Outside Hospital Referral

- Outside hospital calls for respiratory ECMO referral to UW TC should be directed to Harborview.
- If Harborview does not have capacity, they will instruct the TC to re-direct the call to UWMC Montlake.
- TC will conference the referring physician with the COVID ICU attending and Montlake ECMO consult attending (paging operator) to discuss ECMO candidacy, capacity and appropriateness for transfer.
- If Montlake capacity is low, ECMO consult attending will contact PNW ECMO consortium to find available ECMO bed in region.
- If accepted to Montlake:
  a. ECMO consult attending will notify the CTICU attending (ECMO consultant for COVID ICU team)
- After the patient arrives on in the ICU, the patient will be evaluated by the CTICU attending in conjunction with ECMO consult attending.
- If decision made for cannulation, ECMO consult will identify appropriately trained cannulation team.
In-House Consultation

- The primary team should follow the usual pathway for ECMO consultation for medical respiratory failure, available on OCCAM ECLS Toolkit: call the operator and ask for the ECMO consult attending.
- ECMO consult will notify the CTICU attending who will have a group discussion in conjunction with the primary ICU team to make the decision to proceed with ECMO or not.
- If accepted for cannulation, ECMO consult will identify an appropriately trained cannulation team.

Cannulation

- As the majority of critically ill patients with COVID-19 will be located in an isolation pod (COVID ICU), the ECMO team should be mobilized to that location (do not move the patient).
- Preparation of the patient by primary team:
  a. Right IJ and (ideally right) femoral vein open for use (additional central access in other locations)
  b. Deep sedation, neuromuscular blockade
- Cannulation should be performed at bedside with as little equipment and personnel possible to allow a safe cannulation procedure while at the same time protecting staff.
  a. Cannulation configuration: two cannulas (right internal jugular and ideally right femoral vein)
  b. Equipment in the room:
    i. Ultrasound for vascular access, site wires in IVC and site venous drainage cannula at IVC-right atrial junction
    ii. Cardiohelp pump & circuit, clamps, emergency priming line, 1 L crystalloid
    iii. Cannulation supplies (in large bag):
       1. heparin bolus
       2. large prep stick x3
       3. laparotomy drape: prep in right IJ, femoral vein, subxiphoid space (for ultrasound)
       4. 6 pack sterile towels x2
       5. sterile trauma shears
       6. skin stapler
       7. ultrasound probe cover x2
       8. Sorin dilator kit
       9. central line kit & compass
       10. 6Fr sheath
       11. amplatz super stiff wires x2 180cm
       12. 4 sterile tubing clamps (NOT chest tube clamps)
       13. ECMO major pack: Asepto syringe, basin, sterile table field
       14. Scalpel
       15. 1 L sterile sodium chloride
       16. 4x4 boat gauze x2 or lap sponges
       17. needle driver x2
       18. Clippers
       19. 0 polysorb 5 pack x3
       20. foley holders to secure cannulas (leg band x1 and sticky x3)
       21. 20 Fr return, 25 Fr drainage cannulas
       22. Chlorhex dressings x2
CONSULTATION, REERRAL, CANNULATION AND PATIENT MANAGEMENT

23. 10cc syringe x2
24. NOT IN BAG (need to get): 6 sterile disposable gowns, 6 gloves, 2 hats

iv. Cannulators: put on disposable surgical gown and surgical gloves and PAPR/airborne PPE outside of room (non-sterile), put on second set of sterile disposable surgical gown & surgical gloves once inside the room. Don’t wear plastic PPE gown as base layer (too hot).

c. Staff in the room for cannulation: follow UWMC Montlake recommendations for procedural PPE
i. Two cannulating physicians
ii. Two nurse ECMO specialists to prepare and manage the ECMO circuit and manage medication pumps and give heparin bolus.

Daily Patient Management:

- A 5SA nurse ECMO specialist will be deployed to this care unit to provide ECMO-specific care and usual bedside nursing duties 24/7. This will be coordinated by the ECMO program manager.
- The CTICU attending and fellow will provide daily ECMO consultation for the patient, will round on the patient (without entering room to save PPE when appropriate), write daily ECMO management note (including on day of initiation), and is available to the ECMO specialist 24/7.
- The general critical care management of the patient and placement of all orders will remain with the COVID ICU team (except the ECMO order set, which is placed by the CTICU team). The CTICU attending will be available for consultation 24/7 and will leave daily ECMO recommendations to the COVID ICU team.
- The cardiac/thoracic surgery residents are not currently involved with the care of these patients. If a cannula problem arises that cannot be dealt with by the CTICU attending, he/she will consult the thoracic surgery attending on call.
- For more ECMO education: www.corECMO.com.

Important ECMO phone numbers:

ECMO New Consult: *call paging operator

ECMO Daily Management (for established ECMO patients): CTICU attending

ECMO Leadership:

1. Jenelle Badulak 215-290-4004
2. Peter von Homeyer 206-307-8125
3. Aaron Cheng 206-719-4080
4. Mike Mulligan 206-369-7541

ECMO Coordinator On Call: 8-6636 (or call operator)

1. Matthew Plourde 203-228-1913
2. Jeff Maggioli 206-999-5320
3. Jenna Nersesyan 253-334-2524

Updated: 6/22/20  Badulak, von Homeyer, Cheng, Mulligan