COVID-19 Telemedicine Risk Tier Assessment

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Purpose:

1. Use telemedicine to assess patients with COVID-19 who are in isolation at home
2. Assign a level of risk (Risk Tier 1-3) for future hospitalization to guide monitoring plan
3. Suggest treatments for outpatients with COVID-19

Definition of "Risk Tier":

A Risk Tier summarizes our estimated risk for future hospitalization for a patient who is stable to monitor COVID-19 at the time of the assessment. This designation assigns the patient to a level of follow-up care (frequency of contact) within our Outpatient Virtual COVID-19 Management Clinic.

We determine a risk tier based on clinical assessment inclusive of patient-specific characteristics, current illness severity, recent clinical course, and social factors necessary for home isolation. A "low risk patient" (i.e. young and healthy) may still be in the highest risk "Tier 3" based on symptoms, social factors, and/or clinical worsening. Similarly, a "high risk patient" (e.g. age >70 with COPD) can be in the lowest risk "Tier 1" if they are asymptomatic.

Powerpoint link: https://www.dropbox.com/s/7m03x4uijsjnln7/MD-APP_Presentation_1.4_ACP.pdf?dl=0

1. **Tier 1 (Lowest risk for hospitalization)**:

    a. Definition
        i. No risk factors for severe illness
        ii. Unlikely to require medical escalation (telemedicine or in-person)
        iii. Main goals for management: (1) application of strict infection prevention measures and (2) clinical monitoring for signs of worsening
        iv. Appropriate for scheduled nurse contact by phone every 2 days

    b. Criteria

        Asymptomatic patients (any age), **or**

        Symptomatic patients who meet all criteria:
        i. Patient characteristics ("low risk patient"):
            1. Age <60
            2. No significant comorbidities

ii. Social factors:
    1. Able to self-isolate safely
    2. Adequate caregiver resources in place
iii. Clinical severity:
    1. Upper respiratory symptoms and/or nonspecific symptoms and/or minor lower respiratory tract symptoms (e.g. cough)
    2. No significant mental health symptoms
    3. If recent clinical data available (e.g. ER or UC):
        a. Vital signs normal (exception: fever and tachycardia appropriate to fever are acceptable)
        b. Chest imaging normal
        c. Labs normal (minor liver abnormalities acceptable)
iv. Clinical course:
    1. Stable or improving upper respiratory symptoms and/or nonspecific symptoms and/or minor lower respiratory tract symptoms
    2. If moderate lower respiratory symptoms were previously present, course is improving
    3. Previously Tier 2 patient with improving symptoms over 6 days on follow-up may be recategorized to Tier 1 (decrease risk tier).

2. **Tier 2 (Intermediate risk for hospitalization)**:

a. Definition
    i. Patient with increased likelihood for medical escalation (telemedicine or in-person) due to presence of minor risk factor(s) for severe COVID-19.
    ii. Main goals for management: (1) application of strict infection prevention measures and (2) clinical monitoring for signs of worsening
    iii. Appropriate for once daily scheduled nurse contact

b. Criteria
    i. Patient characteristics ("intermediate risk patient"):
        1. Age
            a. <60 with moderate-risk comorbidity (list below)
            b. 60-69, no comorbidity or mild/controlled comorbidity
        2. Comorbidities:
            a. Diabetes
            b. Hypertension
            c. Asthma
            d. CKD
            e. Tobacco use
            f. Pregnancy (coordinate with OB)

            (consider Tier 3 for multiple comorbidities)

ii. Social factors:
    1. Able to self-isolate safely
    2. Adequate caregiver resources in place
    3. Otherwise Tier 1 patient with uncertain social factors for isolation/caregiver support can be assigned to Tier 2 (and refer to social resources as available)
iii. Clinical severity:
    1. Upper respiratory symptoms and/or nonspecific symptoms
    2. Minor lower respiratory tract symptoms
    3. Low risk or intermediate risk patient with mild new or worsening depression or anxiety (coordinate with mental health as available)
    4. Otherwise Tier 1 patient, with mild abnormalities in clinical data available (e.g. ER or UC)
        a. Vital signs: resting tachycardia
        b. Low WBC/lymphocytes, elevated CRP
iv. Clinical course:
    1. Stable upper respiratory symptoms and/or nonspecific symptoms
    2. If lower respiratory symptoms present at onset, course is generally improving (mild stable cough acceptable)
    3. Previously Tier 1 tier patient with non-improving symptoms over first 6 days of illness may be recategorized to Tier 2 (increase risk tier).
    4. Previously Tier 3 patient with improving symptoms over 6 days may be recategorized to Tier 2 (decrease risk tier).

