

4: Outpatient Management of Acute COVID-19

Last Updated: May 24, 2021

Summary Recommendations
<p>Managing Outpatients With COVID-19</p> <ul style="list-style-type: none">• Outpatient management of acute COVID-19 should include providing supportive care, taking steps to reduce the risk of SARS-CoV-2 transmission (including isolating the patient), and advising patients on when to contact a health care provider and seek an in-person evaluation (AIII).• Patients with symptoms of COVID-19 should be triaged, when possible, via telehealth visits before receiving in-person care. Patients with dyspnea should be referred for an in-person evaluation by a health care provider and should be followed closely during the initial days after the onset of dyspnea to assess for worsening respiratory status (AIII).• Management plans should be based on a patient's vital signs, physical exam findings, risk factors for progression to severe illness, and the availability of health care resources (AIII). <p>Specific Therapy for Outpatients With Mild to Moderate COVID-19</p> <ul style="list-style-type: none">• The COVID-19 Treatment Guidelines Panel (the Panel) recommends using one of the following combination anti-SARS-CoV-2 monoclonal antibodies to treat outpatients with mild to moderate COVID-19 who are at high risk of clinical progression, as defined by the Emergency Use Authorization criteria (treatments are listed in alphabetical order):<ul style="list-style-type: none">• Bamlanivimab 700 mg plus etesevimab 1,400 mg (AIIa); or• Casirivimab 1,200 mg plus imdevimab 1,200 mg (AIIa).• The Panel recommends against the use of chloroquine or hydroxychloroquine with or without azithromycin (AI). There are insufficient data for the Panel to recommend either for or against the use of other agents for the treatment of outpatients with COVID-19.• The Panel recommends against the use of dexamethasone or other systemic glucocorticoids in outpatients in the absence of another indication (AIII). There is currently a lack of safety and efficacy data on the use of these agents in outpatients with COVID-19, and systemic glucocorticoids may cause harm in these patients.• The Panel recommends against the use of antibacterial therapy (e.g., azithromycin, doxycycline) in the absence of another indication (AIII).• Health care providers should provide information about ongoing clinical trials of investigational therapies to eligible outpatients with COVID-19 so they can make informed decisions about participating in clinical trials (AIII).
<p>Rating of Recommendations: A = Strong; B = Moderate; C = Optional</p> <p>Rating of Evidence: I = One or more randomized trials without major limitations; IIa = Other randomized trials or subgroup analyses of randomized trials; IIb = Nonrandomized trials or observational cohort studies; III = Expert opinion</p>

Introduction

This section of the Guidelines is intended to provide information to health care providers who are caring for nonhospitalized patients with COVID-19. The COVID-19 Treatment Guidelines Panel (the Panel) recognizes that the distinction between outpatient and inpatient care may be less clear during the COVID-19 pandemic. Patients with COVID-19 may receive care outside traditional ambulatory care or hospital settings amid the rising number of COVID-19 hospitalizations across the country. Settings such as field hospitals and ambulatory surgical centers and programs such as Acute Hospital Care at Home have been implemented to alleviate hospital bed and staffing shortages.¹ Patients may enter an Acute Hospital Care at Home program from either an emergency department (ED) or an inpatient hospital setting. Health care providers should use their judgment when deciding whether the guidance offered in this section applies to individual patients.

This section focuses on the evaluation and management of:

- Adults with COVID-19 in an ambulatory care setting;

- Adults with COVID-19 following discharge from the ED; *and*
- Adults with COVID-19 following inpatient discharge.

Outpatient evaluation and management in each of these settings may include some or all of the following: telemedicine, remote monitoring, in-person visits, and home visits by nurses or other health care providers.

