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V.1
Prepared by UCSF COVID-19 Clinical Working Group

UCSF Inpatient Adult COVID-19 Interim Management Guidelines

Purpose

The intent of this guideline is to provide a framework for clinical management of individuals with COVID-19. Infection prevention and specimen collection instructions are outside the scope of this guideline and can be found in the Additional Resources section.

Guidelines are intended to assist with clinical decision-making for common situations but cannot replace personalized evaluation and management decisions based on individual patient factors.

The document covers off-label use of medications based on the best evidence currently available.

Given the rapid evolution of the current COVID-19 pandemic, this will be a living document that is likely to change over time.

Additional references

The UCSF Hospital Epidemiology and Infection Prevention website includes comprehensive guidance and links to the institutional control plan, algorithms for initial evaluation of patients, instructions on specimen collection, signage for isolation, and much more information. This website should be referenced as the source of the most updated information about the UCSF COVID-19 response.

General principles

During this unprecedented time, remember these principles:

- Order diagnostic studies only when clinically indicated. Remember that each test may expose additional personnel to potential infection, remove exam rooms from circulation, and utilize additional personal protective equipment.
- Supply chain issues will impact every piece of clinical care, from lab testing to medications to blood products to personal protective equipment. Practice evidence-based medicine and order only testing and medications that are truly necessary.
- Clean your hands and utilize personal protective equipment as recommended by Hospital Epidemiology and Infection Prevention.

PPE conservation

- Direct contact with the patient in the room should only occur if the provider will perform a direct physical exam or in-room procedure that will provide clinical information to impact patient assessment and clinical care in the next 24-48 hours.
- If deemed necessary, only one member (the clinical decision maker) should perform the in-person encounter with suspected or confirmed COVID-19 patients. No other team members should enter the room unless needed to assist with a procedure.
- Telephone, econsultation, and video consultations should be used if direct contact is not essential.

- Bundle care activities to limit the number of entries into the room.
- Limit the number of individuals in the room to essential staff for aerosol-generating procedures.
- The most experienced individuals should preferentially perform necessary procedures.
- Ensure all supplies needed for an exam or procedure are available prior to donning PPE and entering the room.

Diagnostic testing

Radiography:

- Chest radiography:
  - Roles of chest radiograph:
    - Baseline CXR in Emergency Department and Inpatients. Primarily used to exclude bacterial infection or other alternative diagnoses.
    - Monitoring of complications in inpatients (pneumothorax, atelectasis) at an interval deemed appropriate by the clinical team.
  - Key points
    - Neither sensitive nor specific for COVID-19 infection
    - Typical findings: patchy, bilateral, consolidation
- Chest CT:
  - Roles of chest CT
    - Limited role in diagnosis of COVID-19 as PCR is the test of choice.
    - Should only be performed if the results would change management.
    - Primary role of CT is the evaluation of superimposed processes such as pulmonary embolism or aortic dissection.
    - Consider the use of CT for detection of early COVID-19 infection in high-risk patients with high pre-test probability of disease and negative initial PCR result. Consult COVID-ID or Infectious Diseases to help with decision-making around which test is best for this: repeat upper tract testing, lower respiratory tract testing, or CT scan.
  - Key points
    - May be more sensitive in certain cases for early COVID-19 compared to PCR
    - Typical CT findings relatively specific for COVID-19 in the appropriate clinical setting
    - Most suggestive findings: focal, patchy, bilateral, rounded or geographic areas of ground glass opacity and consolidation often in a peripheral distribution

COVID-19 RNA testing

- Indications:
  - Test any inpatient or patient pending admission with signs/symptoms compatible with COVID-19, including respiratory illness, new cough, fever, dyspnea, or flu-like illness.
  - Do not test asymptomatic patients nor those with recovered illness.
- Type of test:
  - A nasopharyngeal (NP) swab is the first-line test for COVID-19 diagnosis in all patients.

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        - Alternative test: Pooled nasopharyngeal (NP) and oropharyngeal (OP) swab if available in one collection kit.
    - Tracheal aspirate COVID-19 testing: Consider in critically-ill mechanically ventilated patients with negative initial NP/OP COVID-19 testing and high suspicion for COVID-19. Approval required from COVID-ID or Infectious Diseases attending.
    - Repeat testing indications:
        - Positive initial results: Test certain patients with known infection prior to discharge and/or to inform PPE and isolation decisions. Hospital Epidemiology and Infection Prevention and/or Infectious Diseases will guide decision-making for re-testing.
        - Negative initial results: Consider in patients where the clinical suspicion remains high for COVID-19, particularly if mechanically ventilated. Approval required from COVID-ID or Infectious Diseases attending.

