UKHealthCare

Guideline/Protocol Title	Interim Pharmacotherapy Guidance for SARS-CoV-2 (COVID-19) Infection in Adult Patients
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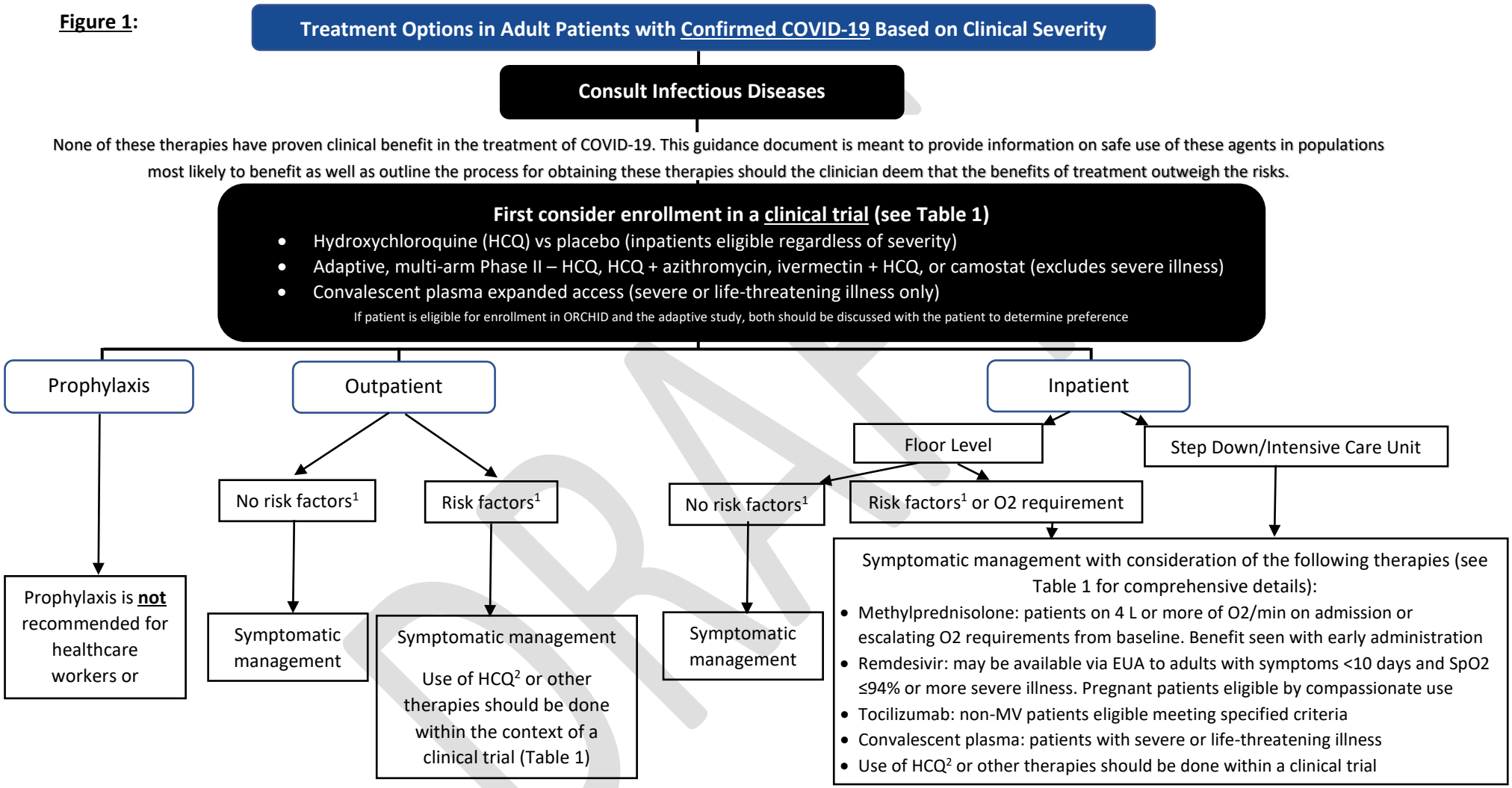
Committee Review	Pharmacy and Therapeutics Committee
Target Population	Adult patients with confirmed COVID-19
Overview	This guideline discusses the warnings related to off-label and/or experimental use of medications based off of limited clinical data evidence for the management of COVID-19 in adult patients.
Effective Date	3/26/2020
Revised Date	5/16/2020
Expiration Date	N/A
Schedule for Periodic Review	N/A
Implementation Strategy	Guideline will be shared on UK HealthCare COVID-19 Website
Education Strategy	N/A
Primary Outcome (s)	N/A
Outcome Assessment Plan	N/A
Information Technology Needs	N/A