3. **Tier 3 (Highest risk for hospitalization)**:

    a. Definition
        i. Patient with high likelihood for medical escalation due to major risk factor for severe COVID-19: high-risk age or comorbidity, high-risk social factor(s), and/or worsening clinical course
        i. Outpatient-appropriate - does not currently require urgent or emergency evaluation
        ii. Main goals for management: (1) close clinical monitoring for signs of worsening including all available data, (2) application of strict infection prevention measures, (3) directing resources to prevent hospitalization for ambulatory-sensitive conditions and social needs, (4) anticipating and facilitating home to hospital transfers
        iii. Refer to PCP for complex cases with Goals of Care / Advance Care Planning concern
        iv. Appropriate for daily telemedicine visit by provider and daily nurse telephone call (2 check-ins per day)

b. Criteria
    i. Patient characteristics ("high risk patient"):
        1. Age ≥70
        2. Age <70 with high-risk comorbidity
            a. Cardiovascular disease: CAD or Heart failure, history of stroke
            b. COPD (or other high-risk pulmonary disease)
            c. End stage renal disease
            d. Cirrhosis
            e. Immunosuppression (Biologic or other immunosuppressive medications including chronic corticosteroid at ≥20 mg prednisone daily, detectable HIV VL or CD4 count<200 cells/mm3)
            f. Immunodeficiency
            g. Active malignancy
            h. Frailty (clinical judgement)
            i. Other high-risk medical condition (clinical judgement)
    ii. Social factors
        1. Able to self-isolate safely
        2. Adequate caregiver resources in place
        3. If patient is high risk by patient characteristics and has unstable housing and/or caregiver support, consider escalation (or Tier 3 monitoring at provider discretion).
        4. Otherwise Tier 1 patient or Tier 2 patient with unstable housing and/or unstable social support/caregiver resources (coordinate with any social referals available)
    iii. Clinical severity:
        1. High risk patient (by patient characteristics and/or social factors above)
            a. Upper respiratory symptoms and/or mild nonspecific symptoms = Tier 3
            b. Lower respiratory symptoms = Tier 3 vs. escalation, based upon clinical judgement of risk.
        2. Otherwise Tier 2 patient
            a. Minor lower respiratory tract symptoms = Tier 3
            b. Moderate lower respiratory symptoms = Tier 3 vs. escalation, based upon clinical judgement of risk
        3. Otherwise Tier 1 patient with moderate lower respiratory symptoms = Tier 3
        4. Otherwise Tier 1 patient or Tier 2 with other moderate risk clinical data available, subject to clinical judgment:
            a. Chest imaging with mild infiltrates

b. Mild relative hypoxia (e.g. <4 point change from baseline and >92%; caution: no rapid change in SpO2 or symptoms)

5. Non-respiratory COVID-19 complication or decompensation in chronic condition amenable to outpatient management (coordinate with PCP/specialty care); e.g. Arrhythmia (consider remote diagnosis as appropriate)

iv. Clinical course

1. <u>High risk patient (by clinical/social criteria above)</u> with:
   a. Stable or improving upper respiratory symptoms and/or nonspecific symptoms
   b. Stable or improving lower respiratory symptoms
2. <u>Previously Tier 2</u> patient with non-improving lower respiratory tract symptoms over 6 days may be recategorized to Tier 3 (increase risk tier).
3. <u>Previously Tier 1</u> patient with new moderate lower respiratory symptoms may be recategorized to Tier 3 (increase risk tier); clinical judgment re: further escalation