When to consult ID for confirmed or highly-suspected cases:

- High suspicion for COVID-19 with negative initial testing and acute respiratory failure.
- Positive test within 72 hrs and potentially eligible for the NIH adaptive trial (meets one of the following):
    - Radiographic infiltrates by imaging (chest x-ray, CT scan, etc.)
    - Clinical assessment (evidence of rales/crackles on exam) AND SpO2 ≤ 94% on room air
    - Requiring supplemental oxygen
    - Requiring mechanical ventilation
- Positive test in solid-organ, bone-marrow transplant, or malignant hematology patients.
- Positive test in pregnant patients.
- Positive test and concern for secondary infections (i.e. bacterial or fungal pneumonia).

Supportive management

- The mainstay of treatment for COVID-19 is standard supportive therapy. Approach to treatment should be like other respiratory viral illnesses that can have severe manifestations.

Experimental therapies

Upper respiratory tract infections:

- Most patients with confirmed ***upper respiratory tract infection*** from COVID-19 should not be offered experimental medications

Lower respiratory tract infections

1. **Remdesivir**:
    A. Assess for inclusion in the NIH adaptive trial. Needs to meet at least one of the following (and may not be in other treatment trials for COVID-19). Also, must be anticipated to remain inpatient x 72 hours.

- Radiographic infiltrates by imaging (chest x-ray, CT scan, etc.), OR
- Clinical assessment (evidence of rales/crackles on exam) AND SpO2 ≤ 94% on room air, OR
- Requiring supplemental oxygen, OR
- Requiring mechanical ventilation.

B. Assess for exclusion
- ALT/AST > 5 times the upper limit of normal
- Estimated glomerular filtration rate(eGFR) < 50 or requiring dialysis
- Pregnancy or breast feeding
- Anticipated transfer to another hospital which is not a study site within 72 hours
- Allergy to any study medication

C. If qualifies for the study, contact:
- COVID ID attending via CareWeb or 443-0190

D. If excluded from the study, may attempt to obtain compassionate-use remdesivir if mechanically ventilated and:
- ALT/AST ≤ 5x ULN
- Willing to stop all other experimental antiviral agents

*criteria subject to change. Check https://rdvcu.gilead.com.

2. **Hydroxychloroquine** (chloroquine is an alternative if unavailable):
   A. Consider for patients with COVID-19 meeting requiring any of the following interventions:
   - Mechanical ventilation
   - Non-invasive ventilation
   - Supplemental oxygen via high-flow nasal cannula

Remdesivir	
Dosing	200mg IV x 1, then 100mg IV q24h for duration of hospitalization for up to 10 days
Dose adjustment in renal dysfunction	Hold if CrCl decreases by ≥50% from baseline
Pregnancy/Lactation	Contraindication for clinical trial. Barrier contraception required (men and women)
Important drug interactions	Coadministration with strong CYP3A4 inhibitors is not recommended and coadministration with weak/moderate 3A4 inhibitors should be avoided if possible.
Adverse effects	Increased AST/ALT, reversible upon drug discontinuation
Hydroxychloroquine	

Dosing	400mg PO BID x 2 doses, then 200mg PO BID on days 2 - 5 Available as an oral suspension compounded in-house - contact ID pharmacy for details
Dose adjustment in renal dysfunction	No
Pregnancy/Lactation	Crosses the placenta. Recommended for management of lupus and lupus nephritis in pregnant women. Crosses into breast milk. Relative infant dose (RID) is ~2% (breastfeeding considered acceptable when RID <10%).
Important drug interactions	Caution with concurrent QTc-prolonging agents
Adverse effects (with short-term therapy)	Hypoglycemia - increase monitoring in patients with diabetes QTc prolongation Hemolytic anemia - avoid use in patients with G6PD deficiency
Chloroquine - Note, commercial availability is limited	
Dosing	≥50kg: 500mg PO BID x 7-10 days <50kg: 500mg PO BID x 2 days, then 500mg PO daily x 5-8 days Available as an oral suspension compounded in-house - contact ID pharmacy for details
Dose adjustment in renal dysfunction	GFR < 10 or hemodialysis: administer 50% of the dose CRRT: no dose adjustment necessary
Pregnancy/Lactation	Crosses the placenta. Recommended for treatment of pregnant women with uncomplicated malaria in all trimesters of pregnancy. Crosses into breast milk. Relative infant dose (RID) is ~0.9-9.5% (breastfeeding considered acceptable when RID <10%). Chloroquine exposure during malaria treatment is considered safe for breastfeeding infant by CDC.
Important drug interactions	Avoid use with CYP2D6 and CYP3A4 inducers and inhibitors. Caution with concurrent QTc prolonging agents
Adverse effects (with short-term therapy)	Nausea, vomiting, diarrhea Hypoglycemia - increase monitoring in patients with diabetes QTc prolongation/arrhythmias Hemolytic anemia - avoid use in patients with G6PD deficiency