Interim Pharmacotherapy Guidance for SARS-CoV-2 (COVID-19) Infection in Adult Patients

Updated 5/16/2020

As of May 16, 2020, there are no approved therapies for the treatment of suspected or confirmed COVID-19 proven to be clinically effective through randomized, controlled trials. Overall management resembles that for any viral pneumonia. The following guideline discusses the warnings related to off-label and/or experimental use of medications based off of limited clinical data. The FDA, on March 28, 2020 and May 1, 2020 issued an Emergency Use Authorization (EUA) of hydroxychloroquine sulfate and chloroquine phosphate and remdesivir, respectively, for treatment of COVID-19 (https://www.fda.gov/media/136534/download, https://www.fda.gov/media/137564/download). This EUA only applies to products that are obtained through the CDC's Strategic National Stockpile (SNS). These SNS acquired agents are authorized when clinical trials are not available or participation is not feasible. They may be used to treat adult and adolescent patients hospitalized with COVID-19 as it is reasonable to believe the known and potential benefits, when used under the conditions stipulated by the EUA, outweigh the risks. Requirements per the EUA include providing a fact sheet to healthcare providers and patients and reporting any adverse events through MedWatch. On April 24, 2020, the FDA issued a drug safety communication cautioning against the use of hydroxychloroquine or chloroquine for COVID-19 outside of the hospital setting or a clinical trial. As literature surrounding the management of the novel coronavirus emerges, this document will be updated accordingly following the careful analyzation of emerging clinical trial study details.

Figure 1:



[1]**Risk factors:** Age >60 years or underlying chronic medical conditions such as lung disease, cancer, cardiovascular disease, hypertension, chronic kidney disease, liver disease, severe obesity, diabetes, and immunocompromising conditions (HIV, chemotherapy, history of transplantation, immune suppression due to medication or use of immune biologics)

[2]**HCQ Contraindications/Monitoring:** Contraindications to hydroxychloroquine use include QTc>500 and hypersensitivity. Caution should be used in patients with myasthenia gravis, porphyria, retinal pathology, epilepsy. Pregnancy is not a contraindication so assess risk/benefit and consider pregnancy testing in women of childbearing age prior to initiation. Adverse effects can include hypoglycemia, extrapyramidal reactions, retinal damage, GI disturbances, and QTc prolongation. Monitor QTc at baseline for inpatient/outpatient and daily while inpatient and review for drug interactions including with strong 3A4 or 2C8 inhibitors and antacids.

Inpatient (Moderate/Severe Symptoms)

- *Formal infectious diseases (ID) consult is advised for any patient who tests positive for COVID-19. If considering therapy, please communicate with ID prior to initiating therapy.*
- Experimental agents: Overall treatment resembles that for most any viral pneumonia and no antiviral therapy has been proven to be completely effective for COVID-19 to date. Many experimental treatments may be unavailable for ordering at this time. See **Figure 1** and **Table 1** for treatment recommendations in inpatients.
- Antibiotic use: Monitor for and treat co-infections as necessary (initiate antimicrobials within 1h of sepsis identification) while also avoiding unnecessary use of antimicrobials to decrease the risk of resistance and adverse effects.
- Anticoagulation: Critically ill patients with COVID-19 are at HIGH risk for VTE. Please consider the following recommendations per our anticoagulation subcommittee:
    - For critically ill patients, consider more aggressive pharmacologic VTE prophylaxis with enoxaparin 30mg SQ Q12h if CrCl >30 mL/min
    - For pharmacologic VTE prophylaxis in floor patients, enoxaparin 40mg SQ q24hrs preferred over heparin 5000 units q8hrs if CrCl >30 ml/min to minimize nurse-patient interaction
- Lab monitoring considerations:
    - Baseline labs: CBC with differential, CMP, CRP, D-dimer, Ferritin, Procalcitonin, fibrinogen, PT/PTT, Troponin T, pBNP and ABO and Rh, HIV AB/Ag, HCV AB
    - Baseline imaging: chest X-Ray, EKG
    - Labs q12hrs: C-reactive protein and CBC with diff
    - Labs q24hrs: CMP, D-dimer, ferritin, DHL, fibrinogen, PT/PT