COVID19+ Virtual Follow-up Clinic -- Initial Provider Risk Assessment			
	Tier 1 (Low risk)	Tier 2 (Intermediate risk)	Tier 3 (High risk)
Patient Characteristics	<60 & Healthy	60-69 & Healthy or mild comorbidity	>=70
		<60 with DM, Asthma, CKD, HTN, Smoker, Pregnant	<70 with CVD, ESRD, Immunocompromised, COPD, Frail, Cirrhosis, Multimorbid, Cancer
Symptoms	Non-specific, URI, and/or cough	Non-specific, URI, and/or cough	Severe cough, DOE, wheezing, chest tightness
Course	Stable (if within first 6 days) or improving	Stable (if within first 6 days) or improving	Otherwise lower tier patient with new/worsening lower respiratory symptoms
		Otherwise Tier 1 patient without improvement after 6 days	Otherwise tier 2 patient without improvement after 6 days
			Non-respiratory COVID-19 complication or decompensated chronic condition amenable to outpt mgt
Data (if available)	Normal BP, RR, pulse ox	Significant leuko/lymphopenia	Mild hypoxia (>92%)
	Normal pulse or mild tachycardia if febrile	Elevated CRP	
	Normal CXR	Normal CXR	Mild infiltrates on CXR or CT Chest
	No worrisome labs		
Support System	Able to self-isolate	Able to self-isolate	Able to self-isolate
	Adequate support	Adequate support	Adequate support
		Otherwise Tier 1 but uncertain support	Otherwise lower tier, but unstable support system

4. **Clinical symptom/sign definitions**:
   a. Nonspecific symptoms
      i. Fever, chills, malaise, myalgia, anorexia, diarrhea, vomiting, headache
      ii. Severe excluded (may require escalation): acute confusion, severe weakness, syncope, acute decline in functional status
   b. Upper respiratory symptoms
      i. Sore throat, congestion, rhinorrhea, sneezing, anosmia
   c. Lower respiratory symptoms
      i. Minor – Cough, sputum production

ii. Moderate – Severe cough, dyspnea on exertion, wheezing or chest tightness with breathing
iii. Severe excluded (escalation):
    1. Highest risk: resting dyspnea, labored breathing, resting pulse oximetry ≤92%.
    2. Other: pleuritic pain, hemoptysis
iv. **A subset of patients with COVID-19 can experience worsening respiratory symptoms and progress quickly to respiratory failure. This can occur shortly after initial presentation or in the second week of illness. A high level of vigilance for <u>worsening respiratory status</u> is needed at each check.**
    1. Suggested questions (cebm.net):
        a. "Is your breathing faster, slower or the same as normal?"
        b. "What could you do yesterday that you can't do today?"
        c. "What makes you breathless now that didn't make you breathless yesterday?"

5. **Recategorization principles**

a. Notify PCP of (1) initial risk assessment tier, (2) any changes in tier, (3) referral to higher level of care, or (4) discharge from COVID-19 virtual monitoring clinic
    i. eEMR message to Emory PCP
    ii. Fax to non-Emory PCP

b. Increasing risk
    i. Any reported worsening of symptoms or social factors should prompt provider notification and risk tier reassessment using the categories outlined above.
    ii. This will generally result in Tier 2 or Tier 3 (or referral to higher level of care)
    iii. Sources of information:
        1. Nurse call (planned or patient-initiated)
            a. If nonurgent and advising change Tier 1 -> Tier 2
                i. Create Powernote with nurse assessment and forward to provider (both note and eEMR messge).
                ii. Provider may then make recommendations and reply to COVID Virtual clinic nursing and admin pools.
            b. Urgent (same day action needed, but not emergency), anticipate change from Tier 1 or 2 -> Tier 3
                i. Send high priority eEMR message
                ii. Create Powernote with nurse assessment and forward to provider.

iii. Contact provider via phone or page if no reply within 4 hours

c. Provider may then make recommendations and reply to COVID Virtual Clinic admin pools to change tier and follow-up schedule.

