Division of Hospital Medicine
UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS

UCH COVID-19 FACT SHEET FOR INPATIENT CARE

This guide is intended as a basic overview of COVID care for providers at the University of Colorado Hospital caring for patients on COVID hospital ward services. This does not supplant other guidance from the hospital, the CDC, or any other authorities. This document will be updated as new evidence and practices emerge.

ADMITTING (click for more information)

H&P: in addition to usual history, ensure you discuss with the patient and document date of symptom onset, code status and health surrogate/decision proxy (with contact information).

Order Set: "UCHS COVID 19 admission order set" is comprehensive for an uncomplicated admit without comorbidities.

Labs: CBC, CMP, EKG, Trop, CXR, CRP, D-dimer.
Consider procalcitonin if possible concomitant bacterial pneumonia

Pathway: review "COVID-19 *Inpatient Management Pathway UCH*" for outline of management considerations.

Note: use smart-phrase "*.COVIDASSESSPLAN*" for assessment and plan of note.
FYI: though poorly formatted, it is useful as a checklist to go through your plan for completeness

DRUGS/THERAPIES

NO contraindications for **NSAIDs, ACE-I, or ARB**. Use as needed.

Dexamethasone – ↓ mortality, indicated for patients on O_2 (above their baseline requirement)
Dose: 6mg daily (IV or PO). Duration: 10 days or until d/c. Complete 5 days as outpatient if d/c earlier AND patient still on >3L O_2 above baseline
May defer in pts on low O_2 (1-2L) w/ brittle diabetes or other relative contraindications.

Remdesivir – may ↓ symptom duration and hospitalization, no clear evidence for ↓ mortality.
Dose/duration: 5 days (200mg IV day 1, 100mg daily on days 2-5 – preloaded in order-set).
Indicated only if patient on O_2 (above baseline) and symptom duration <14 days.
May cause transaminitis (stop if ALT >5 xULN). Risk/benefit discussion if CrCl < 30
May be very expensive for patients who have private health insurance

Anticoagulation – ALL patients w/Covid-19 need DVT prophylaxis.
Dosing influenced by patient's weight, D-dimer and CrCl. Refer to anticoagulation guidelines in pathway for proper dosing.

- If D-dimer >1,500, or patient required high dose ppx, d/c home on rivaroxaban 10mg daily for 28 days.

Convalescent plasma – safe but no evidence for efficacy from RCTs. Should be given through clinical trials, when available. One-time dose.

Clinical trials – NOT the responsibility of the hospitalist to discuss with patients. Patients will be contacted by the study coordinators if eligible.

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Respiratory management

- If a patient is requiring 5+ liters of O2, **strongly consider self-proning** (shown to be effective in improving oxygenation). Goal 2-3 hours, but longer is better
- **Order metered-dose inhalers, NOT nebulizers**, to decrease the risk of aerosolization

ROUNDING

Usual clinical course: Varies widely, but patients who get worse often do so between days 8-12 from symptom onset. **Oxygen need is the most important predictor of poor outcomes**

Serial labs: Trend CRP, D-dimer every 2-3 days until consistently down-trending, for prognostic purposes; step up anticoagulation if D-dimer ever rises above 1500 (see below)

Efficient rounding:

- With multiple patients on the same floor/unit, you can **keep your respirator and face shield on between patients** (just change gloves/gown per protocol). You need to take off and clean respirator/face shield between floors/units.
- Can call patients using bed phone to minimize time spent in room.
- Interpreters:
  - Interpreter Services: 720-848-0397
  - Video interpreters can be rolled from room to room

Escalation of care:

- ICU: If a patient's O2 needs are escalating and they are requiring 8-10+ liters/min of oxygen, page the ICU for discussion of possible transfer
- Step-Down: determined and managed by ICU team

Infectious Diseases consult: *NOT* automatic; consult ID if a patient has a co-existing chronic infection (HIV/HCV, chronic osteo, etc.) or is immunocompromised (e.g., transplant patient); can also consult ID if you have any specific ID question. No need to consult ID for clinical trials.