Outpatient Management of Patients With COVID-19 in an Ambulatory Care Setting

Approximately 80% of patients with COVID-19 have mild illness that does not warrant medical intervention or hospitalization.² Most patients with mild COVID-19 (defined as the absence of viral pneumonia and hypoxemia) can be managed in an ambulatory care setting or at home. Patients with moderate COVID-19 (those with viral pneumonia but without hypoxemia) and severe COVID-19 (those with dyspnea, hypoxemia, or lung infiltrates >50%) need in-person evaluation and close monitoring, as pulmonary disease can progress rapidly and require hospitalization.³

There are limited data to inform outpatient management strategies; current strategies are based mostly on clinical experience accumulated since the beginning of the pandemic. Management of COVID-19 patients in the outpatient setting should focus on providing supportive care, taking steps to reduce the risk of SARS-CoV-2 transmission (e.g., wearing a mask, isolating the patient),^{4,5} and advising patients when to seek in-person evaluation.⁶ Supportive care includes managing symptoms (as described below), assuring that patients are receiving the proper nutrition, and paying attention to the risks of social isolation, particularly in older adults.⁷ Other unique aspects of care for geriatric patients with COVID-19 include consideration of cognitive impairment, frailty, fall risk, and polypharmacy. Older patients and those with chronic medical conditions have a higher risk for hospitalization and death; however, SARS-CoV-2 infection may cause severe disease and death in patients of any age, even in the absence of any risk factors. The decision to monitor a patient in the outpatient setting should be made on a case-by-case basis.

Criteria to Determine Whether In-Person Evaluation Is Needed

Patients with suspected or laboratory-confirmed COVID-19 should be triaged via telehealth, when possible, before they receive an in-person evaluation. Outpatient management may include the use of patient self-assessment tools. During initial triage, clinic staff should determine which patients are eligible to receive supportive care at home and which patients warrant an in-person evaluation.⁸ Local emergency medical services, if called by the patient, may also be of help in deciding whether an in-person evaluation is indicated. Patient management plans should be based on the patient's vital signs, physical exam findings, risk factors for progression to severe illness, and the availability of health care resources **(AIII)**.

All patients with dyspnea, oxygen saturation (SpO₂) ≤94% on room air at sea level (if this information is available), or symptoms that suggest higher acuity (e.g., chest pain or tightness, dizziness, confusion or other mental status changes) should be referred for an in-person evaluation by a health care provider. The criteria used to determine the appropriate clinical setting for an in-person evaluation may vary by location and institution; it may also change over time as new data and treatment options emerge. There should be a low threshold for in-person evaluation of older persons and those with medical conditions associated with risk of progression to severe COVID-19. The individual who performs the initial triage should use their clinical judgement to determine whether a patient requires ambulance transport. There are unique considerations for residents of nursing homes and other long-term care facilities who develop acute COVID-19. Decisions about transferring these patients for an in-person evaluation should be a collaborative effort between the resident (or their health care decision maker), a hospital-based specialist (e.g., an emergency physician or geriatrician), and the clinical manager of the facility.⁹

In some settings where clinical evaluation is challenged by geography, health care provider home visits may be used to evaluate patients.¹⁰ Patients who are homeless should be provided with housing where they can adequately self-isolate. Providers should be aware of the potential adverse effects of prolonged social isolation, including depression and anxiety.⁷ All outpatients should receive instructions regarding self-care, isolation, and follow-up, and should be advised to contact a health care provider or a local ED for any worsening symptoms.^{11,12} Guidance for implementing home care and isolation of outpatients with COVID-19 is provided by the [U.S. Centers for Disease Control and Prevention](#) (CDC).

Clinical Considerations When Managing Patients in an Ambulatory Care Setting

Persons who have symptoms that are compatible with COVID-19 or who have been exposed to others with suspected or laboratory-confirmed COVID-19 should undergo diagnostic SARS-CoV-2 testing (see [Prevention and Prophylaxis of SARS-CoV-2 Infection](#)). Patients with SARS-CoV-2 infection may be asymptomatic or experience symptoms that are indistinguishable from other acute viral or bacterial infections (e.g., fever, cough, sore throat, malaise, muscle pain, headache, gastrointestinal symptoms). It is important to consider other possible etiologies of symptoms, including other respiratory viral infections (e.g., influenza), community-acquired pneumonia, congestive heart failure, asthma or chronic obstructive pulmonary disease exacerbations, and streptococcal pharyngitis.