Medications/interventions to avoid

- Steroids should be avoided unless otherwise indicated
- Do not give other pharmaceutical treatments (e.g. tocilizumab, lopinavir/ritonavir, ribavirin) specifically for COVID-19 unless part of a clinical trial

Renin-angiotensin system (RAS) blockers

Theoretical basis for concern: The virus that causes COVID-19 uses the angiotensin-converting enzyme (ACE) 2 receptor to enter cells. Because some ACE inhibitors and angiotensin receptor blockers (ARBs) can increase the expression of ACE2, there is concern that these medications may facilitate viral entry into cells. However, currently there is not clinical or epidemiological data to support this concern.

- Patients diagnosed with COVID-19 who take ACE inhibitors or ARB medications generally should continue these medications.
- For those with severe respiratory failure requiring mechanical ventilation, stopping ACE inhibitors or ARBs may be considered on a case-by-case basis in consultation with appropriate subspecialty service. (e.g. Nephrology, Cardiology, Advanced Heart Failure)

Critical care management

Respiratory and ventilator management (see Respiratory Care Management detailed protocol)

Principles of Care:

- Nebulizer therapy is an aerosol-generating procedure and should be avoided in COVID-19 patients unless there is a strong indication that it would be superior to MDI. Data suggests that metered-dose inhalers (MDIs) and nebulized medications have equal efficacy. Use MDIs instead of nebulized medications except:
  - ICU-level care required due to respiratory status
  - Requiring high-flow nasal cannula or non-rebreather mask
  - Inability to follow commands (e.g. altered mental status, severe cognitive impairment, etc.)
- Write an order for Respiratory Therapy to provide metered-dose inhaler teaching to your patient if using this device for the first time.
- Only essential providers in the room during intubation or other aerosol-generating procedures.* All providers must adhere to infection prevention guidelines. These procedures should be performed in an Airborne Infection Isolation Room (AIIR), if possible.
- During Code Blue response, limited PAPR availability may mean that those directly involved with airway management should be prioritized for PAPR and all others should use N-95 plus eye protection at a minimum (see COVID-19 Code Blue protocol).
- High Flow Nasal Oxygen (HFNO) can be considered for use in selected hypoxemic patients but caution with higher flows (e.g > 25 LPM). Definitive data regarding safety of HFNO are currently lacking but it should be considered a aerosol-generating procedure and airborne precautions are required.
- Non-invasive ventilation (NIV, e.g. CPAP or BiPAP) should be used only in selected patients with respiratory failure but it should be considered an aerosol-generating procedure and airborne precautions are required.
- Patients receiving either HFNO or NIV should be cared for in a monitored setting by personnel capable of performing endotracheal intubation. We recommend short trials of therapy (e.g 1 hour) with frequent clinical re-evaluation. Proceed directly to endotracheal intubation in patients with no evidence of improvement.

- Emergent intubations are to be avoided given the prolonged time to apply PPE and increased risk of infection to the person performing the intubation.

Personal Protection Prior to Tracheal Intubation

- Remember that YOUR personal protection is the priority.
- Please review the material and use airborne/droplet/contact isolation precautions (PPE includes: PAPR, gown and gloves) when interacting with patients prior to aerosol-generating procedures. Remember to plan ahead as it takes time to apply all the barrier precautions.
- Prior to intubation of the patient with suspected or confirmed COVID-19, review and practice donning and doffing gloves, gown and PAPR.
- Leave personal items (stethoscope, jewelry, patient list, watch) outside the room.
- Apply gown, gloves and PAPR before entering patient room. Person intubating should wear double gloves [+/- hair bouffant caps].

Preparation for Intubation (ED, ICU or ward for emergent intubations)

- Personnel inside the room:
  - Airway expert physician (ICU or ED or Anesthesia staff physician/clinical fellow/senior resident)
  - One Respiratory Therapist (RT) to assist with intubation and ventilation
  - One Registered Nurse (RN) to deliver medications
  - A second qualified MD to assist with airway and/or resuscitation
- Personnel outside of the room:
  - RN in PPE available to monitor PPE compliance, assist in case a provider has to leave the room, or obtain additional equipment or medications.
  - Physician or APP to assist with logistics/flow coordination.
  - RT to assist with emergency airway equipment and ventilator
- Equipment to prepare
  - Manual resuscitation bag with appropriate filter placed between the mask and the bag (must be present in all rooms of patients with confirmed or suspected COVID-19)
  - Capnograph
  - Glidescope with blade
  - Endotracheal tubes (have back up)
  - Medications for induction, hemodynamic support and maintenance of sedation/analgesia

Intubation procedures:

- Only experienced providers should perform intubation.
- Plan for rapid sequence induction (RSI) and ensure skilled assistant is able to perform cricoid pressure. RSI may need to be modified if patient is unable to tolerate apnea due to hypoxemia. If manual ventilation is needed, small tidal volumes should be applied. Consider two-handed mask ventilation to ensure good mask seal.

