

# Models of Care for Postacute COVID-19 Clinics

## *Experiences and a Practical Framework for Outpatient Physiatry Settings*

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**Abstract:** After surviving infection with the SARS-CoV-2 virus, individuals may have persistent symptoms and prolonged impairments that may last for weeks to months. The frequency and heterogeneity of persistent post-COVID conditions have created challenges in care. Specialty clinics are being established in response to an increasing need to care for patients with postacute sequelae of SARS-CoV-2 or long COVID syndrome. Although many post-COVID conditions can be bettered through a comprehensive rehabilitation plan, various clinical settings may benefit from differing models of coordinated care. We present five models of care in varying degrees of development and compare processes and adaptations to address the unique needs of each center and their unique patient populations. Forging a path to recovery will necessitate a multidisciplinary team with physiatry involvement to meet the distinctive needs of patients with postacute sequelae of SARS-CoV-2. Furthermore, it is imperative that there be equitable access to this care and commitment from healthcare institutions to provide resources for these programs.

**Key Words:** Long COVID, PASC, Post-COVID Clinic, COVID-19, Rehabilitation

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The coronavirus disease outbreak was declared a pandemic by the World Health Organization on March 11, 2020.<sup>1</sup> SARS-CoV-2—the virus that causes coronavirus disease

2019 (COVID-19)—has since caused global devastation with millions of cases and fatalities. Beyond this, it has become clear that many persons experience persistent symptoms and decreased function and quality of life from weeks to months after COVID-19 infection.<sup>2</sup> Early studies have started to describe the array and trajectory of persisting symptoms post-COVID-19 infection from across the globe,<sup>3–7</sup> colloquially known as “long COVID syndrome” and now more formally referred to as postacute sequelae of SARS-CoV-2 infection (PASC).<sup>8</sup>

It is becoming apparent that there is a new pandemic of survivors with PASC who have symptoms that last for more than 28 days<sup>9</sup> but may be more prolonged. A recent study by Davis and colleagues surveyed 3762 persons from the Body Politic COVID-19 Support Group and its Patient-Led Research for COVID-19.<sup>10</sup> There was a prevalence of 205 symptoms with the most frequent symptoms after 6 mos being fatigue, postexertional malaise, and cognitive dysfunction. In that study, 45.2% of people reported requiring a reduced work schedule compared with preillness. Another report by Logue and colleagues<sup>11</sup> followed a cohort of outpatients for 9 mos—a majority of them with a history of mild disease—and showed approximately 30% having persistent symptoms. A retrospective cohort study of more than 236,000 patients showed an incidence of 33.62% for new neurologic or psychiatric diagnoses in the 6 mos after confirmed COVID-19.<sup>12</sup> With at least a third of patients experience long-term effects of COVID-19, there has been an unexpectedly large number of those with PASC seeking medical and rehabilitative care with little in place to address their needs. There is currently limited information on ambulatory care of patients with PASC, and most reports describe hospitalized patients with moderate to severe disease.<sup>13,14</sup>

The role of addressing a surge of persons with neurologic, psychological, musculoskeletal, and cardiovascular sequelae falls outside the coordinated inpatient hospital setting. Physiatrists are experts in function and disability and serve COVID-19 patients from the intensive care unit to the outpatient setting, yet no single medical specialty is equipped to independently manage a path to recovery. In the wake of persons continuing to experience PASC, new models of care have been developed. This article will present different models of coordinated care in various clinical settings and healthcare systems for patients requiring a post-COVID clinic. These include both established and developing models, highlighting the similarities in approaches and adaptations made to meet the unique needs of centers and patients. Dissemination of this information contributes to the national call to action for the development, funding, and research of rehabilitation resources to meet the needs of persons with PASC.

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## ESTABLISHED MODELS

### Model 1: UT Southwestern Medical Center COVID Recover Program

Reviewing the experiences in Europe and on the East Coast of the United States, the need for a coordinated response from physical medicine and rehabilitation (PM&R) was identified early during the COVID-19 outbreak. Early models predicted a very high volume of patients who would require postacute care for which PM&R was best positioned to provide.<sup>10</sup> Consequently, a framework for the COVID Recover Program at UT Southwestern Medical Center was created in June 2020 to respond to the expected surge of patients surviving the acute illness. The clinic structure was developed with active participation from physiatrists, therapy service directors, neuropsychology, and counseling services. COVID Recover uses the principles of multidisciplinary rehabilitation and is derived from clinical practices for cardiac and pulmonary rehabilitation, rehabilitation of complex medical issues including critical illness myopathy, and the management of persistent symptoms after concussions and mild traumatic brain injuries. Partnerships were developed with the autonomic testing laboratory, pulmonology, cardiology, and psychiatry. Because the clinic was established before long COVID syndrome was clearly identified, no one was trained; weekly meetings have continued to review literature and adapt best practices.