2. Source of information: Telemedicine visit or other provider contact
    a. Provider will advise patient on treatment and monitoring plan and send a message to COVID Virtual Clinic admin pool to change tier and follow-up schedule.

c. Decreasing risk

i. Improvement in symptoms over a 6 day period of monitoring or complete resolution of symptoms (at any time) will prompt risk tier reassessment using the categories outlined above.
    1. Nurse creates Powernote with nurse assessment and forward to provider (both note and eEMR messge).
    2. Provider may then make recommendations and reply to COVID Virtual Clinic admin pool.

ii. See separate guidance on "discharge to PCP"

6. **Referral to higher level of care**

a. Clinical criteria for emergency visit (notify ER COVID-19 positive)
    i. Emergency - self-transport or 911 per provider judgement
        1. Respiratory
            a. Severe lower respiratory tract symptom, or
            b. Concerning moderate lower respiratory tract symptom in moderate or high risk patient (vs. outpatient COVID-19 clinic as available)
        2. Nonspecific - Severe systemic symptoms
        3. Other emergency unrelated to COVID-19 (e.g. appendicitis)
            a. Note: some services may coordinate urgent treatment without ER (e.g. EP for cardioversion in stable outpatient)

b. Pulse oximetry (blood oxygen saturation levels "SpO2")
    i. No single threshold; depending on patient, consider 92%-94% threshold for ER referral.
        1. More concerning features: sudden/rapid change, associated dyspnea, worsening systemic symptoms
    ii. Caveats:
        1. No specific data to guide use in home monitoring for COVID-19
        2. Visualize patient using to ensure most accurate method.

3. Modest predictive value for diagnosing CAP (SpO2 <95, RR 1.7)
4. For CAP, can indicate severity (SpO2 ≤90% higher risk for ICU or inpatient mortality). Not sensitive: normal SpO2 cannot rule out severe pneumonia; look at overall clinical status.

c. Direct admission criteria: Not well defined for COVID-19. Consider for non-COVID-19 related illness that requires direct admission (discuss with hospitalist service).

d. Outpatient visit criteria (in future if available), any of the following:
    i. Clinical judgement of provider that specific in-person outpatient services are needed, as available:
        1. Physical examination (and/or vital signs)
        2. Phlebotomy
        3. Portable imaging (CXR and/or POCUS)
        4. Minor procedure
        5. Specialty consultation
    ii. Consider for new lower respiratory tract symptom (vs. Tier 3 monitoring or referral to ER, based on clinical judgement)
    iii. Non-respiratory urgent medical condition (new or worsening of chronic condition) that does not require ER.

7. **Discharge from our COVID-19 Virtual Management Clinic (not the same as end of mandatory isolation)**

a. Tier 1
    i. At least **seven** days have passed since symptoms first appeared, **AND**
    ii. At least **three** days (72 hours) have passed since resolution of fever without the use of fever-reducing medications, **AND**
    iii. Improvement in respiratory symptoms*

b. Tier 2
    i. At least **fourteen** days have passed since symptoms first appeared **AND**
    ii. At least **three** days (72 hours) have passed since resolution of fever without the use of fever-reducing medications, **AND**
    iii. Improvement in respiratory symptoms*

c. Tier 3
    i. At least **twenty one** days have passed since symptoms first appeared **AND**
    ii. At least **three** days (72 hours) have passed since resolution of fever without the use of fever-reducing medications, **AND**
    iii. Improvement in respiratory symptoms*

*note: mild lingering cough is permissible if provider has cleared patient from isolation status

8. Isolation guidelines (CDC and GA Department of Public Health):
    a. Isolation = patient with COVID-19 (or patient under investigation)
    b. For specific in-home instructions: CDC "Preventing the Spread of Coronavirus Disease 2019 in Homes and Residential Communities"
    c. Non-test based strategy in current use (test-based strategy would require repeat swab for SARS-CoV-2 PCR). **Discontinue isolation after**:
        i. At least 7 days since symptom onset, AND
        ii. At least 72 hours since last fever (without antipyretics), AND
        iii. Improvement in respiratory symptoms (cough, SOB). Note: NHS (UK) does not consider "just a cough" reason to continue isolation.
    d. Important caveats
        i. End of isolation does not mean "return to work" – this is a workplace-specific determination (may involve employer, patient, PCP)
        ii. Test-based strategy is preferred* for individuals at risk of prolonged shedding and high-risk contacts (consider contacting Emory ID and/or GA DPH):
            1. Severely immunocompromised (e.g. transplant, BMT)
            2. Inpatients who are hospitalized >7 are eligible
            3. Transferring to a long-term care or assisted living facility

            *If test not available, use same non-test based criteria as above for non-immunocompromised individuals but consider restricting to room and using facemask for minimum 14 days after illness onset and symptoms resolved.