- If possible, preoxygenate with 100% oxygen x 5 minutes and use RSI in order to avoid manual ventilation of patient's lungs and potential aerosolization of virus from the airways.
- Consider video laryngoscopy as preferential airway equipment.
- Avoid awake fiberoptic intubation. If absolutely necessary, consider use of disposable fiberoptic scope.
- Use high efficiency hydrophobic filter between mask and Ambu bag. Ambu-bag is preferable because it is pre-packaged with filter. Jackson-Reese requires a separate filter and may take time to assemble.
- Once intubated, minimize circuit disconnects and use in-line suction.
- Ventilators and anesthesia machines should have filters on the expiratory and inspiratory circuits. Capnography tubing should be filtered.
- If patient requires transport to ICU, the use of a ventilator with inspiratory and expiratory filters are required (i.e. C3 and EnVe ONLY).
- Video laryngoscope tower (if applicable) and blade should be wiped down with disinfectant wipes before removing from the room. Blade should be placed in a biohazard bag and standard pre-cleaning procedure should be followed.

After Procedure:

- Careful attention to doffing procedure.
- Debrief with staff to identify any potential lessons for future procedures.
- Any concerns about contamination should be reported immediately to provider's supervisor.

Extracorporeal membrane oxygenation (ECMO) considerations

- ECMO (VA or VV, as appropriate) will be considered per criteria established by Cardiac Surgery and Critical Care.

Tracheostomy considerations

- The optimal timing of tracheostomy in patients with ARDS and COVID-19 is unknown. The decision for tracheostomy will be made on a case-by-case basis. In most circumstances, patients should have two negative COVID-19 PCR tests prior to surgery.

Continuous Renal Replacement Therapy (CRRT)

- For patients with acute kidney injury (AKI), consider delaying CRRT until significant metabolic complications arise (K > 5.5 mmol/L refractory to medical therapy, bicarbonate < 15, arterial pH < 7.15) or significant positive fluid balance despite high-dose diuretics
- For ESRD patients, CRRT should be used to avoid markedly positive fluid balance, which may exacerbate hypoxemia

ACLS/Code Blue Response:

Principles:

- This document refers to Emergency and Code Response management for COVID-19 known and suspected adult patients for the in-patient setting. This document does not apply to out-patient response, the Emergency Departments or our Pediatric Hospitals.
- High-risk procedures performed on COVID-19 patients may expose staff to a high viral burden. During medical emergencies (respiratory distress, cardiopulmonary arrest) where high-risk procedures are unavoidable, staff will follow the procedures outlined in this document in order to provide needed quality care for patients in a timely and efficient manner whilst ensuring appropriate protection for the health care team.
- The goal is to provide appropriate care for our patients by competent healthcare providers with the minimum number of staff and ensuring strict adherence to infection control measures.
    - Patients will be intubated by the most experienced airway provider (Critical Care Medicine Attendings, Anesthesia Attendings, Critical Care Medicine Anesthesia Fellows and Anesthesia CA-3 Residents).
    - Avoid use of house staff during Code Blue Resuscitations whenever possible
    - No medical students or health professions students should enter the room
- Healthcare providers should NEVER enter the rooms or patients with known or suspected COVID-19 patient without appropriate PPE.
- Minimize aerosol generating procedures: avoid/minimize hand-mask ventilation, avoid placement of oral airways or nasal airway devices. We will have a low threshold for endotracheal intubation for COVID-19 patients.
- Early defibrillation: if CPA is caused by arrhythmia- early defibrillation will reduce total time to CPR and may obviate need for airway manipulation.
- Healthcare providers should have a low threshold to call for help for COVID-19 patients if concern for worsening illness to avoid emergent intubations or code situations.