Referrals for the COVID Recover program can be made directly from an acute hospital care team before discharge, from community-based providers (such as primary care providers or specialist clinics), or direct patient self-referral. Criteria for the clinic are self-reported symptoms with a clinical or serologic diagnosis of COVID-19. Laboratory confirmation is not a requirement to be evaluated as those with early infections were often not tested. There are no temporal criteria for evaluation related to time of illness or chronicity of symptoms.

Initial evaluation is provided by designated physiatrists to facilitate sharing of best practice. Two clinic locations were established: one on the main medical center campus and one at a distant ambulatory clinic. During lockdown, virtual visits were offered with in-person visits added once appropriate.

The initial medical evaluation includes a symptom inventory list based on reported most common symptoms and signs observed in persons with PASC (Appendix 1, Supplemental Digital Content 1, <http://links.lww.com/PHM/B402>). Information on severity of acute illness including mechanical ventilation and/or diagnosed medical complications is collected. The following outcome measures are collected at initial and subsequent visits: Satisfaction with Life Scale, Patient Health Questionnaire 9, Generalized Anxiety Disorder 7, PTSD Checklist for Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (*DSM-5*), Composite Autonomic Symptom Score, and when indicated, the Post-Intensive Care Syndrome Questionnaire. These measures can be found on the health measures toolbox website.<sup>15</sup> In-person examinations are conducted and include cardiopulmonary and neuromusculoskeletal evaluations. When the evaluation is virtual, an adapted telemedicine examination is also performed per previously described techniques.<sup>16</sup> Initial evaluation also includes collection of orthostatic vital signs with referral to the Autonomic Testing Laboratory as indicated. While testing

is minimized, patients will uncommonly be referred for additional cardiac or pulmonary evaluation.

Subsequently, an individualized and symptom-focused treatment plan is developed with three referral options as shown in Figure 1. The physical therapy team uses a graduated, standardized protocol for evaluation and treatment using strategies from cardio/pulmonary rehabilitation, and a modified Levine Protocol for Autonomic Dysfunction Training Guidelines for Cardiovascular Fitness.<sup>17</sup> Speech/cognitive therapies focus on compensatory techniques and strategies, and neuropsychological testing by psychology is ordered as appropriate. Most participants are referred to the COVID Recover Wellness Group, a four-session psychoeducational program with a focus on lifestyle and coping strategies to cope. The topics covered in these virtual group visits include (1) improving brain health; (2) mental health and wellness; (3) physical activity and social engagement; and (4) improving sleep, coping with fatigue, and leisure.

Plan of care and follow-up visits are determined by the treating physician, and specialty clinic referrals are placed as indicated at the time of medical visits. Shared decision making between the physiatrist and patient determines length of program. The goal of treatment is to maximize recovery with graded return to functional activities (vocational and recreational) while managing symptoms and providing positive expectations for improvement. Ongoing research using deidentified data will examine recovery trajectories, risk factors for PASC, mental health comorbidities, and autonomic function.

### Model 2: UT Health San Antonio Program

Given the early disproportionate impact of COVID-19 on minority populations<sup>18</sup> and having one of the largest majority-minority populations in the country, two post-COVID recovery clinics were developed through the Department of Rehabilitation Medicine at UT Health San Antonio. Both adult and pediatric patients are evaluated in two locations, a university clinic-based rehabilitation medicine outpatient practice and a community safety net county clinic through University Health. Of note, the definition of a healthcare safety net center is one that delivers healthcare services to patients without insurance who have increased medical and social vulnerabilities. This program design optimized access despite funding limitations. Like model 1, a full systematic assessment and workup are initiated by the PM&R team, linking to an asynchronous multidisciplinary team when referrals are necessary.