In most adult patients, if dyspnea develops, it tends to occur between 4 and 8 days after symptom onset, although it can also occur after 10 days.¹³ While mild dyspnea is common, worsening dyspnea and severe chest pain/tightness suggest the development or progression of pulmonary involvement. In studies of patients who developed acute respiratory distress syndrome, progression occurred a median of 2.5 days after the onset of dyspnea.¹⁴⁻¹⁶ Adult outpatients with dyspnea should be followed closely with telehealth or in-person monitoring, particularly during the first few days following onset of dyspnea, to monitor for worsening respiratory status (**AIII**).

If an adult patient has access to a pulse oximeter at home, SpO₂ measurements can be used to help assess overall clinical status. Patients should be advised to use a pulse oximeter on warm fingers rather than cold fingers for better accuracy. Patients should inform their health care provider if the value is repeatedly below 95% at sea level. Pulse oximetry may not accurately detect occult hypoxemia, especially in Black patients.^{3,17,18} Additionally, SpO₂ readings obtained through a mobile telephone application may not be accurate enough for clinical use.¹⁹⁻²¹ Importantly, oximetry should only be interpreted within the context of a patient's entire clinical presentation (i.e., results should be disregarded if a patient is complaining of increasing dyspnea).

Counseling Regarding the Need for Follow-Up

Health care providers should identify patients who are at risk for disease progression and ensure that these patients receive adequate medical follow-up. The frequency and duration of follow-up will depend on the risk for severe disease, the severity of symptoms, and the patient's ability to self-report worsening symptoms. Health care providers should determine whether a patient has access to a phone, computer, or tablet for telehealth; whether they have adequate transportation for clinic visits; and whether they have regular access to food. The clinician should also confirm that the patient has a caregiver who can assist with daily activities if needed.

All patients and/or their family members or caregivers should be counseled about the warning symptoms that should prompt re-evaluation by a telehealth visit or an in-person evaluation in an ambulatory care setting or ED. These symptoms include new onset of dyspnea, worsening dyspnea (particularly if dyspnea occurs while resting or if it interferes with daily activities), dizziness, and mental status changes such as confusion. Patients should be educated about the time course of these symptoms and the possible

respiratory decline that may occur, on average, 1 week after the onset of illness.

Symptom Management

Symptomatic treatment includes using over-the-counter antipyretics, analgesics, and antitussives for fever, headache, myalgias, and cough. Patients with dyspnea may benefit from resting in the prone position rather than the supine position.²² Health care providers should consider educating patients about breathing exercises, as severe breathlessness may cause anxiety.²³ Patients should be advised to drink fluids regularly to avoid dehydration. Rest is recommended as needed during the acute phase of COVID-19, and ambulation and other forms of activity should be increased according to the patient's tolerance. Patients should be educated about the variability in time to symptom resolution and complete recovery.

Therapeutic Management

The Panel continues to review the most recent clinical data to provide up-to-date treatment recommendations for clinicians who are caring for patients with COVID-19. [Therapeutic Management of Adults With COVID-19](#) includes recommendations for managing patients with varying severities of disease.

Anti-SARS-CoV-2 Monoclonal Antibodies

The Panel recommends using one of the following combination anti-SARS-CoV-2 monoclonal antibodies to treat outpatients with mild to moderate COVID-19 who are at high risk of clinical progression as defined by the Emergency Use Authorization (EUA) criteria (treatments are listed in alphabetical order):

- **Bamlanivimab 700 mg plus etesevimab 1,400 mg (AIIa); or**
- **Casirivimab 1,200 mg plus imdevimab 1,200 mg (AIIa).**

Treatment should be started as soon as possible after the patient receives a positive result on a SARS-CoV-2 antigen test or a nucleic acid amplification test and within 10 days of symptom onset. For more details on the available clinical trial data for these antibodies, see [Anti-SARS-CoV-2 Monoclonal Antibodies](#).