Worsening O2 requirement, consider:

- Superimposed bacterial PNA: rare but consider antibiotics in a patient who:
  - fails to improve as expected
  - was improving but worsens again
  - has a very high procalcitonin (>1).
- **Cardiomyopathy:** consider echo if and trial of diuresis if demonstrating evidence of hypervolemia
- **ARDS:** consider trial of diuresis

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DISCHARGE

Discharge checklist:

- ☐ Down trending inflammatory markers (not absolutely necessary if patient clinically improving)
- ☐ Stable/decreasing Oxygen requirements. Home Oxygen evaluation if appropriate
- ☐ Retesting SARS-CoV-2 PCR for placement purposes if required
- ☐ Prescribe anticoagulant if patient qualifies based on peak D-dimer (see Therapeutics)
- ☐ Ensure patient has PCP follow up, especially if discharging on new oxygen
- ☐ Enroll the patient in VHC remote patient monitoring if appropriate ("VHC USE ONLY COVID Remote Patient Monitoring" in the discharge order-set)
- ☐ Patient should self-isolate for 10 days from symptom onset or positive PCR. If the patient is unable to complete self-isolation at home, contact SW for COVID hotel options

Pathway: Refer to the COVID Discharge Pathway for more detailed instructions.

Order-Set: UCHS IP COVID DISCHARGE ORDERS

Drugs/Therapies:

- Patients who are clinically stable can be discharged **prior to** completing the 5-day course of Remdesivir and 10-day course of dexamethasone.
- **Medications:** medications prescribed to the UCH atrium pharmacy can be delivered to a patient's room. Contact SW for a voucher up to $100 to help cover medication costs.

KEEPING YOU and YOUR FAMILY SAFE

Recommendations from the AMA:

- Take the right precautions at work
  - Follow UCHealth PPE precautions: UCHealth up-to-date PPE instructions
  - Wear eye protection and masks with ALL patients
  - Eat in designated areas and not with others
- Wash hands carefully
- Change your clothes: before leaving work or entering your home
- Stay with your family: distancing somewhat at home but it is not necessary to self-quarantine/isolate

CU SOM, in partnership with Care@Work by Care.com opened the Family care subscription program, to help faculty and staff find the right care for your family during these challenging times.

DOM COVID-19 resource page

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ADMITTING

In addition to usual history, ensure you discuss and document date of symptom onset, code status and health surrogate.

Generally, want at least CBC, CMP, EKG, Trop, CXR, CRP, D-dimer. Consider procalcitonin if possible concomitant PNA

Obtain an HIV and HCV if a patient has no documentation of ever having these tests

Pathway: Review “COVID-19 Inpatient Management Pathway UCH” for outline of management considerations.

Order Set: “UCHS COVID 19 admission order set” is comprehensive for uncomplicated admit w/o comorbidities. Choose treatments (remdesivir, dexamethasone) based on therapies section below.

Note: Smart-Phrase “.*COVIDASSESSPLAN*” will prepopulate the assessment and plan of note. Though poorly formatted, it is useful to go through for plan completeness.

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DRUGS/THERAPIES

No COVID contraindications for **NSAIDs**, **ACE-I**, or **ARB**. Use as needed.

Dexamethasone: potential mortality benefit, NNT=30 (ARR=3%) for pts on supplemental O_2, NNT=8 (ARR=12%) for patients who require mechanical ventilation, but possibly harmful for patients not on O_2. Indicated for patients on O_2. Dosing – 6mg IV or PO daily for up to 10 days, but 5-7 days sufficient in most patients. Complete 5 days as outpatient if d/c before that *AND* patient still on 3+ L O2 above baseline at d/c. **Reasonable to defer in pts on low O_2 (1-2L) w/brittle diabetes or other relative contraindications.**

Remdesivir: may ↓ symptom duration, no clear evidence for ↓ mortality. Tx duration: 5 days (200mg IV day 1, 100mg IV QD days 2-5 – *preloaded in orderset*). Indicated only if pt on O_2 and symptom duration <14 days. May cause transaminitis (stop ALT >5xULN). CrCl needs to be >30, but could be used with CrCl<30, harms/benefits discussion may be indicated. May be very expensive for patients who have private health insurance ($10,000+).

Convalescent plasma: safe but no evidence for efficacy from RCTs. Should be given through clinical trials, when available (PassItOn trial currently recruiting). Available as part of EUA. One-time dose.

Anticoagulation: all patients w/Covid-19 need DVT ppx. Dosing influenced by pt's weight, d-dimer and CrCl. Refer to anticoagulation guidelines in pathway for proper dosing. If D-dimer >1,500, or patient required high dose ppx, d/c home on rivaroxaban 10mg daily for 28 days.

Clinical Trials: it is beneficial to ask if patients are interested in trials on admission, but otherwise you do not need to think about them. The trial staff does the screening, consenting, etc. They'll touch base with you as needed.

