

Clinical Decisionmaking During COVID Pandemic - Intubations & Codes

Key messages:

- CPR, intubation, and BiPAP are ****HIGH RISK**** procedures for infecting health care workers; therefore the risk/benefit ratio of “let’s just give it a shot” is very different compared to a pre-COVID world.
- **Do not attempt** a code or intubation if insufficient infection control is available:
 - PPE for airborne precautions (e.g. N95s)
 - A negative pressure room (preferred) or closed normal room (non-preferred).

AGMPs (airborne)	Not AGMPs (droplet)
HFNC/high flow oxygen systems (>6L/min)	Venturi up to 40% or O2 < 6 L/min delivered by: <ul style="list-style-type: none"> - simple nasal prongs - simple face mask - NRB with viral filter
Any humidified oxygen delivery system	
NIPPV (CPAP, BiPAP)	

Offering Critical Care - General Principles

(This is not about the pandemic. These principles apply already under the Healthcare Consent Act.)

Can a doctor not offer a therapy?

Correct. Therapies are only on offer if there is believed benefit.

- Therapy is **likely** to benefit the patient – **Offer and recommend** the therapy.
- Therapy **less likely** to benefit the patient – **Offer but do not recommend**.
- Therapy is **not likely** to benefit the patient – **Do not offer** the therapy.

If you are unsure whether the patient will benefit, consult with an intensivist who can advise re: expected course and potential benefit of therapy.

Contraindications to Critical Care	<u>Potential</u> Contraindications to Critical Care
Severe cognitive impairment	Moderate cognitive impairment
Pulmonary fibrosis	Severe pulmonary hypertension
Frailty score >6 (see Clinical Frailty Scale below)	Frailty score 5-6 (see below)
Cardiac arrest: <ul style="list-style-type: none"> - unwitnessed arrest - recurrent arrest with hemodynamic instability 	Pre-existing severe end-organ failure, e.g.: <ul style="list-style-type: none"> - Dialysis (hemodialysis or peritoneal dialysis) - COPD on home O2 - Cardiomyopathy with Grade IV LV function - Liver failure
Diffusely metastatic malignant disease	Irreversible hypotension unresponsive to fluid resuscitation and vasopressors
Traumatic brain injury or CVA/ICH with no motor response to painful stimuli	

Clinical Frailty Scale*



1 Very Fit – People who are robust, active, energetic and motivated. These people commonly exercise regularly. They are among the fittest for their age.



2 Well – People who have no active disease symptoms but are less fit than category 1. Often, they exercise or are very active occasionally, e.g. seasonally.



3 Managing Well – People whose medical problems are well controlled, but are not regularly active beyond routine walking.



4 Vulnerable – While not dependent on others for daily help, often symptoms limit activities. A common complaint is being "slowed up", and/or being tired during the day.



5 Mildly Frail – These people often have more evident slowing, and need help in high order IADLs (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation and housework.



6 Moderately Frail – People need help with all outside activities and with keeping house. Inside, they often have problems with stairs and need help with bathing and might need minimal assistance (cuing, standby) with dressing.



7 Severely Frail – Completely dependent for personal care, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~ 6 months).



8 Very Severely Frail – Completely dependent, approaching the end of life. Typically, they could not recover even from a minor illness.



9 Terminally Ill - Approaching the end of life. This category applies to people with a life expectancy <6 months, who are not otherwise evidently frail.

Scoring frailty in people with dementia

The degree of frailty corresponds to the degree of dementia. Common symptoms in mild dementia include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal.

In moderate dementia, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

In severe dementia, they cannot do personal care without help.

* 1. Canadian Study on Health & Aging, Revised 2006.

2. 8. Rockwood et al. A global clinical measure of fitness and frailty in elderly people. *CMAJ* 2005;173:483-485.

When To Attempt Pre-Arrest Intubation (or not)

- If your site's ventilator is available, but more than one patient needs it imminently (i.e. failing non-invasive respiratory supports), consult the Ventilator Allocation Protocol.
- If your site's ventilator is available, and only one patient needs it, consider:
 - Are there **contraindications** to suggest intubation is inappropriate? (see above)
 - Has **non-invasive respiratory supports** been optimized? (e.g. nasal prong O2 under a CPAP mask; NRB with viral filter)
 - Has **medical management** been optimized? (e.g. Nitro drip, Lasix if CHF/flash pulmonary edema component; MgSO4 or MDIs if COPD/asthma component)

Figure out which of these two groups your severely hypoxic patient belongs to:

A) The CHF / COPD patients (usually Hypercapneic respiratory failure). We usually rely on BiPAP here - CAN'T do that during this pandemic. Instead, maximize medical therapy:

- ++++ nitro (including nitro drips) +/- Lasix for the flash pulmonary edema.
- ++++ puffers (eg. 24 + 24 back to back) / steroids for COPD.