Two combination anti-SARS-CoV-2 monoclonal antibody products—bamlanivimab plus etesevimab and casirivimab plus imdevimab—have received EUAs from the Food and Drug Administration (FDA) for the treatment of mild to moderate COVID-19 in outpatients who are at high risk of clinical progression. In laboratory studies, some SARS-CoV-2 variants of concern or interest that harbor certain mutations have markedly reduced susceptibility to bamlanivimab and may have lower sensitivity to etesevimab and casirivimab.²⁴ Reduced in vitro susceptibility to both antibodies in a combination regimen is currently uncommon.

There are no comparative data to determine whether there are differences in clinical efficacy or safety between bamlanivimab plus etesevimab and casirivimab plus imdevimab. There are SARS-CoV-2 variants, particularly those that contain the mutation E484K, that reduce the virus' susceptibility to bamlanivimab and, to a lesser extent, casirivimab and etesevimab in vitro; however, the clinical impact of these mutations is not known. The availability of bamlanivimab plus etesevimab may be restricted in areas with an elevated prevalence of variants of concern that have markedly reduced in vitro susceptibility to these agents (e.g., P.1, B.1.351). Please visit [this website](#) from the Department of Health and Human Services for updates on the distribution of bamlanivimab plus etesevimab and the [Centers for Disease Control and Prevention's website](#) for information on the proportions of SARS-CoV-2 variants.

In regions where SARS-CoV-2 variants of concern or interest with modestly reduced in vitro susceptibility to bamlanivimab plus etesevimab are common (e.g., B.1.526), some Panel members would

preferentially use casirivimab plus imdevimab while acknowledging that it is not known whether in vitro susceptibility data correlate with clinical outcomes.

Vaccination with a COVID-19 vaccine should be deferred for at least 90 days in those who have received anti-SARS-CoV-2 monoclonal antibodies. This is a precautionary measure, as the antibody treatment may interfere with vaccine-induced immune responses. In people who are vaccinated and then develop COVID-19, prior receipt of vaccine should not affect treatment decisions, including the use of and timing of treatment with monoclonal antibodies.²⁵

Other Therapeutic Agents

The Panel **recommends against** the use of **chloroquine** or **hydroxychloroquine** with or without **azithromycin** for the treatment of COVID-19 (**AI**). Health care providers should provide information about ongoing clinical trials of investigational therapies to eligible outpatients with COVID-19 so they can make informed decisions about participating in clinical trials (**AIII**).

Remdesivir

Remdesivir is currently the only drug approved by the FDA for the treatment of COVID-19. It is recommended for use in hospitalized patients who require supplemental oxygen. In some cases, a hospital bed may not be available for patients who require supplemental oxygen; for these patients, remdesivir should only be administered in health care settings that can provide a similar level of care to an inpatient hospital.

Dexamethasone

The Panel **recommends against** the use of **dexamethasone** or **other systemic glucocorticoids** to treat outpatients with mild to moderate COVID-19 (**AIII**). There is currently a lack of safety and efficacy data on the use of these agents in outpatients with COVID-19, and systemic glucocorticoids may cause harm in these patients. Patients who are receiving **dexamethasone** or **another corticosteroid** for other indications should continue therapy for their underlying conditions as directed by their health care providers (**AIII**). For more information, see [Therapeutic Management of Adults With COVID-19](#). The use of dexamethasone in outpatients with severe disease is discussed below.

In hospitalized patients with COVID-19, dexamethasone was shown to reduce mortality in patients who required supplemental oxygen. There was no observed benefit of dexamethasone in hospitalized patients who did not receive oxygen support.²⁶ Outpatients with mild to moderate COVID-19 were not included in this trial; thus, the safety and efficacy of corticosteroids in this population have not been established. The Panel **recommends against** the use of **corticosteroids** in this population as there are no clinical trial data to support their use (**AIII**). Moreover, the use of corticosteroids can lead to adverse effects, such as hyperglycemia, neuropsychiatric symptoms, and secondary infections, all of which may be difficult to detect and monitor in an outpatient setting. In some cases, a hospital bed may not be available for patients who require supplemental oxygen; for these patients, clinicians can consider administering dexamethasone only if the patient is placed in a health care setting that can provide a similar level of care to an inpatient hospital.