Identification & Preparation:

- Patient rooms with known or suspected COVID-19 will have rooms identified by “Novel Respiratory Isolation” or “Respiratory Illness Evaluation” sign. Donning and Doffing posters will be affixed to these rooms.
- For patients not in their room (off-unit for procedure/imaging/transport): they will be identified by sign on bed indicating “Novel Respiratory Isolation” or “Respiratory Illness Evaluation.”
- Code Activation will be by standard mechanisms. Code Team response will change based upon identification of COVID-19 patient by signage on door.
- On designated units: a COVID-19 PPE cart will be designated to that unit. For units not designated as COVID-19 units: the Code Team will carry a PPE for Code Backpack.
- Patients must have at least one working 20G peripheral IV in place at all times.
- Present on Unit: for any ward caring for a patient with known or suspected COVID-19 there must be present (and easily accessible):
    1. Manual resuscitation bag (AMBU) with appropriate mechanical HEPA filter placed between the mask and the bag
    2. Step-stool (for CPR)
    3. “Cheat sheet” on addendum code and emergency response for COVID-19

4. Unit staff huddle to review procedure for Code Blue for COVID-19 patient during each shift (with review of procedures and Cheat Sheet) (see *Emergency and Code Response Protocol*)

- Inside the room:
    1. Non-rebreathing mask with filter on exhalation port
    2. Disposable stethoscope
- Additions to regular Code Blue Response Team Huddles:
    1. A master list of current COVID-19 census and location of patients will be reviewed
    2. Members of the Code Team will review change of roles/providers for COVID-19 patients
    3. Members of the Code Team will review COVID-19 "Cheat Sheet" (see *Emergency and Code Response Protocol*)

Procedure:

Initiation of Code Blue

- If you are inside the room and recognize a patient in distress:
    1. If you already have Novel Airborne PPE in place (N95 or PAPR) then: Activate a "Code Blue"
    2. If you only are wearing Contact & Droplet PPE then IMMEDIATELY leave the patient's room and:
        - Don appropriate PPE and enter the room
        - Simultaneously ask someone to activate a "Code Blue"
- If you are outside the room and recognize a patient in distress:
    1. Don appropriate PPE and enter the room
    2. Simultaneously ask someone to activate a "Code Blue"
    3. A second RN will then don appropriate PPE and enter the room with [1]stool, [2]resuscitation bag (AMBU) with filter attached and [3]code cart
    4. RN unit charge RN to don appropriate PPE and be ready to support code team. Charge RN will also observe for breaches in protection
    5. Maintain at least one staff at unit nursing station to monitor for calls from patient's room

Initiation of Procedure: prior to Code Team arrival

- If patient is in respiratory distress but has a pulse, then provide oxygen. Place NRB mask with filter in place (15 LPM oxygen flow)
- If the patient does NOT have a pulse:
    1. Place NRB oxygen mask on patient
    2. Start chest compressions (CPR): Bedside RN
    3. 2nd RN: applies defibrillator pads and connects to defibrillator
    4. Any healthcare provider who is licensed to defibrillate and who arrives at the code may defibrillate the patient if indicated (pulseless ventricular tachycardia (VT) or ventricular fibrillation (VF))

Refer *Emergency and Code Response Protocol* for further details related to Code Team actions and responsibilities.

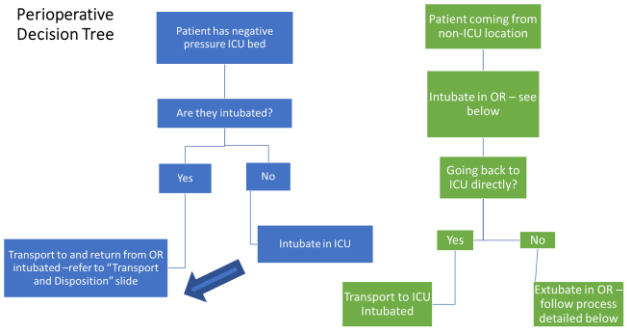
Perioperative considerations

- Elective surgeries should be deferred for patients with COVID-19 disease until the patient is determined to be outside of the infectious period.
- Indications for emergency surgery mirror those for patients who do not have COVID-19.
- Refer to HEIP guidance for appropriate PPE during intubation and throughout the procedure
- If emergency surgery is indicated, take the following steps:
    - As soon as case is booked, contact environmental services to have PPE cart brought outside designated OR
        - The OR nurse manager's office at ML has back-up PAPRs
    - Currently, none of the ORs at UCSF are negative-pressure environments
    - The designated OR should be clearly marked with signage on the doors to avoid inadvertent entry by staff who are not wearing PPE
        - Inquire at OR front desk which OR has been designated for care of patients with COVID-19 disease