9. Quarantine guidelines (family/close contacts), GA Department of Public Health:
    a. Quarantine = Individuals with close contact with patient with COVID-19 while symptomatic or within 48 hours prior to symptoms
        i. Close contact = within 6 feet for a prolonged period of time*
        ii. Mandatory 14 day quarantine at home from time of last exposure
        iii. Monitor for symptoms -> if symptomatic, test for COVID-19 if available
            1. If diagnosed, stop quarantine and use isolation guidelines

            *>10 minutes; higher risk with longer time, coughing, no mask

10. **Disease-specific considerations**

a. Asthma management
    i. Exercise caution attributing symptoms to asthma given COVID-19 infection may cause respiratory symptoms with rapid clinical decline. Coordinate with patient's asthma specialist if applicable.
    ii. Inhaled corticosteroids are considered safe. Consider inhaled steroids for mild symptoms in appropriate patients (low risk asthma history).
        1. Quadruple dose of usual inhaled corticosteroid, continue usual rescue medication (e.g. Albuterol)
        2. For patient not on LABA at baseline, consider Symbicort as rescue therapy.
            a. Budesonide 160mcg/formoterol 4.5mcg 1 puff as needed (up to 12 per day)
    iii. Caution with nebulizers as they are more likely to aerosolize SARS-CoV-2. Advise MDI with spacer.
    iv. Oral steroid safety is uncertain in setting of COVID-19; consider if features suggest acute asthma exacerbation after weighing risk/benefit.
        1. Prednisone 40mg daily for 5 days

b. COPD management
    i. Exercise caution given that COVID-19 infection may cause respiratory symptoms with rapid clinical decline. Coordinate with patient's COPD specialist if applicable.
    ii. Albuterol +/- Ipratropium are main prn treatments
    iii. Caution with nebulizers as they are more likely to aerosolize SARS-CoV-2. Advise MDI with spacer.
    iv. Antibiotics to consider if increased sputum quantity, purulence and/or dyspnea (if clinical judgement that patient is stable for outpatient management):
        1. Azithromycin 500mg once, then 250mg PO daily x 4 days
            a. If not available consider cefpodoxime 200-400mg twice daily, doxycycline 100mg twice daily, TMP/SMX DS twice daily 5-7 days
            b. Severe/complicated flare or patient with high-risk COPD (e.g. older age, cardiac comorbidity, severe COPD including FEV1 <50%, supplemental O2, prior hospitalization) would likely need alternate therapy (e.g. respiratory fluoroquinolone) and higher level of care.
    v. Oral steroid safety is uncertain in setting of COVID-19; consider if features suggest acute COPD exacerbation after weighing risk/benefit.
        1. Prednisone 40mg daily for 5 days

c. Upper respiratory infections
    i. Acute bacterial rhinosinusitis
        1. No COVID-19 specific changes known to diagnosis/treatment
        2. Use symptomatic treatments and consider antibiotics (as per clinical guidelines) for patients with worsening symptoms or failure to improve.
        3. Refer to specific guidelines for details (antibiotics/monitoring):
            a. 2012 IDSA Guideline https://www.ncbi.nlm.nih.gov/pubmed/22438350
            b. 2015 American Academy of Otolaryngology—Head and Neck Surgery Guideline: https://www.ncbi.nlm.nih.gov/pubmed/25832968
    ii. Exudative pharyngitis
        1. Attempt visualization of oropharynx if possible (evaluate for tonsillopharyngeal and/or uvular edema, patchy tonsillar exudates, cervical lymphadenitis)
        2. No COVID-19 specific changes known
        3. Because Group-A Strep laboratory confirmation not certain to be possible during COVID-19 pandemic; consider treating Centor criteria 3+:
            a. Tonsillar exudates
            b. Tender anterior cervical lymphadenopathy
            c. Fever
            d. Absence of cough
        4. Use symptomatic treatments and consider antibiotics for uncomplicated patients with high clinical suspicion for GAS pharyngitis.
            a. Penicillin Vk 500mg PO BID x 10 days
            b. Amoxicillin 500mg PO BID x 10 days
                i. Compared to penicillin: amoxicillin has higher risk of rash if mononucleosis and higher diarrhea risk.

d. Do not stop usual maintenance medications without consulting provider, including classes of medication with uncertainty: NSAIDs, corticosteroids, ACE inhibitor/ARB.