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ROUNDING

Usual clinical course: Varies extremely widely, but patients who will get worse from a respiratory standpoint often do so between day 8-12 of symptoms; some patients are admitted for a day, some for weeks

NOTE: **initial PCR is not 100% sensitive,** if a patient appears clinically to have COVID, should treat as COVID (dexamethasone if on O2, anticoagulation as below, proning PRN), consider repeating the PCR, either nasopharyngeal or lower respiratory sample (slightly higher sensitivity than NP), search "COVID" in orders.

Respiratory management:

- **Oxygen need is the most important predictor of poor outcomes**; biomarkers may be somewhat helpful
- If a patient is requiring 5+ liters of O2, **strongly consider self-proning**, this can improve oxygenation; most patients can tolerate at least some proning – goal at least 2-3 hours, but longer (or shorter) as tolerated
- If a patient needs inhalers, **order metered-dose inhalers, not nebulizers**, to decrease the risk of aerosolization

Escalation of care:

- ICU: **If a patient is requiring 8-10+ liters/min of oxygen, page the ICU** (amion-->"Pulmonary"-->"MICU Fellow" *or* "MICU TEAM On-Call") for discussion of possible transfer, they will assess the patient, and decide if transfer is appropriate; even if someone is requiring less oxygen, it's ALWAYS ok talking to the ICU if you're worried about someone's trajectory

Serial labs: obtain CRP, D-dimer every 2-3 days until consistently down trending, for prognostic purposes; step up anticoagulation if D-dimer ever rises above 1500 (see above): other labs (CBC, BMP, LFTs, etc.) as normally indicated

Superimposed bacterial pneumonia: rare, but consider antibiotics in a patient who fails to improve as expected, was improving but worsens again, has a very high procalcitonin, and/or has a new focal consolidation on CXR

ID consults: *NOT* automatic; consult ID if a patient has a co-existing chronic infection (HIV/HCV, chronic osteo, etc.) or is immunocompromised (e.g., transplant patient); can also consult ID if you have any specific ID question

Rounding efficiently:

- With multiple patients on the same floor, you can **keep your respirator and faceshield on between patients**, just changing gloves/gown per protocol; you need to take off and clean respirator/faceshield between floors
- Calling patients: find "Bed Phone" in top left corner of patient's chart, instead of going to room more than once!
- Interpreters: there are video monitors on the floors, usually at nursing stations, can also use a phone interpreter for your daily discussion before or after examining the patient
  Interpreter Services: 720-848-0397, the interpreter will ask you for the patient's MRN which can be found on the patient's wrist band or their e-chart.

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DISCHARGE

Refer to the COVID Discharge Pathway under the DHM pathway tab for more detailed instructions

When in the discharge navigator, choose the following discharge order set: UCHS IP COVID DISCHARGE ORDERS

Discharge checklist:

- Down trending inflammatory markers
- Home Oxygen evaluation if appropriate
- Retesting for placement purposes if required
- Prescribe DOAC if patient qualifies based on peak D-dimer
- Ensure patient has PCP follow up, especially if discharging on oxygen
- Enroll the patient in VHC remote patient monitoring if appropriate
- If the patient is unable to complete self-isolation at home, contact SW for COVID hotel options

Inflammatory markers:

Ensure inflammatory markers (CRP and D-dimer) are down trending at the time of discharge. Minor fluctuations may be acceptable assuming the patent is clinically stable and otherwise ready for discharge.

Home Oxygen:

For any patient on oxygen, place a home O2 evaluation order “UCHS HOME OXYGEN DISCHARGE ORDERS”. In this order set be sure to fill out ALL hard stops. For the O2 dose, just fill in any amount and the RT will adjust as necessary. You may have to manually type COVID-19 in the “other” tabs as a qualifying diagnosis. If your patient qualifies, you will not need to place any additional orders or make additional arrangements. If your patient does not qualify for home O2, be sure to remove the order from the discharge orders to remove it from the AVS.

As for acceptable home O2 guidelines, please refer to the pathway. Generally speaking, patients should have stable and/or improving oxygen requirements.

Re-testing:

Unless the patient is returning to a facility that requires a negative test prior to transfer, re-testing is not indicated or recommended. Patients can test positive for over a month beyond their initial positive PCR. This is thought to be viral shedding and not necessarily an indication that the patient is still contagious so long as the patient is past the 14-day mark since symptom onset and has remained afebrile for >48 hrs. If two negative tests are needed for placement you may retest 24 hours after the first negative test or 48-hour after a positive test.