<u>Preparing for the procedure:</u>

- Leave unnecessary personal items outside (bags, fanny packs…etc)
- Use OR telephone in speaker mode
- A dedicated anesthesia supply cart should be left outside the OR for clean supplies
- Before the patient arrives, bring in ALL anticipated necessary supplies (with back-ups) into the OR, including supplies that are normally stored in anesthesia machine drawers – avoid opening the drawers once the patient is in the room
- If additional supplies are needed, remove gloves and perform hand hygiene before accessing the OR anesthesia cart – the goal would be to do this at a minimum
- If feasible, can station a runner outside the room in clean PPE to retrieve supplies from clean cart
- Any unused supplies in the OR at the end of the case are considered contaminated and will need to be discarded

Perioperative airway: See Figure for guidance about where to place airway



Airway management in the OR:

- Two anesthesia providers present for intubation
- Don double gloves during airway/oropharyngeal manipulation
- Remove outer gloves before interacting with environment
- During case, perform frequent hand hygiene between glove changes
- Circulating nurse may be present but all other personnel, including surgeons, should be available outside the OR in full PPE until airway secure or extubation complete and patient not actively coughing/vomiting
- Place a high efficiency hydrophobic filter at the wye piece to protect the machine AND the gas sampling tubing/analyzer from expired gases
    - Ideally, gases exiting the analyzer should be scavenged to avoid entering the OR atmosphere
- Soiled oropharyngeal suction devices (Yankauers) should be kept free from the anesthesia machine and stored in empty saline bottle for use during case
- Utilize a closed in-line suction device for ETT suctioning to avoid circuit disconnects
- Ultrasound probes and cords should be covered in a sheath
- Avoid touching knobs with soiled hands

Patient disposition

- Patients with known or suspected COVID-19 should never be brought to holding areas or PACUs
- Always consult with staff at destination to ensure they are prepared to receive the patient directly
- If the patient is to be extubated in the OR, recovery will occur in the same OR
    - Once patient is stabilized, a PACU RN will likely be asked to enter the OR and continue the recovery process. Continue to adhere to PPE guidance from HEIP.
    - Non-intubated patients should wear a surgical face mask during transport
- If the patient is to remain intubated, ensure a high efficiency hydrophobic filter is in place between the ETT and Ambu bag/Jackson-Reese or ventilator to avoid releasing infectious material to the surroundings
- Clean stretcher handles and IV pole surfaces with wipes prior to exiting room
    - One team member is designated to interact with the environment (elevator buttons, door controls…etc) but will NOT come in contact with the patient
    - The other team member will don clean PPE before transport and attend to the patient and avoid contacting environmental surfaces

Mental Health and Psychiatric Care patients

Background

- Medically isolated ill COVID-19 patients are likely at high risk for mental health sequelae including depression, anxiety, panic attacks, psychomotor agitation, psychotic symptoms, delirium, and suicidality.
- The fundamental concerns are loss of control, uncertainty, fear, abandonment, loneliness, stigmatization as well as and fear/guilt about the effects of contagion, quarantine, and stigma on their families and friends.
- Sources of stress include social isolation, decreased sensory stimulation, and lack of access to standard coping strategies, such as spiritual or religious practices or exercising outdoors. These circumstances, along with missing work and other obligations, can trigger a powerful sense of losing control.
- Patients with history of anxiety disorders, particularly OCD, are at very high risk

Assessment

- PHQ-9, GAD-7 should be administered within 3 days of admission and weekly thereafter

Two tier care

- Tier 1: Psychiatry should be consulted urgently on patients expressing SI/HI/Psychosis, or agitation. Psychiatry can also be consulted for other non-urgent significant psychiatric symptoms as usual
- Tier 2: Voluntary 1:1 mental health consults with consult-liaison psychologist are available on patient request or by recommendation of staff who identify significant concern for mental health sequelae
- Consider e-consult for medication or discharge follow–up questions
- All Psychiatry consults will be via video visit. Page Psychiatry consults at 415-443-1743 for both Tier one and Tier two visits.

Symptom management/Palliative care

Staffing:

- Attending physicians will be available as usual
- Fellows may be involved in the care of the patients; Rotating residents and medical students will not see patients with COVID-19 but may participate in video or telephone care
- Social workers and chaplain will not see COVID-19 infected patients in-person, but will be able to provide telephone/video consultations
- One chaplain will be available to visit with patients at PH on Fridays only
- Chaplains will be available for medical team support, well-being and emotional debrief.
- The PC CNS will be available for nurses' education and support

Indications for a Palliative Care consult that will not change:

- Address challenging physical symptoms, psychosocial, spiritual and existential suffering in patients with a life-limiting or life-threatening illness

- In-person psychosocial, spiritual and existential support will be limited and provided by physicians within their level of expertise
- Urgent spiritual/religious needs at end-of-life such as Catholic priest visit will be triaged by the chaplains

Indications for Palliative Care Consultation unique to patients with COVID-19 infection