11. **Home symptom management guidelines**

a. General medication advice:
    i. There is no COVID-19 specific outpatient treatment. Clinical trials are underway.
    ii. If antimicrobial therapy considered, Azithromycin may be preferred depending on indication. Confirm patient not taking hydroxychloroquine on their own (QT prolongation risk; would need monitoring).

iii. OTC shortages may be present. Consider home delivery or call ahead when possible. Caution to avoid "combination" products with unnecessary ingredients.
iv. For symptom management, see below. Check FDA label regarding full prescribing information and dose adjustments.
v. We advise adequate rest, nutrition, stress management as part of comprehensive treatment plan.

b. Fever, myalgias
    i. Acetaminophen 1000mg[1] preferred
        1. Every 8 hours in most adults, up to 3000mg per day
        2. Consider limit of 2000mg per day in older adults
    ii. Hydration
        1. Maintain adequate fluid intake with isotonic fluids 1.5-2L/day
        2. If dehydration, hold usual diuretics, metformin (and other medications at provider discretion)

c. Cough
    i. Single dose honey 10g nighttime for nocturnal cough
    ii. Guaifenesin OTC ("plain" expectorant products; Robitussin, Mucinex, etc)
        1. Immediate release tablet or liquid: 200-400mg q4 hours prn
        2. Extended release tablet: 600-1200mg q12 hours prn
        3. Side effects: May cause nausea
    iii. Dextromethorphan (Delsym, of contained in "DM" products)
        1. Immediate release: 10-20mg every 4 hours prn
        2. Extended release: 60mg twice daily prn
        3. Side effects: confusion, irritability/nervousness, nausea
    iv. Benzonatate "Tessalon" – non-opiate prescription
        1. Capsule: 100-200mg 3 times daily prn
        2. Risks: Rare hallucinations, hypersensitivity reactions
        3. Safe storage: High risk/danger to children <10yo
    v. Codeine[2] or hydrocodone[2] syrups
        1. Multiple formulations available (review all ingredients)
        2. Codeine metabolism is CYP2D6-dependent (10% of patients will not respond, 1-2% will be at risk of toxic levels)
        3. PDMP check required, opiate counseling required (GA HB 249)
    vi. Albuterol MDI
        1. Consider only if bronchospasm component. Use primarily for individuals with underlying asthma or obstructive lung disease.
        2. Risk/side effect: paradoxical bronchospasm, tremor, tachycardia, hypokalemia
    vii. Corticosteroids – <u>Not recommended unless compelling indication.</u>

viii. Be alert for underlying conditions that contribute to cough, examples:
    1. Allergic rhinitis – this is high pollen season; look for and treat post-nasal drip.
    2. Asthma
    3. Heart failure
    4. GERD
    5. Avoid tobacco

d. Sore throat
    i. Acetaminophen 1000mg[1] preferred
    ii. NSAIDs currently avoided in setting of COVID-19 (limited evidence; usually Ibuprofen 200-400mg single dose)
    iii. Drink warm fluids, teas with honey, soups. Melt ice chips or popsicles in mouth before swallowing.
    iv. Avoid dry environment/humidify air
    v. OTC lozenge (any, menthol may be preferred)

e. Nasal/sinus congestion
    i. Nasal treatments:
        1. OTC saline irrigation (e.g. Neilmed) twice daily
        2. Consider hypertonic saline irrigation, example instruction: http://www.med.umich.edu/1libr/OTO/HypertonicSalineNasalIrrigation.pdf
        3. Nasal corticosteroid spray after saline, if saline is used.
            a. Mometasone (Nasonex), 2 sprays each nostril twice daily
            b. Fluticasone (Flonase), 2 sprays each nostril once daily
        4. Consider ipratropium prescription if significant rhinorrhea
            a. 0.06% intranasal; 2 sprays each nostril 3-4 times daily
            b. Side effects: dryness, blood tinged mucous
        5. Less preferred: OTC nasal topical decongestants up to 3 days (e.g. oxymetazoline/"Afrin")
            a. Caution due to rebound congestion with prolonged use