These patients you can WAIT to see if they turn around, as you have therapies to reverse this in a reasonable time frame (hours / days).

B) The ARDS / pneumonia patients. (Hypoxemic respiratory failure). THIS is the patient where you don't wait for hypoxia to get worse.

- Try up to 5-6L by nasal prongs → if failing - arrange TRANSFER if possible before they crash (can be within just a few hours). If you think they won't last that long - INTUBATE.

- If intubation is deemed to be both necessary and likely to benefit the patient, then it should be done as soon as possible after the decision is made, since COVID patients whose respiratory failure is worsening tend to progress quickly (often a matter of hours).
- A “**second MD approval**” strategy is recommended for any planned intubation. *Given our very limited resources for managing intubated patients, all pre-arrest intubation should be discussed with another physician PRIOR to intubation (if time allows), to avoid overuse of limited resources (ventilators), to ensure consistency of care practices between physicians, and to alleviate psychological stress by sharing the burden of a “no intubate” decision if that is most appropriate.*
- Intubation should be done by the **most experienced** intubator; if two adequately experienced intubators are available, it should be done by the **younger** intubator (who is at lower risk from COVID infection).

When To Attempt A Code (or not)

- Do not attempt a code if contraindications are present. (see above)
Patients who meet ALL OF the following criteria do not benefit from continued resuscitative efforts:
 - *Cardiac arrest NOT witnessed by EMS or hospital health care workers*
 - *No return of spontaneous circulation (ROSC) at any point during prehospital resuscitation.*
 - *Absence of a shockable rhythm (e.g. ventricular fibrillation or ventricular tachycardia) at any point during prehospital resuscitation.*
- CPR is performed while the underlying condition is reversed. If the underlying condition is irreversible, CPR will not be beneficial. **Prolonged resuscitation if no identifiable reversible cause is not advised.**
- Securing the airway remains priority - think “ABC” (Airway-Breathing-Circulation) rather than the circulation-first CAB in contemporary ACLS.
 - *Patients who arrest because of refractory hypoxemia (e.g. ARDS) despite respiratory supports or who are in intractable shock do **not** benefit from CPR.*
- If rhythm is **PEA/asystolic** and respiratory/hypoxic arrest is suspected in a patient with no prior respiratory support interventions:
 - Consider maximum 2 rounds of CPR while assessing the patient’s response to having a secure airway and basic ACLS meds. If not improving after 2 rounds, abort the code.
- If rhythm is **shockable (VF/VT)** and cardiogenic/arrhythmogenic arrest is suspected:
 - Consider maximum 2 shocks delivered, while assessing the patient’s response to having a secure airway and basic ACLS meds. If not improving after 2 shocks, abort the code.

What about BiPAP or CPAP (NiPPV)?

- The default assumption is NO BiPAP because risks (to health care workers) will usually outweigh benefit (to the patient) in our setting in the context of the COVID pandemic.

- NiPPV should NEVER be used patients who are confirmed or high suspicion for COVID. Most patient who need NIPPV will eventually need intubation anyway, and the risk of NIPPV to health care workers is far higher.
- **When a patient meets criteria to require intubation but declines endotracheal intubation, NIPPV and HFNC will not be offered as an alternative therapy.**
- The possibility of BiPAP or CPAP should **ONLY** be considered in **EXTREMELY SELECTIVE CIRCUMSTANCES**:
 - Low suspicion for primarily COVID pathology, high suspicion for non-infectious pulmonary edema or COPD hypercapnia (***)but still need to assume they COULD have COVID and take all airborne precautions as below***)
 - Medical management has been fully optimized yet the patient is still failing
 - Intubation/ventilation is unavailable
 - A negative pressure room and full airborne PPE are available
 - Reassess after a short interval - **if patient is not improving, NIPPV should not be continued** as the risk/benefit ratio becomes increasingly unfavourable (increasing risk to HCWs, declining likelihood of benefit to patient)
- NP swab for COVID testing must be sent prior to initiating any NIPPV, regardless of level of suspicion.
- Regarding CPAP: CHF or COVID more likely to benefit from CPAP; whereas in COPD it is more likely to be inadequate and should not be attempted.