Outpatient (Mild Symptoms)

- Focus on prevention of transmission
- Outpatient treatment should focus on symptom management. Use of other therapies should be within the context of a clinical trial (**Figure 1**)
    - See Appendix A for OTC medication recommendations
    - See Appendix B for homemade rehydration solution recommendations
- *There is insufficient evidence to recommend prophylactic use of chloroquine or hydroxychloroquine in healthcare workers or patients*
- The CDC and WHO recommend against routine use of systemic corticosteroids as they have been associated with prolonged viral shedding.[1,2] There may be some benefit in patients with lung disease.
- There is insufficient evidence to recommend discontinuing ACE inhibitors (e.g., lisinopril), ARBs (e.g., losartan), or direct renin inhibitors (e.g., aliskiren)
- Monitor for worsening of symptoms or clinical deterioration that requires hospitalization.

Other Resources:

- Drug-drug interactions: https://www.covid19-druginteractions.org/
- Administration in cases of swallowing difficulties: https://liverpool-covid19.s3.eu-west-2.

Table 1: Clinical Trial and Experimental Agent Use Information at UK HealthCare

Study/Medication	Details	Inclusion	Exclusion
ORCHID Hydroxychloroquine (HCQ) vs. Placebo	• Process: Verify patient meets criteria then page the following for enrollment: Pager 859-330-1227 • Design: double blind, multicenter, placebo-controlled randomized clinical trial • Acronym: ORCHID • Network: PETAL • Funder: NHLBI • Regiment details: ○ HCQ 400mg (2, 200mg tablets) PO BID on day 1 then 200mg PO BID on days 2-5 OR matched placebo	• Age ≥18 years • Currently hospitalized or in an emergency department with anticipated hospitalization • Symptoms of acute respiratory infection, defined as one or more of the following: cough, fever (>37.5˚C/99.5˚F), shortness of breath, sore throat • Laboratory-confirmed SARS-CoV-2 infection within the past 10 days prior to randomization	• Prisoner • Pregnancy • Breast feeding • Unable to randomize within 10 days after onset of acute respiratory infection symptoms • Unable to randomize within 48 hours after hospital arrival • Seizure disorder • Porphyria cutanea tarda • QTc >500 ms on electrocardiogram within 72 hours prior to enrollment • Diagnosis of Long QT syndrome • Known allergy to hydroxychloroquine, chloroquine, or amodiaquine • Receipt in the 12 hours prior to enrollment, or planned administration during the 5-day study period that treating clinicians feel cannot be substituted for another medication, of any of the following: amiodarone; cimetidine; dofetilide; phenobarbital; phenytoin; sotalol • Receipt of >1 dose of hydroxychloroquine or chloroquine in the 10 days prior to enrollment • Inability to receive enteral medications • Inability to be contacted on Day 15 for clinical outcome assessment if discharged prior to Day 15 • Previous enrollment in this trial • The treating clinical team does not believe equipoise exists regarding the use of hydroxychloroquine for the treatment of this patient.
Adaptive, Multi-Arm Phase II Study HCQ, HCQ + Azithromycin, HCQ + Ivermectin, or Camostat	• Process: Verify patient meets criteria then contact Susanne Arnold, MD via Voalte or Zach Porterfield, MD, PhD for enrollment • Design: randomized, multi-arm phase II trial • Principal Investigators: Susanne Arnold, MD, and James Zachary Porterfield, MD, PhD • Regimen details: ○ Arm A: HCQ 600mg (3, 200mg tablets) PO daily days 1-14	• Age ≥18 years • Laboratory-confirmed SARS-CoV-2 infection within the past 7 days or the presence of symptoms or physical examination signs providing high probability of COVID-19 disease despite a negative COVID-19 test as determined by Infectious Disease specialist/COVID-19 Telehealth Treatment Team review	• Severe COVID-19 is defined by one or more of the following: blood oxygen saturation ≤ 90%, partial pressure of arterial oxygen to fraction of inspired oxygen ratio < 300, lung infiltrates > 50% within 24 to 48 hours • Life-threatening COVID-19 is defined as one or more of the following: respiratory failure, septic shock, multiple organ dysfunction or failure • Weight less than 45 kg. • Pregnant or breast-feeding females