    ii. Systemic medications
        1. Decongestants
            a. Pseudoephedrine more effective than phenylephrine
                i. Immediate release: 60mg every 4-6 hours prn
                ii. Extended release: 120mg BID prn
                iii. Side effects: elevated HR and BP. Insomnia, headache, dizziness, urinary retention
        2. Consider antihistamines (OTC) if there is an atopic history
            a. First generation[3], sedating (e.g. diphenhydramine 25-50mg tablet QHS), may reduce postnasal drip

i. Side effects: Dry mouth, sedation, constipation, urinary retention, CNS impairment

b. Second generation, nonsedating antihistamine tablets have lower side effect profile, may be less effective.
   i. Cetirizine 10mg daily prn
   ii. Loratidine 10mg daily prn
   iii. Fexofenadine 180mg daily prn

iii. If not improving after 7 days or worsening, consider treatment with antibiotic for ABRS if clinically indicated.

f. Headache
   i. Acetaminophen 1000mg[1] preferred
   ii. NSAIDs currently avoided in setting of COVID-19 (limited evidence; usually Ibuprofen 200-400mg single dose)

g. Sleep disruption
   i. Provide Sleep Hygiene and Stimulus Control information and consider providing CBT-I resources (e.g. VA website "Path to Better Sleep")
      1. Exercise as tolerated, consider yoga
   ii. Evaluate and address underlying conditions contributing to sleep disruption:
      1. Cough - see above
      2. Congestion - see above
      3. Acute stress
         a. Stress management, relaxation resources
            i. Apps/websites (many now free/discounted)
               1. Calm: website or app
               2. Waking Up
               3. Ten percent happier
         b. Sedative/hypnotics
            <u>Coordinate with PCP if possible</u>
            <u>Extreme caution</u> for benzodiazepines or non-benzodiazepine hypnotics including patient factors (age, low body weight, frailty, alcohol consumption) and medication interaction with <u>opiates</u> and/or any other CNS depressants (including, not limited to: sedating antihistamines or antidepressants, gabapentin, pregabalin, antiepileptics, antipsychotics, muscle relaxants), and cytochrome P450 3A4 inhibitors (certain CCBs, PPIs, SSRIs)
               i. Consider non-benzodiazepine hypnotic short-term (2-4 weeks), use Auto Text[4] as appropriate.
                  1. Zolpidem (Ambien)[3] 2.5mg, 5mg, 10mg QHS prn

2. Eszopiclone (Lunesta)[3] 1mg, 2mg, 3mg, qhs prn
3. Side effect/risk: headache, dizziness, somnolence (may cause falls, next day impairment), and dependence. Black box: complex sleep behaviors.

ii. Caution with any new/escalating benzodiazepine prescription, consider 1-2 weeks as appropriate.
1. Assess risk for dependence
2. Side effect/risk: daytime sedation, drowsiness, dizziness, lightheadedness, cognitive impairment, motor incoordination, and dependence. May worsen OSA.
3. Lorazepam - Adult dose 0.5mg-2mg[2, 3]
4. Temazepam - Adult dose 7.5mg-30mg[2, 3]

4. Caffeine, medications (e.g. decongestants)
5. Anxiety and/or depression
   a. Coordinate with PCP/psychiatry if possible
   b. Consider short-term eszopiclone (Lunesta)[3] concurrent with mood disorder treatment if more immediate needs.
      i. Tablet: 1mg, 2mg, 3mg, qhs prn
6. Substance use (alcohol, stimulants)
   a. Recommend reduction
   b. Coordinate with psychiatry if possible, consider gabapentin, trazodone, quetiapine.
7. Pre-existing sleep disorder (e.g. OSA worse or unable to use CPAP) - coordinate with sleep specialist if possible
8. Worsening pre-existing condition (heart failure, asthma, GERD, BPH/other nocturia, etc.) – address and refer to PCP or specialist(s) as appropropriate

iii. Consider trial of nonspecific sleep aids
1. First generation, sedating antihistamines[3] (side effects noted under 9.e.ii.2), caution next-day sedation
   a. Diphenhydramine (Benadryl) 12.5-25 mg qhs prn
   b. Doxylamine succinate (Unisom) 25mg qhs prn
2. Melatonin 0.5-3mg qhs prn may have sleep onset benefit

