

Turn off O2 prior to removing nasal cannula/mask

Apply well fitted, occlusive facemask device with a viral filter

Avoid high flow nasal oxygen for apnoeic oxygenation

Rapid sequence intubation (RSI)

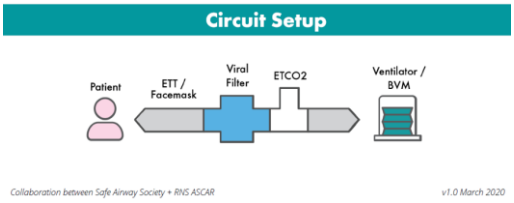
Rocuronium (>1.5mg/kg IBW) OR suxamethonium (1.5mg/kg 1

Routine use of a video laryngoscope is recommended for the first attempt

First pass success

Reduce the risk of viral transmission

Suxamethonium has a short action with a risk of coughing and viral spread if it wears off.



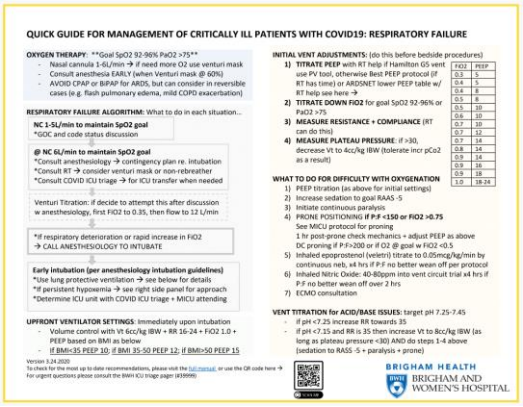
BWH BRIGHAM AND WOMEN'S HOSPITAL

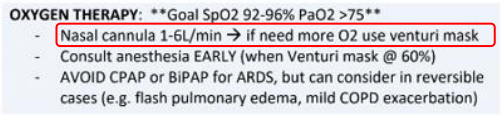
Brigham and Women's Hospital
COVID-19 Critical Care Clinical Guidelines

Updated: 3/23/2020

https://www.covidprotocols.org/?fbclid=IwAR0kcpHWQxW3_qLHN0kQvR9kYBUNNKDitgqiUj8wjMbIMu7Kl31VCOA3CZk

A useful summary.



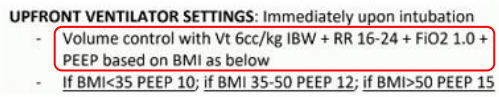


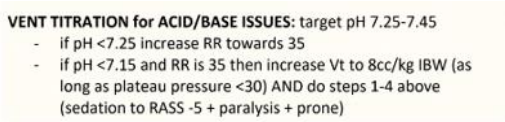
Avoid humidification of gases to reduce aerolisation and risk of spread.

There is some discussion (*but not enough to ignore recommendations on management*):

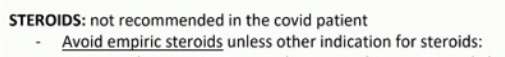
WHO interim guidance (published March 13, 2020) on COVID-19 are more liberal about the usage of HFNC and NIPPV, stating that systems with "good interface fitting [i.e., good seal, no air leak] do not create widespread dispersion of exhaled air and therefore should be associated with low risk of airborne transmission."

Early intubation is recommended because of the high failure rates with non-invasive ventilation, including high-flow nasal oxygen. Do RSI using video laryngoscopy when fully paralysed without an ambubag (which generates aerosols).





Use ARDSNET protective strategies.



Surviving Sepsis Campaign: Guidelines on the Management of Critically Ill Adults with Coronavirus Disease 2019 (COVID-19)

https://sccm.org/getattachment/Disaster/SSC-COVID19-Critical-Care-Guidelines.pdf?lang=en-US&_zs=WSjjd1&_zl=j1cc6

Experience with SARS was that intubation carries a risk of disease transmission to staff, and that HFNC did not result in increased disease transmission. HFNC resulted in environmental contamination similar to conventional O2 therapy.

The balance between benefit and harm when using NIPPV in adults with COVID-19 is unclear.

However Guidleines are clear – do not use HFNO or NIV; just be aware of the discussion.

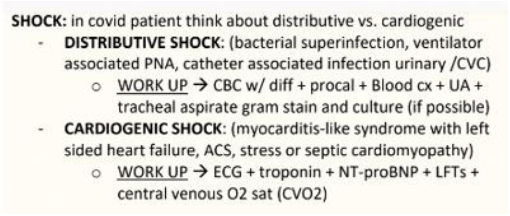
https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected WHO site

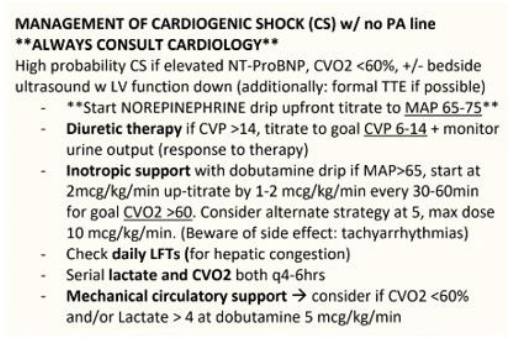
Cardiac Complications of COVID-19

Cardiogenic shock from viral myocarditis is a feature of COVID. Intensivists suggest avoiding propofol infusions for sedation due to concern in aggravating this risk.

Old fashioned morphine/midazolam is recommended. Fentanyl is an option but there are logistic issues with large dosing required.

Noradrenaline, diuresis and dobutamine (if MAP >65 mm Hg) are recommended for cardiogenic shock.





Note the issues with Hydroxychloroquine/ Azithromycin (not enough evidence to use), ACEI/ARBs (not enough evidence to stop), and NSAIDs (not enough evidence to avoid).

These updates are a review of current literature at the time of writing. They do not replace local treatment protocols and policy. Treating doctors are individually responsible for following standard of care.