Antithrombotic Therapy

Anticoagulants and antiplatelet therapy should not be initiated in the outpatient setting for the prevention of venous thromboembolism (VTE) or arterial thrombosis unless the patient has other indications for the therapy or is participating in a clinical trial (**AIII**). For more information, see [Antithrombotic Therapy in Patients With COVID-19](#). Patients should be encouraged to ambulate, and

activity should be increased according to the patient's tolerance.

Antibacterial Therapy

The Panel **recommends against** the use of **antibacterial therapy** (e.g., **azithromycin, doxycycline**) for outpatient treatment of COVID-19 in the absence of another indication (AIII).

Concomitant Medication Management

In general, a patient's usual medication and/or supplement regimen should be continued after the diagnosis of COVID-19 (see [Considerations for Certain Concomitant Medications in Patients With COVID-19](#)). **Angiotensin-converting enzyme inhibitors, statin therapy, nonsteroidal anti-inflammatory drugs, and oral, inhaled, and intranasal corticosteroids** prescribed for comorbid conditions should be continued as directed (AIII). Patients should be advised to avoid the use of nebulized medications in the presence of others to avoid potential aerosolization of SARS-CoV-2.²⁷ In patients with HIV, **antiretroviral therapy should not be switched** or adjusted for the purpose of preventing or treating SARS-CoV-2 infection (AIII). For more information, see [Special Considerations in People With HIV](#).

When a patient is receiving an immunomodulating medication, the prescribing clinician should be consulted about the risks and benefits associated with temporary dose reduction or discontinuation; these risks and benefits will depend on the medication's indication and the severity of the underlying condition.

Patients who use a continuous positive airway pressure (CPAP) device or a bilevel positive airway pressure (BiPAP) device to manage obstructive sleep apnea may continue to use their machine. As with nebulizers, patients should be advised to use the device only when isolated from others.

Outpatient Management of Adults With COVID-19 Following Discharge from the Emergency Department

There are no fixed criteria for hospital admission of patients with COVID-19; the criteria may vary by region and hospital facilities. Patients with severe disease are typically admitted to the hospital, but due to the high prevalence of infection and limited hospital resources, some patients with severe disease may not be admitted. In addition, patients who could receive appropriate care at home but are unable to be adequately managed in their usual residential setting are candidates for temporary shelter in supervised facilities, such as a COVID-19 alternative care facility.²⁸ For example, patients who are living in multigenerational households or who are homeless may not be able to self-isolate and should be provided resources such as dedicated housing units or hotel rooms, when available. Unfortunately, dedicated residential care facilities for COVID-19 patients are not widely available, and community-based solutions for self-care and isolation should be explored.

In the cases where institutional resources (e.g., inpatient beds, staff members) are scarce, it may be necessary to discharge an adult patient home and provide an advanced level of home care, including supplemental oxygen (if indicated), pulse oximetry, and close follow-up. Although early discharge of those with severe disease is not generally recommended by the Panel, it is recognized that these management strategies are sometimes necessary. In these situations, some institutions are providing frequent telemedicine follow-up visits for these patients or providing a hotline for patients to speak with a clinician if necessary. Home resources should be assessed before a patient is discharged from the ED; outpatients should have a caregiver and access to a device that is suitable for telehealth. Patients and/or their family members or caregivers should be counseled about the warning symptoms that should prompt re-evaluation by a health care provider.

Both dexamethasone and remdesivir may be appropriate treatment for some patients who are discharged from the ED but require supplemental oxygen, even though they are not hospitalized (see [Therapeutic Management of Adults With COVID-19](#)). Since remdesivir can only be administered by intravenous infusion, there may be logistical issues with providing it to an outpatient. If dexamethasone is given, it should be provided for no more than 10 days, and clinicians should consider stopping dexamethasone when the patient no longer requires oxygen. It is important that patients on dexamethasone or other corticosteroids are counseled about potential adverse effects, including hyperglycemia and neuropsychiatric impairment. In-person visits or telehealth visits should be performed to monitor closely for toxicities and/or assist with blood glucose control.