[1] Dose reduced to 500mg with mild or moderate hepatic insufficiency, chronic alcoholism, malnutrition, dehydration, or low body weight (≤50 kg)
[2] Governed by GA House Bill 249. Check PDMP. Assess/counsel dependence risks, safe storage/disposal.
[3] Beers criteria: Avoid in older adults

[4] Auto-text for nonbenzodiazepine prescription (suggested): “I have reviewed with the patient that non-benzodiazepine sleep aids prescribed by our COVID-19 management team are intended for the short-term treatment (2-4 weeks) of insomnia associated with COVID-19 infection (principally, acute psychological stress related to infection and isolation protocols) and not for the management of sleep disruption caused by respiratory symptoms or other medical conditions. Refills will not be provided outside of the scope of COVID-19 management. We have reviewed nonpharmacologic management and sleep hygiene fully. I have recommended use of the lowest effective dose, only as frequently as needed, for a short a period as previously noted.
We have reviewed the interaction of this medication with CNS depressants. We have reviewed the black box warning for complex sleep behaviors such as sleepwalking, sleep driving and other activities that may result in injury and death. We have reviewed other known risks including falls (and resultant fracture), somnolence, headache, dizziness, impaired motor coordination, and difficulty sleeping upon discontinuation.”

Authorship:
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Additions in version 1.10 (4/5/2020):

1. Add tier 2 for age 60-69 “Mild comorbidity” acceptable. Opinon only. Preliminary data that age/mobidity is additive for risk. DOI: 10.1183/13993003.00547-2020.
2. Pregnancy moved to Tier 2 (from Tier 3)
3. Changed “improving symptom” clinical course to 6 days after onset (to match “non-improving” concern interval)
4. CDC Isolation Guidelines corrected: Fever is 72 hr; but other symptoms “improved” but no 72 hour interval advised (https://www.cdc.gov/coronavirus/2019-ncov/hcp/disposition-in-home-patients.html)
5. Added Dr. Higdon’s Risk assessment grid
6. POCUS added to in-person eval
7. Questions about breathlessness added

Sources:
CDC Interim Clinical Guidance: https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-guidance-management-patients.html
ACP Guide: https://assets.acponline.org/coronavirus/scormcontent

Quarantine/Isolation:
CDC Isolation Guidance: https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-prevent-spread.html (compare: NHS: https://www.nhs.uk/conditions/coronavirus-covid-19/self-isolation-advice/)
CDC Quarantine: https://www.cdc.gov/coronavirus/2019-ncov/php/public-health-recommendations.html

Other resources:
WHO Technical Guidance: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/patient-management
JAMA Resource Center: https://jamanetwork.com/journals/jama/pages/coronavirus-alert

Up To Date: https://www.uptodate.com/contents/coronavirus-disease-2019-covid-19

Home management and discharge:
BMJ Best Practices https://bestpractice.bmj.com/topics/en-us/3000168/guidelines
National Institute for Infectious Diseases
https://www.pagepress.org/journals/index.php/idr/article/view/8543/8190

Disease/Symptom management:
UpToDate
The Medical Letter
Cochrane reviews
NICE guideline
American Academy of Otolaryngology Clinical Guideline
Cough, Cold, and Congestion. Primary Care for Emergency Physicians (Vol. 23, pp. 57–67)
GINA 2019 guideline
ACP Appropriate Antibiotic Use for Acute Respiratory Tract Infection
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Pulse ox:
3C prospective cough complication cohort study. The European Respiratory Journal, 50(5), 1700434.
What is the role of pulse oximetry in the assessment of patients with community-acquired pneumonia in primary care? Nature Publishing Group, 19(4), 378–382.
Oxygen Saturations Less than 92% Are Associated with Major Adverse Events in Outpatients with Pneumonia: A Population-Based Cohort Study. Clinical Infectious Diseases, 52(3), 325–331.