Outside Hospital Referral

- Outside hospital calls for ECMO referral to UW TC are preferentially directed to **UWMC Montlake**.
  - Given complex decision making involved, referrals and patient transport should occur during the day.
  - Harborview will consider transfers on a case by case basis if UWMC is at capacity
- If UWMC is at capacity or there is a transfer request for a non-COVID patient, TC will page HMC ECMO leadership member (Eileen Bulger or Sam Mandell) to speak with referring MD and decide on ECMO candidacy.
- If ECMO candidate, huddle will occur with HMC incident commander, medical staff supervisor, operations chief, COVID ICU attending and an ECMO leadership member to assess capacity to accept ECMO referral.
- If HMC capacity is low, ECMO leadership will reach out to PNW ECMO consortium
- If accepted to HMC:
  - ECMO leadership will notify the COVID ECMO Team (ECMO consultant for COVID ICU team)
  - TC will connect COVID ICU attending and referring doctor for doc-to-doc.
- After the patient arrives, the patient will be evaluated by the COVID ECMO attending in conjunction with ECMO leadership.
- If decision made for cannulation, cannulation will be performed by the COVID ECMO team.

In-House Consultation

- For COVID patients, the COVID ICU team should call the ECMO consult attending.
- The ECMO consult attending will contact HMC ECMO leadership (Sam Mandell or Eileen Bulger) who will have a group discussion to make the decision to proceed with ECMO or not.
- If accepted for cannulation, ECMO leadership will identify appropriately trained cannulation team (two physicians one attending facile with cardiac POCUS to site wires/cannula in IVC).

Cannulation

- As the majority of critically ill patients with COVID-19 will be located in an isolation area (COVID ICU), the ECMO team should be mobilized to that location (do not move the patient).
- Preparation of the patient by primary team:
  - Right IJ and (ideally right) femoral vein open for use (additional central access in other locations)
  - 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.
  - Cannulation configuration: two cannulas (right internal jugular and ideally right femoral vein)
- Equipment in the room:
  - Ultrasound for vascular access, site wires in IVC and site venous drainage cannula at IVC-right atrial junction
  - C-Arm may be used at the discretion of the cannulating physician if needed. C-Arm to be cleaned with Sani Wipes (one wipe per swipe) and allowed to dry for 2 minutes prior to removing from the room
  - Cardiohelp pump & circuit, clamps, emergency priming line, 1 L crystalloid
  - Cannulation supplies (Gather from cart and placed in large bag):
    - Heparin bolus
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2. large prep stick x3
3. C-arm drape
4. laparotomy drape: prep in right IJ, femoral vein, subxiphoid space (for ultrasound)
5. 6 pack sterile towels x2
6. sterile trauma shears
7. skin stapler
8. ultrasound probe cover x2
9. Sorin dilator kit
10. central line kit
11. 5Fr sheath
12. Amplatz super stiff wires x2 180cm
13. 4 sterile tubing clamps
14. ECMO major pack: Asepto syringe, basin, sterile table field, scalpel
15. 1 L sterile plasmalyte
16. 4x4 boat gauze x4
17. needle driver
18. 0 Silk 5 pack x3
19. Foley holders to secure cannulas
20. 20 Fr return, 25 Fr drainage cannulas
21. 4 sterile disposable gowns, 4 gloves, 2 hats

v. 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 for procedure. Don’t wear plastic PPE gown as base layer (too hot).

c. Staff in the room for cannulation: follow HMC Infection Control recommendations for procedural PPE
   i. Two cannulating physicians
   ii. Bedside nurse nurse to manage medication pumps and give heparin bolus.
   iii. One ECMO operator to prepare and manage the ECMO circuit a

Daily Patient Management:

- An ECMO operator will be deployed to this care unit to provide ECMO-specific care. This will be coordinated by the Nursing Supervisor.
- The ECMO COVID attending will provide daily ECMO consultation for the patient, will round on the patient (without entering room to save PPE, use video conferencing when possible or phone), write daily ECMO management note (including on day of initiation), and is available to the ECMO specialist and MICU attending 24/7.
- The general critical care management of the patient and placement of all orders will remain with the COVID ICU team. The COVID ECMO attending will be available for consultation 24/7 and will leave daily ECMO recommendations to COVID ICU team. For more ECMO education: www.corECMO.com.
- If an emergent cannula problem arises that cannot be dealt with by the COVID ECMO attending, he/she will consult the Trauma Surgery attending on call.
- DNR is recommended for patients on VV ECMO with COVID 19.

Updated 4/3/2020: Mandell, Bulger, Taylor
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Important ECMO phone numbers:
ECMO Consult Attending on Call *call operator

ECMO Leadership:

1. Sam Mandell  425-736-7306
2. Eileen Bulger  206-251-6376

COVID ECMO TEAM
Sam Mandell
Eileen Bulger
Barclay Stewart
Deepika Nehra
Rebecca Maine

ECMO Operator On call: ECMO activation page through the hospital operator

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