	○ Arm B: HCQ 600mg PO daily days 1-14 PLUS Azithromycin 500mg PO daily day 1 and 250mg PO days 2-5 ○ Arm C: HCQ 600mg PO daily days 1-14 PLUS ivermectin 12-15mg (3mg tablets, dose based on weight) daily days 1-2 ○ Arm D: Camostat 200mg (2, 100mg tablets) PO TID after a meal daily days 1-14	• Subjects must have at least one of the following high-risk features for clinical deterioration: ○ Hypertension ○ Diabetes Mellitus ○ Moderate to severe Chronic Obstructive Pulmonary Disease, Emphysema or Asthma ○ Cancer patients who have received any immunosuppressive drugs within a year from enrollment. ○ Age > 50 ○ BMI > 40 ○ Living in a nursing home or long-term facility ○ Underlying serious heart condition as determined by the treating physician ○ Immunocompromised subject as defined by the treating physician or COVID-19 Telehealth Treatment Team • Ability to provide informed consent by the patient or healthcare proxy • Ability to return for repeated testing and observation to UKHC • Must have adequate organ and marrow function	• Prisoners • Subjects on dialysis or with creatinine clearance < 45 ml/min • Existing DMID Toxicity Scale for Determining Severity of Adverse Events grade 3 or greater hepatic failure • Previously documented moderate or severe retinopathy or macular degeneration • Uncontrolled Seizure disorder • Prolonged QT, defined as QTc ≥470 milliseconds for men and as QTc ≥480 for women using Fridericia's correction: QTc = QT/RR0.33 • Known allergy to hydroxychloroquine, macrolides, 4-aminoquinolines, camostat mesilate, or other agents to be used in the trial. • Currently receiving any study medications for other indications (e.g.; hydroxychloroquine for lupus). Note: Patients started on HCQ or HCQ + Azithromycin within 3 days for COVID-19 positive test result are allowed to enroll and will complete a total of 14 days of therapy. • Concurrent use of medication that would cause moderate or severe due to drug-drug interactions with study medication. • Cancer patients receiving active immunosuppressive treatment cannot enrolled unless they are on a treatment holiday with no antineoplastic treatment within 3 weeks of enrollment. • Enrollment on other experimental therapies for COVID19 (excluding hydroxychloroquine, or antibiotics) • Inability to receive enteral medications • Patients with psychiatric illness/social situations that would limit compliance with study requirements. • Any other condition that in the opinion of the treating physician justifies exclusion from the study.
Convalescent Plasma Expanded Access Program	• Process: Verify patient meets criteria to the right. If meets criteria, type and screen potential recipient ○ Contact Brittany Bissell, PharmD, PhD via Voalte to initiate process ○ Kentucky Blood Center will be contacted to determine if plasma available (859-229-5102). If no	• At least 18 years of age (if less than 18 years contact FDA for emergency IND authorization) • Laboratory confirmed diagnosis of infection with SARS-CoV-2 • Admitted to an acute care facility for the treatment of COVID-19 complications	