Patients are either self or physician-referred if lingering symptoms remain. A positive COVID-19 test is not required and no time limitations from acute infection is imposed. Assessments occur almost exclusively via telemedicine using a standardized assessment battery assessing medical, functional, and psychosocial variables and a virtual physical examination.<sup>16</sup> The same symptom inventory (Appendix 1, Supplemental Digital Content 1, <http://links.lww.com/PHM/B402>) and outcome measures are used as in model 1. These outcome measures were chosen based on their use in many rehabilitation related studies and their validated Spanish language translations. Questionnaires are sent to patients before their visit at the university-based clinic via MyChart, a secure web-portal associated with the electronic health record. Patients are referred for further

UTSW COVID Recover Clinic Flow Chart

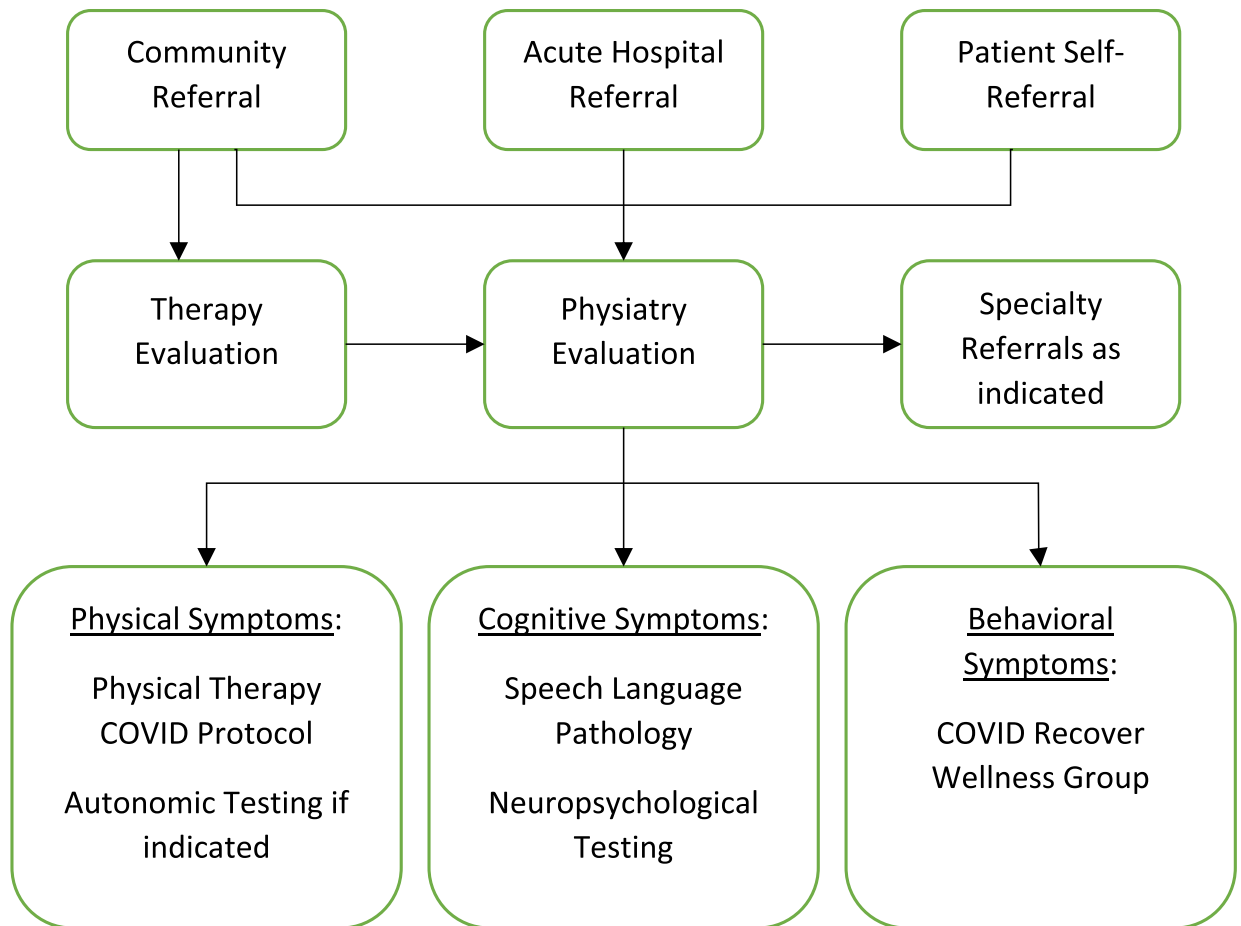


FIGURE 1. UT Southwestern COVID Recover clinic flow chart.

workup, consultations, and treatments on an individual basis but may include physical therapy, neuropsychology, behavioral health, cardiology, pain management, and neurology.

