FOCUS ON
COVID-19 TEST-TO-TREAT SERVICES

This resource equips pharmacists with guidance on COVID-19 test-to-treat services, focusing on the ongoing burden of severe and long COVID. It outlines current antiviral options, eligibility criteria, and treatment timing, and it provides actionable strategies for identifying candidates who may benefit from treatment. Pharmacists will find best practices, clinical criteria, and communication tools to support timely care and reduce long-term disease impact.

INTRODUCTION

Three years after the peak of the COVID-19 pandemic, the SARS-CoV-2 virus continues to exert a profound impact on global health and health care infrastructure. While widespread vaccination, natural immunity, and evolving clinical management have significantly reduced acute mortality, SARS-CoV-2 has not disappeared. As COVID-19 transitions from pandemic to endemic status, the burden of disease remains significant, especially among patients who experience severe symptoms or post–COVID-19 conditions, otherwise known as long COVID. Pharmacists are front-line health care providers ideally positioned to expand access to timely testing and treatment.

As of December 2023, over 772 million people have been infected globally with SARS-CoV-2, with an estimated 6% to 20% developing long COVID.[1] The burden has shifted from mass hospitalizations to ongoing challenges such as persistent symptoms, elevated risk in vulnerable populations, and continued infections without clear seasonality, highlighting the need for timely testing and intervention of those eligible for treatment.

Beyond acute COVID-19 infection

While most individuals fully recover from acute COVID-19, a substantial proportion experience long-term effects. Long COVID is defined by WHO as a chronic condition arising within 3 months of SARS-CoV-2 infection and persisting for at least 2 months without alternative explanation.[2] CDC further notes that symptoms may fluctuate, resolve, or reemerge over weeks, months, or even years and can affect anyone, regardless of the initial illness severity.[3] In response to this phenomenon, WHO created an international classification of diseases code (ICD-10, U09.0) to reflect a formal diagnosis of post-COVID conditions.

Long COVID symptoms span nearly all organ systems and may be accompanied by evidence of prolonged SARS-CoV-2 presence in the body, autoimmunity or altered immune response, or formation of microscopic blood clots.[2] Common manifestations include persistent fatigue, shortness of breath, muscle/joint pain, sleep disturbances, headaches, and cognitive issues such as brain fog, with more than 200 symptoms reported in total. The condition can lead to significant functional limitations. Nearly 6.4% of U.S. adults report one or more long COVID symptoms, and approximately 20% of these individuals experience major activity limitations.[4]

Risk factors for long COVID include female sex, older age, pre-existing conditions, severe initial illness (particularly among those hospitalized), smoking, obesity, and lack of vaccination.[2,3] Vaccination and early COVID-19 treatment are associated with reduced long COVID risk.[2,3] There is no universal treatment, but supportive care such as symptom-specific therapies, rehabilitation, and multidisciplinary follow up is the currently recommended approach. Both WHO and CDC emphasize ongoing research, enhanced surveillance, and coordinated care models to understand, prevent, and manage this complex, multisystem condition.[2-4]

Long COVID imposes a substantial and enduring strain on individuals and health systems. Disability, mental health impacts, and decreased capacity to resume work contribute to considerable losses in productivity and quality of life. Health care systems are now challenged with providing multidisciplinary care, while society grapples with socioeconomic consequences.[2] Mortality directly attributable to post–COVID-19 continues, with higher rates observed among older adults, males, and residents of long-term care facilities, highlighting ongoing mortality risks beyond acute infection.[5]

Altogether, the total annual cost of long COVID in the United States, including lost wages, reduced productivity, increased medical spending, and diminished quality of life, has been projected in the range of several hundred billion dollars.[6] While there is continuous development of models to expertly identify the most accurate assumptions, these data underscore the ongoing and far-reaching economic consequences of long COVID in the United States, despite the decline in acute infection waves.