	donor available via KBC registry, would have to identify volunteer to donate. • Design: expanded access program • Protocol through Mayo Clinic • Funder: BARDA	• Severe or life threatening COVID-19, or judged by the treating provider to be at high risk of progression to severe or life-threatening disease ○ Severe defined as any of the following: dyspnea, respiratory frequency >30/min, blood oxygen saturation <93%, partial pressure of arterial oxygen to fraction of inspired oxygen ratio <300, lung infiltrates >50% within 24-48 hours ○ Life-threatening defined as any of the following: respiratory failure, septic shock, multiple organ dysfunction	
Tocilizumab Availability and UKHC Criteria for Use Other IL-6 inhibitors are also on shortage. Use of other immunomodulators should be done in the context of a clinical trial -other monitoring criteria	• Use requires CMO level approval as there is limited supply and minimal clinical experience • ONLY contact CMO if criteria are met. Primary team attending should contact on call CMO via UKMDs who will then convene an adjudication committee to review the case • Approved dosing: tocilizumab 8 mg/kg (max 800 mg) based on actual body weight x 1 dose ○ Dose will be rounded to nearest available vial size (20 mg/ml in 4 ml & 10 ml vials) • Refer to LexiComp for nursing administration instructions (any licensed nurse can administer) • Serious adverse effects can be seen and should be monitored for, including gastrointestinal perforation, hepatotoxicity, neutropenia, thrombocytopenia, serious infections, and infusion reactions • Will be required to acknowledge Legal Warning Alert in SCM	• Confirmed COVID-19 via PCR and abnormal chest imaging consistent with COVID-19 • Rapidly worsening gas exchange requiring >6 L/min O2 within 24h, but NOT yet mechanically ventilated • Persistent fever ≥38oC • Labs/inflammatory markers consistent with CRS (at least 3 of the following) ○ D-Dimer >1 mcg/mL ○ LDH >250 U/L ○ CRP ≥70 mg/L OR CRP ≥40 mg/L that has doubled within last 48 hours ○ Lymphocytes <800 cells/mcl ○ Ferritin >300 ng/mL	• Pregnancy • Known intolerance/allergy to tocilizumab • Clinical suspicion for tuberculosis[1], invasive fungal infections, and bacterial/viral/other infections due to opportunistic pathogens[2] • AST/ALT > 5 x upper limit of normal within 24 hours • Neutropenia (ANC <1000 cells/mm3) • Thrombocytopenia (<50,000 /mm3) • History of diverticulitis, ulcer, or gastrointestinal perforation
Remdesivir Availability and UKHC Criteria for Use	**FDA EUA:** • FDA issued Emergency Use Authorization (EUA) on 5/1/2020 for this medication. The government determines which sites will receive access to this medication with preference given to those most heavily impacted. • Limited quantities are available at UKHC for use in adults. Remdesivir is available for pregnant or pediatric patients via compassionate use with severe disease (visit https://rdvcu.gilead.com/ to apply) • Remdesivir is not approved by the FDA and the following fact sheet should be carefully reviewed when considering use: Healthcare Provider Fact Sheet • **Process for obtaining:** ○ Review UKHC established criteria to determine eligibility ▪ Inclusion: confirmed COVID-19, hospitalized adult ≥ 18 years, symptom onset ≤10 days, AND severe disease (SpO2 ≤ 94% on room air or requiring supplemental oxygen or requiring MV or ECMO)		