When to prescribe anticoagulation:

Prior to discharge, review the D-Dimer trend under results review. If at any point during the patient’s hospitalization the D-Dimer was greater than 1,500 and the patient was not diagnosed with a new DVT/PE, the patient should be discharged on a 28-day course of prophylactic anticoagulation. If the patient is uninsured, this will be covered by pharmacy upon discharge.

- For patients with a GFR >30, Xarelto 10mg daily x28 days. (there is a link for this in the discharge order set).
- For patients with a GFR <30, consider Xarelto 2.5mg daily for 28 days.

Medications:

All medications prescribed to the UCH atrium pharmacy will be delivered to the patient’s room prior to discharge. If a patient is unable to pay for his/her meds, please contact SW for a voucher up to $100 to help cover any medication costs.

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Post discharge follow up:

Ensure all patients have PCP follow up arranged prior to DC. Patients who are going home with a new oxygen requirement will need a provider's evaluation and order to discontinue oxygen before the supplying O2 company will accept their equipment back. If a patient discharges over the weekend, have the patient arrange their own follow up if they have a PCP and are reliable. Otherwise, secure chat the oncoming weekday care coordinator to arrange follow up for those without a PCP.

Virtual Health Center (VHC) remote patient monitoring:

The remote patient monitoring program is for patients with COVID-19 discharging from the hospital on oxygen and or who are considered higher risk. This is designed to monitor patients who are at an increased risk of decompensation for an extended period after discharge. See below for full details.

To enroll a patient:

- Determine if your patient qualifies based on a new or increased from baseline O2 requirement, and or if your patient is considered high risk (>55yrs and at least two of the following: DM, HTN, CAD, COPD/other underlying lung disease, CKD, morbid obesity) and/or immunocompromised state or currently on chemotherapy
- Under the discharge order set, order "**VHC USE ONLY COVID Remote Patient Monitoring**" a few hours prior to discharge to allow the team time to evaluate the patient and enroll the patient if appropriate. You will be notified by a team member it the patient is not appropriate

Patient self-Isolation recommendations:

In accordance with the CDC, we recommend that patients self-isolate for at least 10 days since symptom onset or 10 days since positive PCR if the patient is asymptomatic. Additionally, the patient must be without fever for at least 48 hours and the patient's COVID related symptoms should be improving. If the patient is homeless or is unable to self-isolate from housemates, contact our social workers to help arrange for the patient to complete their isolation in local COVID approved hotel, free of charge to the patient.

Transport:

If the patient is unable to discharge in a private vehicle, please contact the CM or SW to help arrange home transportation.

COVID therapies and discharge:

Patients who are clinically stable can be discharged prior to completing the 5-day course of Remdesivir and 10-day course of dexamethasone. If the patient is discharging prior to the patients' scheduled daily dose, doses can be rescheduled to receive prior to discharge. Additionally, patients do not need to be discharged on oral dexamethasone to complete the 10-day course.

If a patient leaves AMA:

Refer to the pathway for a complete overview. First, assess and document the patient's decision making capacity using the smart-phrase "***.****DECISIONMAKINGCAPACITY".*

- If the patient DOES NOT have capacity, initiate a medical hold.
- If the patient DOES have capacity, notify the local health department.

  CDPHE: 303-692-2700
  Tri-County Health Department: 303-220-9200
  Denver Public Health: 303-602-3700

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Virtual Health Center (expanded detail and FAQs)

REMOTE PATIENT MONITORING (RPM)

The Virtual Health Center (VHC) has built a remote patient monitoring (RPM) program for patients with COVID-19 who are discharging from the hospital. This will allow real-time monitoring of patients post discharge who may be at a higher risk for decompensation post-discharge. RPM is a long-term strategy for UCHealth, in which our VHC will also provide future monitoring for patients with conditions such as diabetes.

What does this program entail?

We will place a wearable vital sign monitoring device (i.e. a "wearable") on high-risk patients discharging from the hospital. This will allow for vital sign monitoring with real-time data transmission to the VHC. This data will be monitored 24hr/7 days a week over an 8-day period by a VHC tech with built-in escalation protocols to a nurse and/or attending physician if needed. At time of discharge, a VHC nurse will meet with and register the patient for RPM, place the device, and place a call to the patient's house that evening.

Who is considered "high risk?"