Differences have become apparent in the safety net county clinic. The visits in the safety net system have a higher no-show rate, more difficulty with using telemedicine, take longer as there can be a need for translators, and the assessments are not integrated into the electronic medical record. It is known that persons with disabilities and from minority groups face barriers limiting their access to care.<sup>19</sup> Barriers that have been specified in the literature and seen in this clinic are inaccessibility to the Internet, inability to download patient portal, and communication barriers.<sup>20</sup>

**Model 3: VA Greater Los Angeles Healthcare System**

The interdisciplinary post-COVID-19 rehabilitation clinic at the VA Greater Los Angeles housed within the department of PM&R was developed in response to growing need for continued care for veterans with persistent physical, cognitive, and psychological impairments after SARS-CoV-2 viral infection. Admission criteria include: medically stable, diagnosis with

COVID-19 6 wks before referral, and community residency. The interdisciplinary clinic was designed and established leveraging similar existing expertise as noted in center descriptions previously mentioned. Consideration was also given to the availability of various specialties to participate in the clinic and available resources. The interdisciplinary team members include a physiatrist, physical therapist, neuropsychologist, and a clinical psychologist. Interdisciplinary post-COVID-19 rehabilitation clinic referrals typically originate from the VA Greater Los Angeles Healthcare System Acute Rehabilitation Unit, Primary Care, and Pulmonary Medicine.

The initial interdisciplinary post-COVID-19 rehabilitation clinic evaluation is conducted through a video-enabled telemedicine platform. During each clinic, four veterans are evaluated virtually by the four different members of the interdisciplinary team in a sequential manner. Each provider—a physiatrist, neuropsychologist, psychologist, and physical therapist—has a 20-min visit with the total visit time up to 90 mins. Information about COVID-19 symptoms at the time of diagnosis and illness severity is collected as well as any new or persistent symptoms seen in patients with PASC. Veteran physical and cognitive function as well as their psychological health is assessed using the following outcome measures at

the initial and subsequent visits: Neurobehavioral Symptom Inventory (NSI), Patient-Reported Outcomes Measurement Information System Global-10, Distress Scale, modified Medical Research Council dyspnea scale, Patient Health Questionnaire 9, Generalized Anxiety Disorder 7, Montreal Cognitive Assessment/Montreal Cognitive Assessment Blind, 30-Second Sit-to-Stand, and 2-Min Step Test (Table 1).

Veterans who demonstrate functional impairments are referred to the virtual home-based COVID-19 physical therapy program for up to 12 wks. Those with cognitive impairments participate in a memory skills group, are treated by a speech language pathologist, or are referred to neuropsychology for further testing. Veterans with new onset or worsened mental health symptoms are referred either to the post-COVID support group or to a mental health provider for individual treatment. Other referrals may include medical specialties (e.g., cardiology, pulmonology, neurology, nutrition, etc.).

Bimonthly interdisciplinary team meetings are held to discuss the progress of patients to update the treatment plan and provide care coordination. Follow-up appointments are conducted 2–3 mos after the initial visit either virtually or in-person. The VA Greater Los Angeles Healthcare System interdisciplinary post-COVID-19 rehabilitation clinic continues to evolve and modify treatment strategy to meet the needs of our veterans.

### DEVELOPING MODELS

#### Model 4: Hennepin Healthcare

Hennepin Healthcare is an integrated system of care that includes an acute care safety net hospital, outpatient clinic and specialty center, and community clinics. Because of a limited number of physiatrists in the department of PM&R, a collaborative group including internal medicine, family medicine, PM&R, and therapy services developed tools for primary care providers and other specialty providers to evaluate patients with PASC. With these algorithms, primary care providers can evaluate patients for further medical workup or functional needs and connect patients to the appropriate services. The tools include references of “indications” for available referrals that include rehabilitation therapies (physical therapy/occupational therapy/speech and language pathology), primary care behavioral health/psychiatry, otolaryngology, neurology,

pulmonology, cardiology, sleep medicine, neuropsychology, PM&R, nutrition, and social work. The process is described in Figure 2, and the short and long version of the symptoms and functional screening tool is available in Appendix 2 (Supplemental Digital Content 2, <http://links.lww.com/PHM/B403>). Patient education resources for sleep hygiene, energy conservation, gradual return to activity, and cognitive compensation were created and shared via the organization intranet so that medical providers and rehabilitation therapists can use them as needed. In addition, COVID-19 Home Monitoring program staff from department of family medicine initiated screening calls to patients to assess their symptoms and function 4 wks after positive testing to evaluate the need for further assessment.