	▪ Exclusion: pediatrics, pregnancy, CrCl <30 ml/min or receipt of dialysis, ALT ≥ 5 times the upper limit of normal (ULN) at baseline, hypersensitivity to drug ○ Use requires CMO level approval. ONLY contact CMO if criteria are met. Primary team attending should contact on call CMO via UKMDs, who will then convene an adjudication committee to review case. A legal alert warning/attestation acknowledgement is required upon order entry. ○ Documentation: Specific documentation in the medical record regarding patient/caregiver communication is required with use of remdesivir under the FDA EUA. Must document in medical record that patient fact sheet was given (download and print here: Remdesivir EUA – Fact Sheet for Patients and Caregivers and Spanish Version), patient was informed of alternatives to receiving remdesivir, and patient was informed that remdesivir is an unapproved drug authorized for use under FDA EUA. The following verbiage has been approved by UK HealthCare risk management: [insert patient name] is a [insert patient age] year old [insert gender] under my care for COVID-19. I have assessed my patient as eligible to receive remdesivir under the FDA Emergency Use Authorization (EUA). I have reviewed the mandatory requirements for drug use within the Fact Sheet for Health Care Providers and obtained approval for use according to institutional policy. I have provided information consistent with the Fact Sheet for Patients and Parents/Caregivers EUA of Remdesivir and given the patient/caregiver a copy. The patient/caregiver was informed of alternatives to receiving remdesivir, and that remdesivir is an unapproved drug that is authorized for use under EUA. The patient or patient's legal representative has expressly agreed to this treatment. ○ Dosing: ▪ Adults requiring MV and/or ECMO: 200mg IV over 30-120 minutes on day 1 followed by 100mg IV daily on days 2-10. ▪ Adults NOT requiring MV and/or ECMO: 200mg IV over 30-120 minutes on day 1 followed by 100mg IV daily on days 2-5. Can extend to 10 days total if patient not demonstrating clinical improvement. ○ Mandatory Monitoring and reporting ▪ Infusion related reactions ▪ Baseline renal and hepatic laboratory testing prior to initiation ▪ Daily hepatic laboratory tests required. Do not initiate if ALT ≥ 5 times the upper limit of normal (ULN) at baseline. Discontinue if: • ALT ≥ 5 times the ULN during treatment. Can restart when ALT is <5 times the ULN OR • ALT elevation with signs/symptoms of liver inflammation or increasing conjugated bilirubin, alkaline phosphatase, or INR ▪ Reporting of all medication errors and adverse events occurring during remdesivir use and considered potentially attributable to remdesivir. This includes deaths and serious adverse events and reporting is mandatory within 7 calendar days from the onset of the event. • Serious adverse events are defined as death; a life-threatening adverse event; inpatient hospitalization or prolongation of existing hospitalization; a persistent or significant incapacity or substantial disruption of the ability to conduct normal life functions; a congenital anomaly/birth defect; a medical or surgical intervention to prevent death, a life-threatening event, hospitalization, disability, or congenital anomaly. • Submit adverse event reports to FDA MedWatch online via www.fda.gov/medwatch/report.htm and provide a copy of all FDA MedWatch forms to via email to: ○ Gilead Pharmacovigilance and Epidemiology - safety_fc@gilead.com ○ Sarah Cotner – sarah.cotner@uky.edu • Submitted reports should include unique identifiers and the words "Remdesivir under Emergency Use Authorization (EUA)" with the "Describe Event, Problem, or Product Use/Medication Error" field and follow all instructions within the regarding reporting **Expanded Access:** Applied to be an expanded access site but not yet approved. **Compassionate Use:** Available for pediatric and pregnant patients with severe disease: https://rdvcu.gilead.com/ **Clinical Trials:** not currently a clinical trial site
Steroids (Methylprednisolone)	• Limited data is available regarding the utility of steroids in the treatment of COVID-19. • Methylprednisolone can be considered in patients requiring 4L or more of O2/min or with escalating oxygen requirements from baseline at a dose of 0.5-1 mg/kg/day in 2 divided doses for 3 days (up to 7 in ICU patients) based on data from trial highlighted below. Benefit seen with early administration (≤48 hours from admission). Consider a maximum of 80mg IV q12h for obese patients. • Study looking at early short course corticosteroids in hospitalized patients with COVID-19 was published (Methylprednisolone Study)

	○ Methods: Multi-center quasi-experimental study conducted at Henry Ford Health System utilized methylprednisolone 0.5 to 1 mg/kg/day in 2 divided doses for 3 days in patients with moderate disease defined as 4 L or more of O2/min on admission or who had escalating oxygen requirements from baseline. Patients requiring ICU admission received methylprednisolone up to 7 days. The majority of patients in either group also received hydroxychloroquine. The pre-corticosteroid protocol group was from 3/12-3/19/2020 and the corticosteroid protocol group was from 3/20-3/27/2020. ○ Results: 213 patients were included (38% in the pre-corticosteroid group vs 62% in the corticosteroid group). Over half of the patients received steroids in both groups, but a great proportion were initiated within 48 hours of presentation in the corticosteroid protocol group (12.4% vs 41.7%, p<0.001). The primary composite endpoint (escalation to ICU, progression to mechanical ventilation after hospital admission, or in-hospital all-cause mortality) was significantly lower in the corticosteroid protocol group (34.9% vs 54.3%, p=0.005). The corticosteroid protocol was independently associated with a reduction in the composite endpoint in the multivariable logistic regression analysis (aOR: 0.45; 95% CI [0.25-0.81]).