Anticoagulants and **antiplatelet therapy** should not be initiated for the prevention of VTE or arterial thrombosis unless the patient has other indications for the therapy or is participating in a clinical trial (**AIII**). For more information, see [Antithrombotic Therapy in Patients With COVID-19](#). Patients should be encouraged to ambulate, and activity should be increased according to the patient's tolerance.

Outpatient Management of Adults With COVID-19 Following Hospital Discharge

Most patients who are discharged from the hospital setting should have a follow-up visit with a health care provider soon after discharge. Whether an in-person visit or a telehealth visit is most appropriate depends on the clinical and social situation. In some cases, adult patients are deemed to be stable for discharge from the inpatient setting even though they still require supplemental oxygen. When possible, these individuals should receive oximetry monitoring and close follow-up through telehealth, visiting nurse services, or in-person clinic visits.

The pivotal safety and efficacy trials for remdesivir and corticosteroids stopped these treatments at the time of discharge from the hospital; therefore, these therapies are generally discontinued in patients who are discharged from an inpatient setting, even if they are receiving supplemental oxygen. Nevertheless, it is recognized that the practice of discharging inpatients who still require oxygen was likely uncommon in the pivotal trials. The data supporting the use of corticosteroids after discharge in such cases are limited, with the main concerns being the lack of monitoring for toxicities, including, but not limited to, blood glucose control and neuropsychiatric impairment. As a result, the Panel **recommends against** administering **corticosteroids** after discharge as routine practice (**BIII**). If a patient continues to receive corticosteroids after discharge, it should be for no more than a total of 10 days and only in those who are stable and have shown good tolerance to this therapy prior to discharge.

Hospitalized patients with COVID-19 should not routinely be discharged on VTE prophylaxis unless they have another indication or are participating in a clinical trial (**AIII**). For more information, see [Antithrombotic Therapy in Patients With COVID-19](#). Patients should be encouraged to ambulate, and activity should be increased according to the patient's tolerance.

Considerations in Pregnancy

Managing pregnant outpatients with COVID-19 is similar to managing nonpregnant patients (see [Special Considerations in Pregnancy](#)). Clinicians should offer supportive care, take steps to reduce the risk of SARS-CoV-2 transmission, and provide guidance for when to seek an in-person evaluation. The American College of Obstetricians and Gynecologists (ACOG) has developed an algorithm to aid the practitioner in evaluating and managing pregnant outpatients with laboratory-confirmed or suspected COVID-19.²⁹ ACOG has also published recommendations on how to use telehealth for prenatal care and how to modify routine prenatal care when necessary to decrease the risk of SARS-CoV-2 transmission to patients, caregivers, and staff.

In pregnant patients, SpO₂ should be maintained at 95% or above at sea level; therefore, the threshold

for monitoring pregnant patients in an inpatient setting may be lower than in nonpregnant patients.³⁰ In general, there are no changes to fetal monitoring recommendations in the outpatient setting, and fetal management should be similar to that provided to other pregnant patients with medical illness.³¹ However, these monitoring strategies can be discussed on a case-by-case basis with an obstetrician. Pregnant and lactating patients should be given the opportunity to participate in clinical trials of outpatients with COVID-19 to help inform decision-making in this population.

Considerations in Children

Children and adolescents with acute COVID-19 are less likely than adults to require medical intervention or hospitalization, and most can be managed in an ambulatory care setting or at home. In general, the need for ED evaluation or hospitalization should be based on the patient's vital signs, physical exam findings (e.g., dyspnea), and risk factors for progression to severe illness. Certain groups, including young infants, children with risk factors, or those with presentations that overlap with multisystem inflammatory syndrome in children (MIS-C), may require hospitalization for more intensive monitoring. However, this should be determined on a case-by-case basis.