Patients with multiple symptoms and/or ongoing functional impairments beyond 4 wks after initial COVID-19 infection requiring more than one therapy need can be referred to PM&R post-COVID recovery clinic within the same system. A positive laboratory testing is not required. Primary care/specialty providers from outpatient clinics or acute hospital care team can make referrals. Similar to established models described earlier, the visit can be performed via an in-person or telemedicine visit, using similar assessments. The evaluation consists of symptoms at the time of COVID-19 infection, postintensive care syndrome questionnaire if indicated, persistent COVID-related symptoms, dysautonomia screening, screening for depression and anxiety, screening for psychosocial concerns, assessment of current functional status, satisfaction with life scale, social history, and physical examinations. Patients will be referred for further workup such as autonomic testing or to appropriate services/specialties as mentioned previously depending on their individual needs. Primary care providers and specialists can continue to refer directly to therapy services and other specialties/services as needed. Other collaborations with integrative medicine and psychology are being explored.

#### Model 5: University of Florida

Presently, there is no formal clinical program for patients with PASC at this center, and PM&R was recently established as a department this academic year. Located in a mid-sized city, the catchment areas include rural and urban communities in the entire state. Incorporating emerging best practices from other

**TABLE 1.** Post-COVID-19 rehabilitation clinic outcome measures at year 1

Domain	Month 0	Month 1	Month 2	Month 3	Month 6	Month 12
Physical/quality of life	PROMIS Global-10	mMRC	mMRC	PROMIS Global-10	PROMIS Global-10	PROMIS Global-10
	mMRC	2-MST	2-MST	mMRC	mMRC	mMRC
	2-MST	30 SSTS	30 SSTS	2-MST	2-MST	2-MST
	30 SSTS			30 SSTS	30 SSTS	30 SSTS
Cognitive	MoCA/MoCA-BLIND			NSI	NSI	NSI
	NSI					
Psychological	PHQ-9			PHQ-8	PHQ-8	PHQ-8
	GAD-7			GAD-7	GAD-7	GAD-7
	Distress scale			Distress scale	Distress scale	Distress scale

2-MST, 2-min step test; 30-SSTS, 30-Sec Sit-to-Stand Test; mMRC, modified Medical Research Council dyspnea scale; MoCA, Montreal Cognitive Assessment; PROMIS Global-10, Patient-Reported Outcomes Measurement Information System Global-10; PHQ 8/9, Patient Health Questionnaire 8/9; GAD-7, General Anxiety Disorder 7.