[1]A QuantiFERON-TB Gold result will not be required prior to use of tocilizumab. Chart review for previous TB screenings should occur, and a QuantiFERON-TB Gold result can be ordered during admission.

[2]While history of immunodeficiency and current or recent use of immunosuppressive, anti-rejection, and immunomodulatory agents are not exclusion criteria, the risk of additive immunosuppression versus benefit of use of tocilizumab in an immunocompromised patient must be carefully considered. Tocilizumab prescribing information contains a black box warning for risk of serious infection.

Appendix A. OTC Supportive Care Recommendations[4]

Antipyretics/Analgesics		
Drug	**Adult Dose**	**Notes**

Acetaminophen	325mg – 625mg every 4 to 6 hours Do not exceed 4,000mg/day Chronic liver disease: do not exceed 2,000mg/day	Until additional data is available concerning ibuprofen and COVID-19, consider using acetaminophen as first-line for fever Acetaminophen is contained in many OTC cough and cold products. Remember to add those doses in total daily dose Preferential antipyretic for patients with chronic cardiovascular and chronic kidney disease OTC suppository available if unable to tolerate oral
Ibuprofen	400mg every 4 to 6 hours	Until additional data is available concerning ibuprofen and COVID-19, consider using acetaminophen as first-line for fever Avoid use in patients with CKD 4 or 5 Avoid use in patient with chronic cardiovascular disease
Aspirin	**>18 years:** 325mg every 4 to 6 hours Do not exceed 4,000mg/day	Avoid if on current antiplatelet therapy (e.g., clopiodgrel, ticagrelor, etc.) OTC suppository is available if unable to tolerate oral meds
Drug	**Adult Dose**	**Notes**
Dextromethorphan	10 – 20mg every 4 hours 20 – 30mg every 6 to 8 hours Extended release: 60mg every 12 hours Do not exceed 120mg/day	Consult pediatrician before use in children <4 years Commonly co-formulated with guaifenesin
Guaifenesin	Immediate release: 200 – 400mg every 4 hours Extended release: 600 – 1,200mg every 12 hours Do not exceed 2,400mg/day	Counsel patients to drink plenty of water Do not use in children in <2 years

Decongestants		
Drug	**Adult Dose**	**Notes**
Chlorpheniramine	Immediate release: 4mg every 4 to 6 hours Extended release: 12mg every 12 hours Do not exceed 24mg/day	No renal or hepatic dose adjustments Use with caution in patients with cardiovascular disease, glaucoma, symptomatic BPH
Oxymetazoline	0.05%: instill 2 to 3 sprays in each nostril every 12 hours	**DO NOT USE for >3 days**
Pseudoephedrine	Immediate release: 60mg every 4 to 6 hours Extended release: 120mg every 12 hours Do not exceed 240mg/day	No renal or hepatic dose adjustments Avoid use in patients with chronic cardiovascular disease

		Use with caution in patients with chronic kidney disease, glaucoma, symptomatic BPH, and seizure disorders Available behind the pharmacy counter with driver's license
Phenylephrine	10mg every 4 hours Do not exceed 60mg/day	No renal or hepatic dose adjustments

Antidiarrheals			
Loperamide	Initial 4mg dose; 2mg after each loose stool Do not exceed 16mg/day	2 to 5 years (13 to <21 kg): 1mg after each loose stool 6 to 8 years (21 to 27 kg): initial 2mg dose; 1mg after each loose stool 9 to 11 years (27.1 to 43 kg): initial 2mg dose; 1mg after each loose stool ≥12 years: initial 4 mg dose; 2 mg after each loose stool 2 to 5 years (13 to <21 kg): do not exceed 3mg/day 6 to 8 years (21 to 27 kg): do not exceed 4mg/day 9 to 11 years (27.1 to 43 kg): do not exceed 6mg/day ≥12 years: do not exceed 8mg/day	
Herbals			
Elderberry	Consult package labeling	Consult package labeling Syrup not recommend for children <1 year Gummies not recommend for children <3 years	Counsel patients to only use commercially prepared products with a "USP" or "GMP" seal on the product Although efficacy is questionable, it is generally safe when using a commercially prepared product Counsel patients to avoid homemade products. Case reports of severe GI distress, pancreatitis, and death have been reported with homemade products.