COVID-19 diagnosis

Persistent surveillance of COVID-19 remains vital as SARS-CoV-2 continues to circulate unpredictably, without a defined seasonal pattern.[7] This variability reinforces the need for ongoing public awareness and rapid clinical response.

Testing is recommended for individuals experiencing symptoms consistent with COVID-19, including fever or chills, sore throat, cough, nasal congestion, fatigue, headache, muscle aches, shortness of breath, new loss of taste or smell, nausea, vomiting, or diarrhea. People with recent close contact to a person with confirmed COVID-19 or those in high-risk settings such as health care facilities, long-term care homes, or congregate living environments should also be tested promptly. Repeat testing may be necessary when initial antigen tests are negative but clinical suspicion remains high.[8-10]

Pharmacies and pharmacists have played a crucial role in expanding access to COVID-19 testing by integrating testing services into existing workflows, often using a team-based approach to optimize efficiency. Pharmacy technicians or support staff typically handle administrative tasks such as scheduling, patient intake, and insurance documentation, while pharmacists perform clinical assessments, supervise sample collection, and interpret or act on test results when authorized. Many pharmacies use clinical decision support systems, online appointment scheduling tools, and point-of-care documentation platforms integrated with their pharmacy management systems to streamline the process. Drive-through testing models, designated testing windows, and digital consent forms have further reduced wait times and improved throughput. Pharmacists operating under test-to-treat protocols are empowered to evaluate patients for antiviral eligibility and initiate treatment when indicated, creating a seamless bridge from diagnosis to therapy. These innovations have enabled pharmacies to meet community demand while maintaining safe, efficient, and scalable testing services within ambulatory and retail settings.

COVID-19 treatment

Upon receiving a positive test result for COVID-19, patients should be initially evaluated for the severity of present illness. Those with mild to moderate illness will present with the common symptoms (described above in the COVID-19 Diagnosis section), and pharmacists may measure BP, heart rate, respiratory rate, and pulse oximetry to identify objective data to support their assessment of clinical status. Those with a pulse oxygen level (SpO2) of less than or equal to 94% on room air or a respiratory rate of greater than 30 breaths per minute should be referred to the emergency department for further evaluation.[11]

Patients who present as mild to moderate illness severity should further be evaluated by their risk for developing severe illness. Patients are considered high risk if they have one or more of the following determinants: 50 years or older (substantially increases at age 65 years and older); unvaccinated; chronic lung, kidney, or heart conditions; diabetes; immunosuppression; mood disorders or schizophrenia; BMI of 30 or greater; cancer; or current or recent pregnancy. Many other comorbidities have also been identified as potentially carrying a risk for severe illness and clinical decision making should be used to guide whether someone may need treatment.[12]

For patients identified as high risk for progression to severe illness, it is important to initiate a timely discussion regarding available antiviral therapy options. These therapies can significantly reduce the risk of hospitalization, severe complications, and death when started early in the course of illness. Health care providers should assess individual patient factors, explain the potential benefits and risks, and offer appropriate antiviral treatment as part of comprehensive care. Shared decision making should guide the final treatment plan to ensure patient understanding and engagement.

Nirmatrelvir/ritonavir (Paxlovid) and remdesivir (Veklury) are preferred first-line treatments for outpatient treatment of COVID-19, particularly in those at risk for severe illness. Pharmacy settings are generally not a feasible place for a patient to receive I.V. therapy with remdesivir; if remdesivir is the most viable treatment option, referral is best.

If patients are unable to access or are clinically ineligible for treatment with oral nirmatrelvir/ritonavir or remdesivir, then molnupiravir (Lagevrio) may be used. Pharmacists must review medication interactions and ensure renal and hepatic function criteria are met before dispensing. Use of tools such as the Liverpool COVID-19 Drug Interactions Checker is recommended to support safe prescribing.[13]

Pemivibart (Pemgarda), a monoclonal antibody, is authorized for pre-exposure prophylaxis in individuals with moderate to severe immunocompromise who may not mount an adequate response to vaccination.[14] Its use is contingent on circulating SARS-CoV-2 variants being susceptible to its mechanism of action, which underscores the importance of ongoing genomic surveillance. While this agent is not yet part of first-line treatment recommendations, it offers targeted options for patients with limited antiviral access or immune vulnerabilities and may play a larger role as evidence and approvals evolve.