Hennepin Healthcare Post-COVID-19 Recovery Care Flow Chart

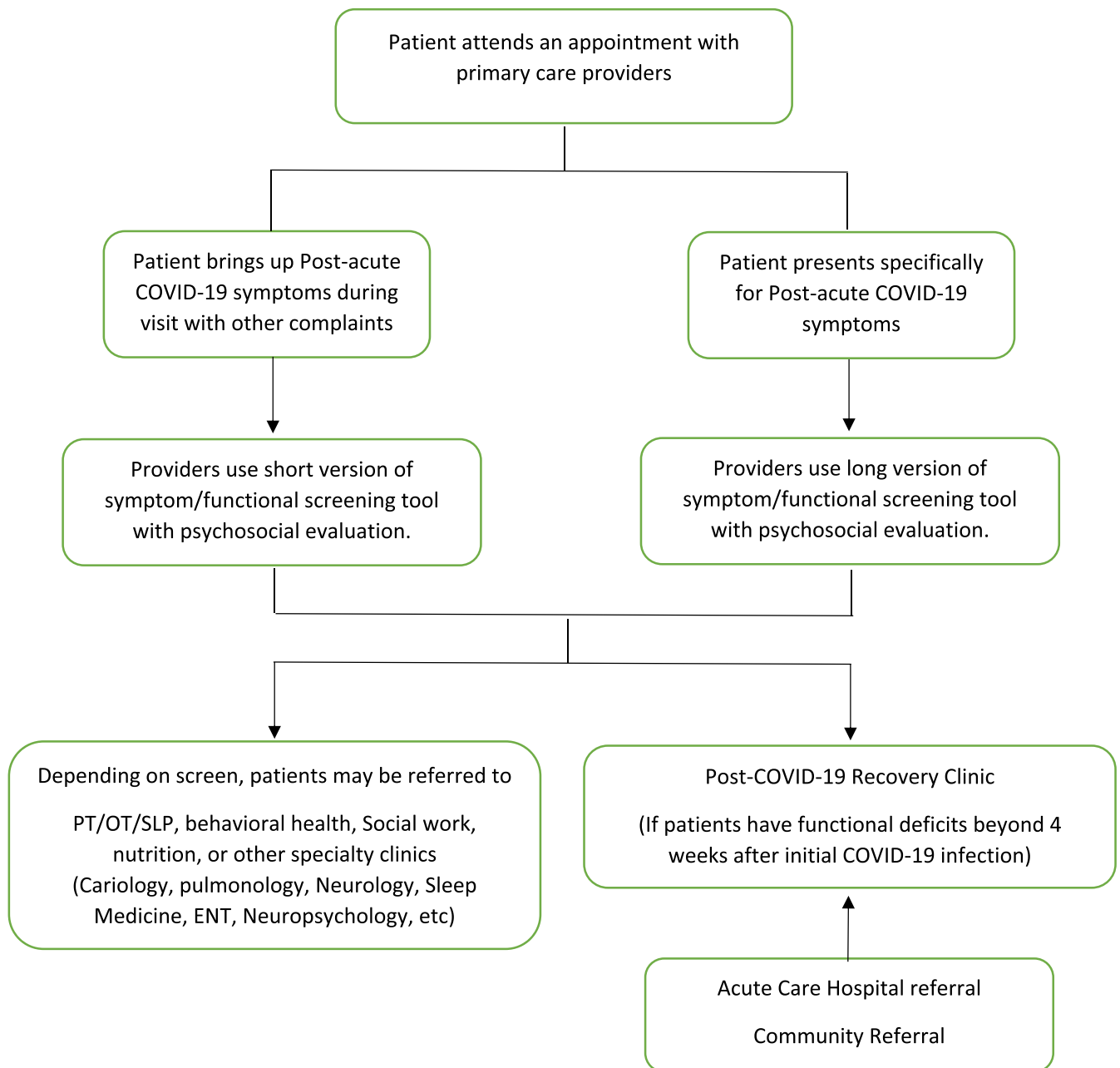


FIGURE 2. Hennepin Healthcare post-COVID-19 recovery care flow chart.

national models described earlier, the COVID RESTORE (Rehabilitation, Support, Training, Outreach, and Research) program aims to restore both health and function. Patients with PASC will be evaluated in an integrative medicine clinic staffed by one psychiatrist also trained in integrative medicine in an ambulatory multidisciplinary clinic. Program admission criteria include a positive polymerase chain reaction test for SARS-CoV-2 or positive serology with any insurance, including those who participate in the financial assistance program.

The program will include a network of clinicians in PM&R, integrative medicine, cardiology, pulmonary, renal, neurology, clinical psychology and psychiatry, infectious disease, and

therapy services. Patients with PASC will be seen for an initial 1-hr consultation and be scheduled for return visits to develop a personalized lifestyle-based integrative health plan addressing nutrition, adaptive coping skills, relaxation practices, and evidence-informed use of supplements, botanicals, and complementary therapies.<sup>21,22</sup> Patients with identified mental health needs will be referred to an in-person mindfulness-based tools for resilience psycho-educational group facilitated by a mental health professional. This adapted series will be conducted for 1 hr over consecutive weeks. Primary care physicians will be trained to use a symptom screening questionnaire for patients and the guidelines for rehabilitation services