- Prolonged ICU stay
- Emotional, spiritual and symptomatic support at the end of life for family/patient
- Ethical decision-making

Palliative Care best practices for primary teams:

- Perform a Goals of Care discussion within 48 hours of admission and offer age- and comorbidity-specific prognostic information at that time if not already discussed
- Use the comfort care order set for actively dying patients (consult PCS only if you have questions or need additional support)
- Outpatient hospice referrals will require coordination with Case Management and public health authorities. See "Discharge Considerations" below

Caring for the caregiver

The Caring for the Caregiver Program is dedicated to providing support to faculty, staff and trainees experiencing emotional distress related to the clinical care of patients. In the midst of UCSF's response to COVID-19, we recognize that everyone is under increased stress to provide the best care to patients and families. We also want to acknowledge that this may take a personal toll. Please contact caringforthecaregiver@ucsf.edu anytime to request support for yourself or a peer. We can also coordinate group debriefings.

Discharge Considerations

Discharge coordination for hospitalized patients with COVID-19 requires advanced planning and close coordination between multiple disciplines in the hospital, including clinicians, infection control, and case management. Coordination with local departments of public health is mandatory for all patients. When deciding on readiness for hospital discharge, all parties may also need to take into strong consideration health care system capacity, laboratory diagnostic resources, and the current epidemiologic situation.

Below are key considerations for discharge with a recognition that guidance will evolve as experiences and data for hospitalized COVID-19 patients increases. Creative discharge solutions may also be necessary when resources and health system capacities are limited.

- **Department of Public Health and Infection Control Coordination**
    - Hospital discharge planning staff must work closely with the patient's local department of public health, hospital Infection Control, and/or Infectious Disease specialists to determine

the safest and most feasible post-hospital location for the patient. Discharge planning and coordination should start as early as possible in the patient's hospital course once COVID-19 testing is positive.

- **Clinical Factors**
    - Clinicians caring for COVID-19 patients should communicate with experts as appropriate (e.g. Infectious Disease) prior to discharge to obtain a firm understanding of the patient's clinical course and clinical stability for discharge. Expert input may be necessary to determine if and when a patient is at risk for clinical deterioration.
    - For certain high-risk COVID-19 patients (e.g. immunosuppressed, transplant, HIV-positive, and pregnant patients), close communication with specialists is imperative to clarify post-discharge clinical care (e.g. immunosuppressive medication management, special precautions).
- **Hospital and Post-Hospital Lab Testing**
    - As early as possible (i.e. once COVID-19 testing is definitively positive), clinicians should communicate closely with Infectious Disease and/or Infection Control experts to clarify the latest laboratory/virologic test criteria and methods that are warranted for both patient discharge and after discharge. In general, local health department will direct and guide COVID-specific lab testing.
    - Specifically, the local health department should seek to communicate the following with the team planning hospital discharge: whether test positivity is warranted prior to discharge (depending on the patient's unique clinical factors and post-discharge destination); the interval and frequency of post-discharge testing; and testing criteria that may be required for home quarantine (and its cessation).
    - Local public health department should inform patients of lab results tests (either pending hospital tests or post-discharge tests) and provide guidance on subsequent steps.
- **Symptom Monitoring and Return Precautions**
    - Clinicians and hospital case management should seek expert input (e.g. Infectious Disease, Pulmonary) if necessary to obtain a realistic expectation of the patient's projected clinical trajectory and recovery after hospital discharge.
    - Clinicians must provide explicit guidance and return precautions for the evaluation of concerning symptoms after discharge, specifically fever and/or symptoms of respiratory illness. Clinicians should also explicit clarify who COVID-19 patients must contact for questions or concerning symptoms after discharge (local departments of public health are typically responsible for coordination and management of post-discharge care).
    - Clinicians should utilize prepared communication tools to help COVID-19 patients and their families with anticipatory guidance after discharge. It is strongly suggested that this

education occur as early as possible in the patient's hospital course and not merely immediately prior to the time discharge.