Most children with mild or moderate COVID-19, even those with risk factors, will not progress to more severe illness and will recover without specific therapy (see [Special Considerations in Children](#)). There are insufficient pediatric data to recommend either for or against the use of anti-SARS-CoV-2 monoclonal antibody products in children with COVID-19 who are not hospitalized but who have risk factors for severe disease. Based on adult studies, bamlanivimab plus etesevimab or casirivimab plus imdevimab may be considered on a case-by-case basis for nonhospitalized children who meet the EUA criteria, especially those who meet more than one criterion or are aged ≥ 16 years. The Panel recommends consulting a pediatric infectious disease specialist in such cases.

In general, pediatric patients should not continue receiving remdesivir, dexamethasone, or other COVID-19-directed therapies following discharge from an ED or an inpatient setting. Clinicians should refer to the [Special Considerations in Children](#) section for more information on the management of children with COVID-19.

References

1. Centers for Medicare & Medicaid Services. CMS announces comprehensive strategy to enhance hospital capacity amid COVID-19 surge. 2020. Available at: <https://www.cms.gov/newsroom/press-releases/cms-announces-comprehensive-strategy-enhance-hospital-capacity-amid-covid-19-surge>.
2. Stokes EK, Zambrano LD, Anderson KN, et al. Coronavirus disease 2019 case surveillance—United States, January 22–May 30, 2020. *MMWR Morb Mortal Wkly Rep*. 2020;69. Available at: <https://www.cdc.gov/mmwr/volumes/69/wr/pdfs/mm6924e2-H.pdf>.
3. Centers for Disease Control and Prevention. Interim clinical guidance for management of patients with confirmed coronavirus disease (COVID-19). 2021. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-guidance-management-patients.html>.
4. Centers for Disease Control and Prevention. COVID-19: how to protect yourself & others. 2021. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html>.
5. Centers for Disease Control and Prevention. COVID-19: if you are sick or caring for someone. 2020. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/>.
6. Cheng A, Caruso D, McDougall C. Outpatient management of COVID-19: rapid evidence review. *Am Fam Physician*. 2020;102(8):478-486. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/33064422>.
7. Morrow-Howell N, Galucia N, Swinford E. Recovering from the COVID-19 pandemic: a focus on older adults. *J Aging Soc Policy*. 2020;32(4-5):526-535. Available at:

<https://www.ncbi.nlm.nih.gov/pubmed/32336225>.