**TABLE 2.** Comparison of key variables for the three established models

	Model 1	Model 2	Model 3
Duration of initial assessment	60 mins: physiatry	45 mins: physiatry	Up to 90 mins: –20 mins each provider: physiatry, neuropsych, psychology, PT
No. psychiatrists participating in program	6	2	2
Clinic site(s) structure	1 Academic hospital-based clinic; 1 community-based clinic	1 Academic based virtual clinic; 1 county hospital-based virtual clinic	VA-based virtual clinic
Patient population	Large metropolitan area	Large metro area; majority Hispanic	Large metropolitan area
Allied health or nonphysiatry clinicians	PT, OT, SLP, LPC, neuropsych	Not as initial screeners. Will refer out	PT, psychology, neuropsych
Patient funding requirements	Payor status or cash pay	All payors, including county health coverage	Veteran benefits
Special training for clinicians participating	None	Not formal	None

This table demonstrates key variables for the three established models.

LPC, licensed professional counselor; OT, occupational therapy; PT, physical therapy; SLP, speech and language pathology.

referral. A primer on post-COVID-19 care is being developed and will include information on nutrition, sleep, safe use of supplements, fatigue management, mental health services, and community services for financial and work-related assistance. This will be initially directed to physicians and patients in our health care system but will be scaled to allow dissemination into the community and safety net clinics, as defined earlier. A 30-min in-person or video-enabled telemedicine return visit will be used for and health coaching. Recommendations from this team will be communicated to the health care team and primary care physician to enhance transition of care after completion of therapies. Research activities will be conducted with the University of Florida Clinical and Translational Science Institute that will add a PASC working group to their current COVID task force. To overcome the key challenge of identifying a patient cohort, efforts will initially focus on identifying this group using medical record-based *International Classification of Diseases* codes and an existing institutional review board–approved integrated data repository. Other research aims will include describing characteristics and tracking outcomes using clinical measures reported in earlier sections.

## CONCLUSIONS

Although these models use similar measures for screening and rehabilitation interventions, their unique aspects should be noted. The UT Southwestern was an early adopter, the UT Health San Antonio clinic provides services to a pediatric population and to ethnic minority groups, and the VA Greater Los Angeles Healthcare System clinic cares for a veteran population. Hennepin Healthcare is using specialists to train primary care providers to scale their intervention, and University of Florida is incorporating integrative therapies into its rehabilitation program. In addition, all these programs are dynamic in their components because of the rapidly changing environment related to the pandemic. Table 2 shows a comparison between the three established models.

It has become clear that the next surge of the COVID-19 pandemic consists of patients experiencing functional declines

from PASC. The lack of clarity regarding the physiology of PASC, fluctuating course, and lack of validated treatment options, along with high numbers of survivors has created a perfect storm and high demand for post-COVID treatment. As postacute COVID-19 clinics are being established as hereinabove, models of care in different settings need to be multidisciplinary and patient centered. Based on our collective experience and changing current evidence, other practical recommendations include the use of symptom inventories and assessment tools, testing that is tailored to the patient's symptoms, and education of all clinicians in a system. We also recommend patient visits be of longer duration than a usual visit and up to 1 hr in length for the initial visit. As programs develop, it is important to standardize evaluation and measures to the extent possible to permit research on interventions and outcomes. Multiple resources are now available for clinicians and therapists through the Centers for Disease Control and Prevention.<sup>23</sup>

Furthermore, there is a moral and societal imperative to ensure equitable access to post-COVID therapeutic and rehabilitative care for marginalized minority groups. Vulnerable populations include those who are Black, Indigenous, and Latinx who lack routine access to health care, are disproportionately affected by COVID-19, and may lack access to the Internet and other technology.<sup>19</sup> Programs should be administered in a way that addresses systemic inequities in social determinants of health and demonstrate culture competence.

Ultimately, we need to recognize long COVID or PASC as a chronic disease and ensure that appropriate resources are allocated. A comprehensive national plan and adequate resourcing from both federal and state governments is required to avoid disability and prolonged debility. The models presented illustrate the varied psychiatric approaches to tackling the management of this unplanned disorder with the goal of optimal quality of life for those with PASC.