The high-risk category is determined by a work group comprised of hospitalists, family medicine, geriatrics, pulmonary/critical care and infectious disease teams. High risk patient criteria include ≥ 55 years of age, high risk co-morbidities (2 of the following: DM, HTN, CAD, COPD/underlying lung disease, CKD, morbid obesity) AND/OR patients currently on chemotherapy, immunocompromised due to medications or HIV with CD4 ≤ 200, or discharging on new oxygen.

Are there other criteria for enrollment?

Patients must have decision-making capacity and have a smart phone to transmit data from the app to facilitate monitoring.

What device will they wear?

Patients will initially wear a device called Masimo Radius PPG, a bracelet device, that monitors RR, HR and pulse oximetry.

How do I request that the patient receive the wearable device and get enrolled in RPM?

If patients meet the criteria for RPM, you can place an order in Epic that triggers the downstream process to enroll the patient in RPM. The order is **"VHC USE ONLY COVID Remote Patient Monitoring"** and needs to be placed in the discharge navigator.

What else do I have to do?

Please inform your patient that you are recommending this program upon discharge and then place the order in the Epic Discharge Navigator ("**VHC USE ONLY COVID Remote Patient Monitoring**"). Please also document enrollment into the program in the DC summary. That's it. The VHC staff will do the rest.

Who should I call if there are any issues?

There will be a rotating team of on-site VHC nurses 5 days a week to enroll patients (Monday to Friday). Once you place the order for RPM, this will automatically place the patient's name in a work queue. However, you can reach the VHC nurse directly at 720-553-4411. Please keep in mind that they will be unable to answer the phone while in a patient's room but will call you back.

How will we collect the devices after the 8 days of monitoring?

The Masimo Radius PPG is a disposable device that will be discarded at the end of the 8-day monitoring period.

How will the PCPs know if patients are enrolled in RPM?

If enrolled into RPM, the PCPs will automatically receive a notification upon enrollment into and discharge from RPM.

Does this program cost our patients anything?

At this time, RPM is a pilot program and patients will NOT have any financial responsibility for this service.

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KEEPING YOURSELF and FAMILY SAFE

Hygiene/Distancing
Recommendations from the AMA:

- Take the right precautions at work
- Follow UCHealth PPE precautions: UCHealth up-to-date PPE instructions
    - Wear eye protection and masks with ALL patients
    - Eat in designated areas and not with others
- Wash hands carefully
- Change your clothes: before leaving work or entering your home

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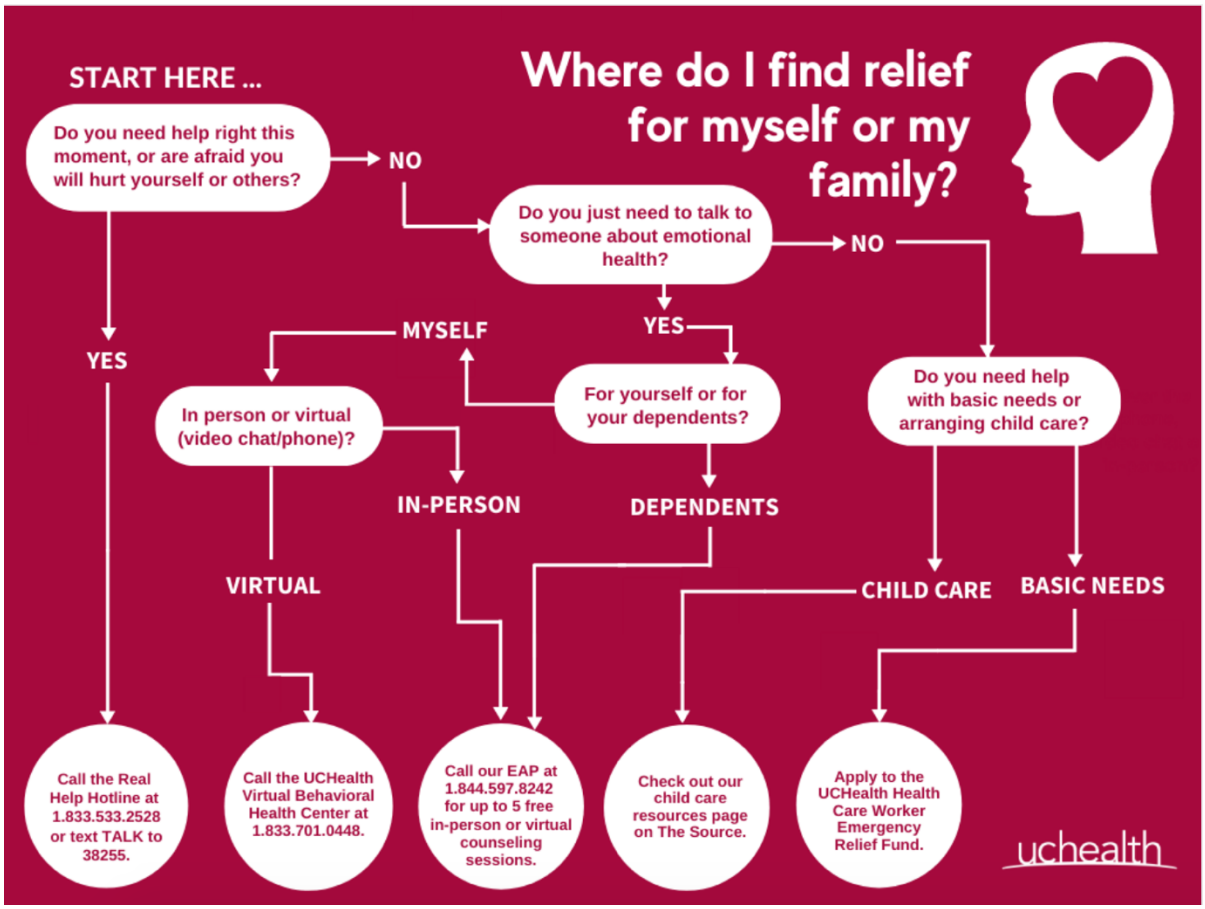
- Stay with your family: distancing somewhat at home but it is not necessary to self-quarantine/isolate