Table. Approved antiviral treatments for COVID-19

Medication	Mechanism of action	Indication	Treatment eligibility criteria	Timing window	Special considerations
Nirmatrelvir/ Ritonavir (Paxlovid)[15]	Inhibits SARS-CoV-2 main protease, preventing viral replication	Mild to moderate COVID-19 in high-risk, nonhospitalized patients	Age ≥12 years; weight ≥40 kg; mild to moderate COVID-19, high risk for progression to severe disease	Within 5 days of symptom onset	Renal dose adjustments and drug–drug interaction management
Remdesivir (Veklury)[16]	Nucleotide analog that inhibits viral RNA-dependent RNA polymerase	Mild to moderate COVID-19 in high-risk outpatients; also used in hospitalized patients	Age ≥28 days; weight ≥3 kg; confirmed infection; at risk for severe disease; includes patients with renal impairment	Within 7 days of symptom onset; I.V. for 3 days	Infusion over 30–120 minutes; infusion over 3 consecutive days; need to check liver function and prothrombin time before initiation
Molnupiravir (Lagevrio)[17]	Induces viral RNA mutagenesis	Mild to moderate COVID-19 in high-risk adults when other options unavailable	Age ≥18 years; high risk for progression; contraindicated in pregnancy and not first-line when other agents are suitable	Within 5 days of symptom onset	Patients who are able to become pregnant and their partners should use birth control; avoid in people who are pregnant; no specific testing required before initiation
Pemivibart (Pemgarda)[14]	Spike protein–neutralizing monoclonal antibody	Pre-exposure prophylaxis for immunocompromised individuals	Age ≥12 years; weight ≥40 kg; moderate to severe immune compromise; variant susceptibility must be confirmed	Administered before exposure	Authorized for use under EUA only when the combined national frequency of variants with substantially reduced susceptibility to PEMGARDA is less than or equal to 90%

Communicating with patients

Pharmacists can use the following conversation starters to support informed patient decisions about COVID-19 testing and treatment in those who may be experiencing signs and symptoms of SARS-CoV-2 infection.

- "COVID-19 is still circulating and continues to cause long-term effects in some people. Would you like to learn more about how you can reduce your risk of severe illness or long COVID?"
- "Are you aware that there are medications authorized/approved by the Food and Drug Administration that can lower your risk of hospitalization or severe symptoms if started early?"
- "If you're eligible, you could start an oral antiviral treatment as early as today to help avoid worsening symptoms. Would you like to see if treatment is right for you?"
- "Even though we don't dispense Paxlovid or other treatments here, we can help you locate a nearby test-to-treat center or connect you with a prescriber."

Tips for entering into conversation with patients about COVID-19 and treatments.
- Use a calm and reassuring tone. Avoid making assumptions about a patient's knowledge or concern level.
- Avoid judgmental language or intonation when a patient is hesitant to test or treat. Use motivational interviewing techniques. Ask open-ended questions such as, "What concerns do you have about starting treatment?"
- Respectfully highlight urgency of starting treatment. Reinforce that treatment needs to begin within 5 days of symptom onset.

Summary

Pharmacists, embedded in nearly every community, are now pivotal as public health partners in identifying, educating, providing, or directing accessible COVID-19 care. From test-to-treat initiatives to patient counseling and antiviral access, pharmacists help close gaps in care that disproportionately affect older adults, immunocompromised patients, and underserved individuals while reducing the long-term impacts of illness and improving outcomes across their communities.

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