## REFERENCES

1. World Health Organization: Rolling updates on coronavirus disease (COVID-19). Available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen>. Accessed April 18, 2021

2. Del Rio C, Collins LF, Malani P: Long-term health consequences of COVID-19. *JAMA* 2020; 324:1723–4
3. Office for National Statistics: Prevalence of ongoing symptoms following coronavirus (COVID-19) infection in the UK: 1 April 2021. Available at: <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/prevalenceofongoingsymptomsfollowingcoronaviruscovid19infectionintheuk/1april2021>. Accessed April 18, 2021
4. Carfi A, Bernabei R, Landi F, Gemelli Against COVID-19 Post-Acute Care Study Group: Persistent symptoms in patients after acute COVID-19. *JAMA* 2020;324:603–5
5. Havervall S, Rosell A, Phillipson M, et al: Symptoms and functional impairment assessed 8 months after mild COVID-19 among health care workers. *JAMA* 2021;325:2015–6
6. Huang C, Huang L, Wang Y, et al: 6-Month consequences of COVID-19 in patients discharged from hospital: a cohort study. *Lancet* 2021;397:220–32
7. Tenforde MW, Kim SS, Lindsell CJ, et al: Symptom duration and risk factors for delayed return to usual health among outpatients with COVID-19 in a multistate health care systems network—United States, March–June 2020. *MMWR Morb Mortal Wkly Rep* 2020;69:993–8
8. Collins FS: NIH launches new initiative to study “Long COVID.” National Institutes of Health website February 23, 2021. Available at: <https://www.nih.gov/about-nih/who-we-are/nih-director/statements/nih-launches-new-initiative-study-long-covid>. Accessed June 27, 2021
9. Nalbandian A, Sehgal K, Gupta A, et al: Post-acute COVID-19 syndrome. *Nat Med* 2021;27:601–15
10. Davis HE, Assar GS, McCorkell L, et al: Characterizing long COVID in an international cohort: 7 months of symptoms and their impact. *Medrxiv* 2020. 12.24.20248802; doi: <https://doi.org/10.1101/2020.12.24.20248802>
11. Logue JK, Franko NM, McCulloch DJ, et al: Sequelae in adults at 6 months after COVID-19 infection. *JAMA Netw Open* 2021;4:e210830
12. Taquet M, Geddes JR, Husain M, et al: 6-month neurological and psychiatric outcomes in 236 379 survivors of COVID-19: a retrospective cohort study using electronic health records. *Lancet Psychiatry* 2021;8:416–27
13. Martillo M, Dangayach N, Tabacof L, et al: Postintensive care syndrome in survivors of critical illness related to coronavirus disease 2019: cohort study from a New York City critical care recovery clinic. *Crit Care Med* 2021;49:1427–38
14. Steere HK, Polich G, Silver JK, et al: Ambulatory rehabilitation of patients hospitalized with SARS CoV-2 infections: early pandemic experience in New York City and Boston. *PM R* 2021;13:81–6
15. Health Measures. Available at: <https://www.healthmeasures.net/index.php>. Accessed April 13, 2021
16. Verduzco-Gutierrez M, Bean AC, Tenforde AS, et al: How to conduct an outpatient telemedicine rehabilitation or prehabilitation visit. *PM R* 2020;12:714–20
17. Shibata S, Fu Q, Bivens TB, et al: Short-term exercise training improves the cardiovascular response to exercise in the postural orthostatic tachycardia syndrome. *J Physiol* 2012; 590(pt 15):3495–505
18. Odonkor CA, Sholas MG, Verduzco-Gutierrez M, et al: African American patient disparities in COVID-19 outcomes: a call to action for physiatrists to provide rehabilitation care to black survivors. *Am J Phys Med Rehabil* 2020;99:986–7
19. Verduzco-Gutierrez M, Lara AM, Annaswamy TM: When disparities and disabilities collide: inequities during the COVID-19 pandemic. *PM R* 2021;13:412–4
20. Annaswamy TM, Verduzco-Gutierrez M, Frieden L: Telemedicine barriers and challenges for persons with disabilities: COVID-19 and beyond. *Disabil Health J* 2020;13:100973
21. Alschuler L, Weil A, Horwitz R, et al: Integrative considerations during the COVID-19 pandemic. *Explore (NY)* 2020;16:354–6
22. Audette J: SARS-COV-2 infection, post-COVID 19 symptoms and acupuncture. Available at: <https://medicalacupuncture.org/for-physicians/research/audette-covid-paper>. Accessed April 18, 2021
23. Centers for Disease Control and Prevention: Post-COVID conditions: information for healthcare providers. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-care/post-covid-conditions.html>. Accessed April 14, 2021