8. Centers for Disease Control and Prevention. Coronavirus self-checker. 2021. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/coronavirus-self-checker.html>.
9. Burkett E, Carpenter CR, Hullick C, Arendts G, Ouslander JG. It's time: delivering optimal emergency care of residents of aged care facilities in the era of COVID-19. *Emerg Med Australas*. 2021;33(1):131-137. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/33131219>.
10. Close RM, Stone MJ. Contact tracing for native americans in rural Arizona. *N Engl J Med*. 2020;383(3):e15. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/32672426>.
11. Centers for Disease Control and Prevention. COVID-19: what to do if you are sick. 2020. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/steps-when-sick.html>.
12. Centers for Disease Control and Prevention. COVID-19: isolate if you are sick. 2021. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/isolation.html>.
13. Cohen PA, Hall LE, John JN, Rapoport AB. The early natural history of SARS-CoV-2 infection: clinical observations from an urban, ambulatory COVID-19 clinic. *Mayo Clin Proc*. 2020;95(6):1124-1126. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/32451119>.
14. Wang D, Hu B, Hu C, et al. Clinical characteristics of 138 hospitalized patients with 2019 novel coronavirus-infected pneumonia in Wuhan, China. *JAMA*. 2020;323(11):1061-1069. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/32031570>.
15. Arentz M, Yim E, Klaff L, et al. Characteristics and outcomes of 21 critically ill patients with COVID-19 in Washington state. *JAMA*. 2020;323(16):1612-1614. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/32191259>.
16. Yang X, Yu Y, Xu J, et al. Clinical course and outcomes of critically ill patients with SARS-CoV-2 pneumonia in Wuhan, China: a single-centered, retrospective, observational study. *Lancet Respir Med*. 2020;8(5):475-481. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/32105632>.
17. Luks AM, Swenson ER. Pulse oximetry for monitoring patients with COVID-19 at home. Potential pitfalls and practical guidance. *Ann Am Thorac Soc*. 2020;17(9):1040-1046. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/32521167>.
18. Sjoding MW, Dickson RP, Iwashyna TJ, Gay SE, Valley TS. Racial bias in pulse oximetry measurement. *N Engl J Med*. 2020;383(25):2477-2478. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/33326721>.
19. Modi A, Kiroukas R, Scott JB. Accuracy of smartphone pulse oximeters in patients visiting an outpatient pulmonary function lab for a 6-minute walk test. *Respir Care*. 2019;64(Suppl 10). Available at: http://rc.rcjournal.com/content/64/Suppl_10/3238714.
20. Tarassenko L, Greenhalgh T. Question: should smartphone apps be used clinically as oximeters? Answer: no. 2020. Available at: <https://www.cebm.net/covid-19/question-should-smartphone-apps-be-used-as-oximeters-answer-no/>.
21. Jordan TB, Meyers CL, Schradling WA, Donnelly JP. The utility of iPhone oximetry apps: a comparison with standard pulse oximetry measurement in the emergency department. *Am J Emerg Med*. 2020;38(5):925-928. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/31471076>.
22. Caputo ND, Strayer RJ, Levitan R. Early self-proning in awake, non-intubated patients in the emergency department: a single ED's experience during the COVID-19 pandemic. *Acad Emerg Med*. 2020;27(5):375-378. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/32320506>.
23. National Institute for Health and Care Excellence (NICE) in collaboration with NHS England and NHS Improvement. Managing COVID-19 symptoms (including at the end of life) in the community: summary of NICE guidelines. *BMJ*. 2020;369:m1461. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/32312715>.
24. Centers for Disease Control and Prevention. SARS-CoV-2 variant classifications and definitions. 2021. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/variant-surveillance/variant-info.html>.

25. Centers for Disease Control and Prevention. Interim clinical considerations for use of COVID-19 vaccines currently authorized in the United States. 2021. Available at: <https://www.cdc.gov/vaccines/covid-19/info-by-product/clinical-considerations.html>.
26. Recovery Collaborative Group, Horby P, Lim WS, et al. Dexamethasone in hospitalized patients with COVID-19. *N Engl J Med*. 2021;384(8):693-704. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/32678530>.
27. Cazzola M, Ora J, Bianco A, Rogliani P, Matera MG. Guidance on nebulization during the current COVID-19 pandemic. *Respir Med*. 2021;176:106236. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/33248363>.
28. Meyer GS, Blanchfield BB, Bohmer RMJ, Mountford MB, Vanderwagen WC. Alternative care sites for the COVID-19 pandemic: the early U.S. and U.K. experience. *NEJM Catalyst*. 2020. Available at: <https://catalyst.nejm.org/doi/full/10.1056/CAT.20.0224>.
29. The American College of Obstetricians and Gynecologists. Outpatient Assessment and Management for Pregnant Women with Suspected or Confirmed Novel Coronavirus (COVID-19). 2020. Available at: <https://www.smfm.org/covid19/>.
30. The American College of Obstetricians and Gynecologists. COVID-19 FAQs for obstetrician-gynecologists, obstetrics. 2020. Available at: <https://www.acog.org/clinical-information/physician-faqs/covid-19-faqs-for-ob-gyns-obstetrics>.
31. Society for Maternal-Fetal Medicine. Management considerations for pregnant patients with COVID-19. 2020. Available at: https://s3.amazonaws.com/cdn.smfm.org/media/2336/SMFM_COVID_Management_of_COVID_pos_preg_patients_4-30-20_final.pdf.