- **Home Health Needs and Community Health Considerations**
    - A complete assessment of the patient's psychosocial environment – including identification of a home support system – is essential prior to discharge. In essence, the discharge process must create a clear picture of the patient's activities of daily living in order to understand what resources are needed to create a safe home environment after discharge. The appropriateness and safety of the patient's discharge location is typically determined by the patient's local department of public health. If a patient cannot safety return home, local departments of public health will guide the search for another suitable discharge destination (e.g. designated temporary housing in the community).
    - Discharge coordination involves an assessment of the typical essential services for recovery after discharge (physical therapy, occupational therapy, and home nursing), and patients may also require home thermometers, oxygen, and other durable medical equipment. Depending on the patient's home support system, discharge coordination may need to make arrangements for safely obtaining medications, grocery shopping, and other key activities of daily living.
    - It is imperative that discharge efforts consider the patient's household contacts, including the symptoms, testing status, and disease status of both household contacts and other individuals who are essential to the patient's activities of daily living (e.g. home care givers). Patients are keen to know their infectious risk to household contacts and necessary precautions: the patient's local department of public health will typically provide explicit guidance pertinent to the testing status of other household contacts and will make arrangements for a safe discharge location.
    - Unique discharge coordination may be required if multiple family members are hospitalized simultaneously. Clinicians should seek to understand if the family members have similar or disparate disease trajectories, as this will help guide whether multiple discharge destinations are warranted.
    - Discharge coordination must explicitly provide a safe method of transportation for patients from the hospital to the patient's discharge destination.
- **Congregate and Vulnerable Populations**
    - Patients returning to congregate settings as post-discharge destinations (e.g. skilled nursing facilities) or for future medical care (e.g. hemodialysis centers) require unique considerations. Infection Control experts should provide guidance on lab testing requirements and symptom management that is necessary for patients to discharge to these locations.
    - Unique discharge coordination is warranted for vulnerable populations, including COVID-19 patients with homeless and unstable housing. Infection Control consultation is warranted.

Close coordination with the department of public health to identify an alternate living situation is required and may require the mobilization of significant local resources.

- Discharge considerations may change depending on unique insurance and/or governmental policies during emergency states (e.g. waiving requirements for skilled nursing facility placement).

- **Patient Travel Precautions**
  - Infection Control and/or Infectious Disease experts should provide guidance to discharging patients on any unique travel precautions, guided by the latest public health guidance and epidemiological trends.

Appendix: OB management

Background

At this time, little is known about the effects of COVID-19 on pregnant women.

Based on data and case examples from previous coronaviruses (SARS-CoV + MERS-CoV) and a small number of COVID-19 cases, it is believed that pregnant women may be at higher risk of severe illness, morbidity, or mortality. It is reasonable to predict that pregnant women might be at greater risk for severe illness, morbidity, or mortality compared with the general population. Pregnant women experience immunologic and physiologic changes that make them furthermore susceptible to viral respiratory infections, including potentially COVID-19.

Adverse infant outcomes (eg, preterm birth) also have been reported among infants born to mothers positive for COVID-19 during pregnancy.

It is unclear if COVID-19 can cross through the transplacental route to the fetus.

Antepartum/Intrapartum/Postpartum

Limited data regarding risks associated with infection in the first and second trimesters exist. There are mixed data regarding the risk of congenital malformations in the setting of maternal fever. There are inadequate data on COVID-19 and the risk of miscarriage or congenital anomalies.

- During acute illness, fetal management should be similar to that provided to any critically ill pregnant woman. Maternal care/well-being should always take precedence. Pregnancy itself should not be a reason or indication to withhold any treatment or intervention that potential can help the mother.
- Fetal monitoring in the setting of severe illness should be considered only when delivery would not compromise maternal health or as another noninvasive measure of maternal status.
- A detailed midtrimester anatomy ultrasound examination following first-trimester maternal infection. For those experiencing illness later in pregnancy, it is reasonable to consider sonographic assessment of fetal growth in the third trimester.

- Timing of delivery should not be dictated by maternal COVID-19 infection.
- For women infected early in pregnancy who recover, no alteration to the usual timing of delivery is necessary.
- For women infected in the third trimester who recover, it is reasonable to attempt to postpone delivery (if no other medical indications arise) either until a negative testing result is obtained or quarantine status is lifted in an attempt to avoid transmission to the neonate.
- COVID-19 infection itself is not an indication for delivery.
- Health care practitioners should promptly notify infection control personnel at their facility of the anticipated arrival of a pregnant patient who has confirmed or suspected COVID-19.
- Infants born to mothers with confirmed COVID-19 should be considered to have possible infection. These infants should be isolated accordingly.
- Currently in pregnancy, no antiviral medications are approved for the treatment of COVID-19 by the US Food and Drug Administration. No vaccine currently exists for use in pregnancy.

Intrapartum and postpartum issues

Under construction

Appendix: Ethics

Under construction

Reviewed by representatives from:

- Anesthesia
- Cardiology
- Cardiothoracic Surgery
- Critical Care Medicine
- Emergency Medicine
- General Surgery
- Ethics
- Hospital Medicine
- Infectious Diseases
- Nursing
- Obstetrics
- Palliative Care Medicine
- Psychiatry
- Pulmonology
- Radiology
- Respiratory Care Services