Appendix B. Homemade Rehydration Solutions[5]

Base Beverage	Recipe	
Water	• 1 quart water • ¾ teaspoon table salt • 2 tablespoons sugar	
Chicken Broth	• 4 cups water • 1 dry chicken broth cube • ¼ teaspoon table salt • 2 tablespoons sugar	**OR** • 2 cups liquid chicken broth (not low sodium) • 2 cups water • 2 tablespoons sugar
Tomato Juice	• 2 and ½ cups plain tomato juice • 1 and ½ cups water	
Cranberry Juice	• ¾ cup cranberry juice • 3 and ¼ cups water • ¾ teaspoon table salt	

References:

Click links to access documents

General:

1. https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-guidance-management-patients.html. Accessed 3/16/20.
2. https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected. Accessed 3/16/20.
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12. FDA Emergency Use Authorization HCQ 3/28/2020: https://www.fda.gov/media/136534/download
13. FDA EUA HCQ Healthcare Provider Fact Sheet: https://www.fda.gov/media/136537/download
14. FDA Drug Safety Communication for HCQ 4/24/2020: https://www.fda.gov/media/137250/download
15. American College of Cardiology COVID-19 and Thrombotic or Thromboembolic Disease: Implications for Prevention, Antithrombotic Therapy, and Follow-up. *Journal of the American College of Cardiology* (April 2020), doi: https://doi.org/10.1016/j.jacc.2020.04.031.
16. ISTH Journal of Thrombosis and Haemostasis COVID-19 Resources (12 Journal Articles)
17. AC Forum COVID-19 Resources
18. ASH - COVID19 FAQs and additional resource links
19. NIH Remdesivir News Release 4/29/2020: https://www.nih.gov/news-events/news-releases/nih-clinical-trial-shows-remdesivir-accelerates-recovery-advanced-covid-19
20. FDA EUA Remdesivir 5/1/2020: https://www.fda.gov/media/137564/download
21. FDA Recommendations for Investigational COVID-19 Convalesent Plasma 5/1/2020: https://www.fda.gov/vaccines-blood-biologics/investigational-new-drug-ind-or-device-exemption-ide-process-cber/recommendations-investigational-covid-19-convalescent-plasma

Reviews/Other Institutional Guidance:

1. Belgium: https://epidemio.wiv-isp.be/ID/Documents/Covid19/COVID-19_InterimGuidelines_Treatment_ENG.pdf

2. ASHP: https://www.ashp.org/-/media/assets/pharmacy-practice/resource-centers/Coronavirus/docs/ASHP-COVID-19-Evidence-Table.ashx?la=en&hash=B414CC64FD64E1AE8CA47AD753BA744EDF4FFB8C
3. SIDP: https://sidp.org/resources/Documents/COVID19/Zahra%20COVID-19%20Ppt%20HCQ%20and%20CQ%20ZKE%203.20.20.pdf
4. OFID: https://watermark.silverchair.com/ofaa105.pdf?
5. Reviewed Massachusetts General Hospital, University of Washington, National Health Commission of China, Penn Medicine, UC Davis, Wake Forest Baptist Health, University of Michigan and Mayo Clinic Guidelines
6. IDSA Guidelines 4/11/2020: https://www.idsociety.org/practice-guideline/covid-19-guideline-treatment-and-management/
7. NIH Guidelines 4/21/2020: https://covid19treatmentguidelines.nih.gov/introduction/

Primary Literature:

1. Lopinavir-Ritonavir China: https://www.nejm.org/doi/pdf/10.1056/NEJMoa2001282
2. Hydroxychloroquine + Azithromycin France: https://www.mediterranee-infection.com/wp-content/uploads/2020/03/Hydroxychloroquine_final_DOI_IJAA.pdf
3. Chloroquine Efficacy in China *BioScience Trends* 2/19/2020: https://www.jstage.jst.go.jp/article/bst/14/1/14_2020.01047/_pdf/-char/en
4. Hydroxychloroquine Dosing *CID* 3/9/20: https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciaa237/5801998
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8. Hydroxychloroquine *NEJM* 5/7/2020: https://www.nejm.org/doi/pdf/10.1056/NEJMoa2012410?articleTools=true
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