Childcare
CU SOM, in partnership with Care@Work by Care.com opened the Family care subscription program, to help faculty and staff find the right care for your family during these challenging times.

Wellbeing (extracted from the DOM COVID-19 resource page)

- **WellDOM Advisory Committee and Champions** - representatives from divisions (staff, faculty, APPs, PRAs) provide well-being resources and support to colleagues.
- **Upcoming Support Programs for CU Anschutz Faculty, Students and Staff**
- **Department of Psychiatry COVID-19 Support Website**
- **CU Helen and Arthur E. Johnson Depression Center Community Programs for Mental Wellness and Wellbeing**
- **Anschutz Health and Wellness Center's Resource Page**



AMC Well-Being Support Line: 303-724-2500

- For **faculty, clinicians and staff** working on the CU-AMC (including our hospitals) for help dealing with the stress and uncertainty of the COVID-19 pandemic.
- By contacting the Support Line, you will be linked with a volunteer who will listen, provide support, guidance and education. The support line will be available from 8am-5pm.

Article: Stress Management for Health Care Workers: Real Tips on How to Destress

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Support Groups

Past the Pandemic Sessions for Healthcare Workers

- This ECHO series offers healthcare providers and staff working in health care settings strategies to navigate, normalize and hold space for worries and experiences during this pandemic.
- Each session provides helpful, basic tools in a psychoeducational, didactic format. By understanding stress along a continuum, participants will learn how to manage stress and loss, increase capacity to prevent burnout, elevate connectedness and mindfulness, and promote quality patient care.
- Eight weekly ECHO sessions held virtually on Tuesdays 12:00-1:00pm MT. Read more.

Virtual Balint Groups

- Balint Groups have helped clinicians worldwide to improve their ability to connect with and care for their patients. The supportive environment of a small group of colleagues helps clinicians to reduce burnout and rediscover joy in medicine. Sign-up now.

- **COVID-19 Support Groups for Faculty, Residents, Non-Clinical Faculty and Staff**
  Hosted by the Department of Psychiatry. See offerings.

Mental Health

Faculty and Staff Mental Health

- **The Faculty and Staff Mental Health Clinic** accepts most insurance plans, and you can schedule a virtual visit at 303-724-4987 or fsmh@ucdenver.edu.

- **Department of Psychiatry COVID-19 Support Website**

- **CU Helen and Arthur E. Johnson Depression Center**

- **Colorado State Employees Assistance Program (C-SEAP)** – https://www.colorado.gov/c-seap – 303-866-4314 or 800-821-8154

- **The Real Help Line** – https://www.becolorado.org/program/the-real-help-hotline – 833-533-CHAT (2428)

- **Colorado Crisis Services** – http://coloradocrisisservices.org – 1-844-493-8255 or Text “TALK” to 38255

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