

COVID-19 Core Outcome Measures



APTA Academies and Sections Consensus Statement

APTA's academies and sections formed the Cross-Academy/Section COVID-19 Core Outcome Measure Task Force to identify a core set of outcome measures for patients diagnosed with COVID-19, across the continuum of care and in all settings. A core set of outcome measures aids in describing the trajectory of recovery from COVID-19 and facilitates research initiatives.

Core Outcome Measures

A set of core outcome measures enables clinicians to use consistent, objective measurement strategies in developing effective plans of care and allows for the aggregation of data on the impacts of interventions related to COVID-19 on the movement system. These measures apply across patient populations and are recommended for all patients diagnosed with or recovering from COVID-19 who have goals to improve in these five constructs. To ensure consistency and better understand trends in functional recovery, use these core outcome measures according to the algorithm beginning on page 3*:

1. Cognition: Saint Louis University Mental Status examination (SLUMS).
2. Quality of Life: PROMIS Global 10 (clinical practice or U.S. research) EQ-5D-5L (international research).
3. Strength: Medical Research Council Sum Score (MRC-SS).
4. Function: Short Physical Performance Battery (SPPB):
 - Provide raw score for gait speed for comparison with other patients and across the continuum.
 - Provide raw score for the 5 Times Sit-to-Stand Test for comparison with other patients across the continuum.
5. Endurance: 2-Minute Step Test.

Clinical Considerations

General Recommendations

- Review the mental health, neurology, and cardiovascular and pulmonary considerations within the algorithm before beginning and while administering the tests as noted on the algorithm.
- Attempt all measures if the patient can consistently follow commands, keeping in mind that not all measures must be performed on the same visit.
- The tests are presented in order of expected difficulty, but use your clinical judgment to determine the optimal order of completion for each patient.

Communicate and collaborate with the patient's other providers when there are any concerns regarding vital signs, response to activities, or new or adversely progressive signs or symptoms.

Before Performing the Core Outcome Measures

- Assess the patient for safety and ability to participate.
- Perform an individualized safety screening (see "Start" on the algorithm) based on the patient's severity of illness, past medical history, and current situation.

- Screen for the patient's cognitive ability to complete the core outcome measures. Consider these five simple commands: "Close and open your eyes." "Look at me." "Stick out your tongue." "Nod your head." "Raise your eyebrows."
- If delirium is a concern, complete the Richmond Agitation-Sedation Scale before performing the Confusion Assessment Method.
- Screen cardiovascular risk status prior to exercise and endurance testing, using a weighted risk-factor calculator such as the [American College of Cardiology ASCVD Risk Estimator Plus](#).
- Screen for venous thromboembolism disease.

Collaborate with other health professionals as applicable to the setting.

While Performing the Core Outcome Measures

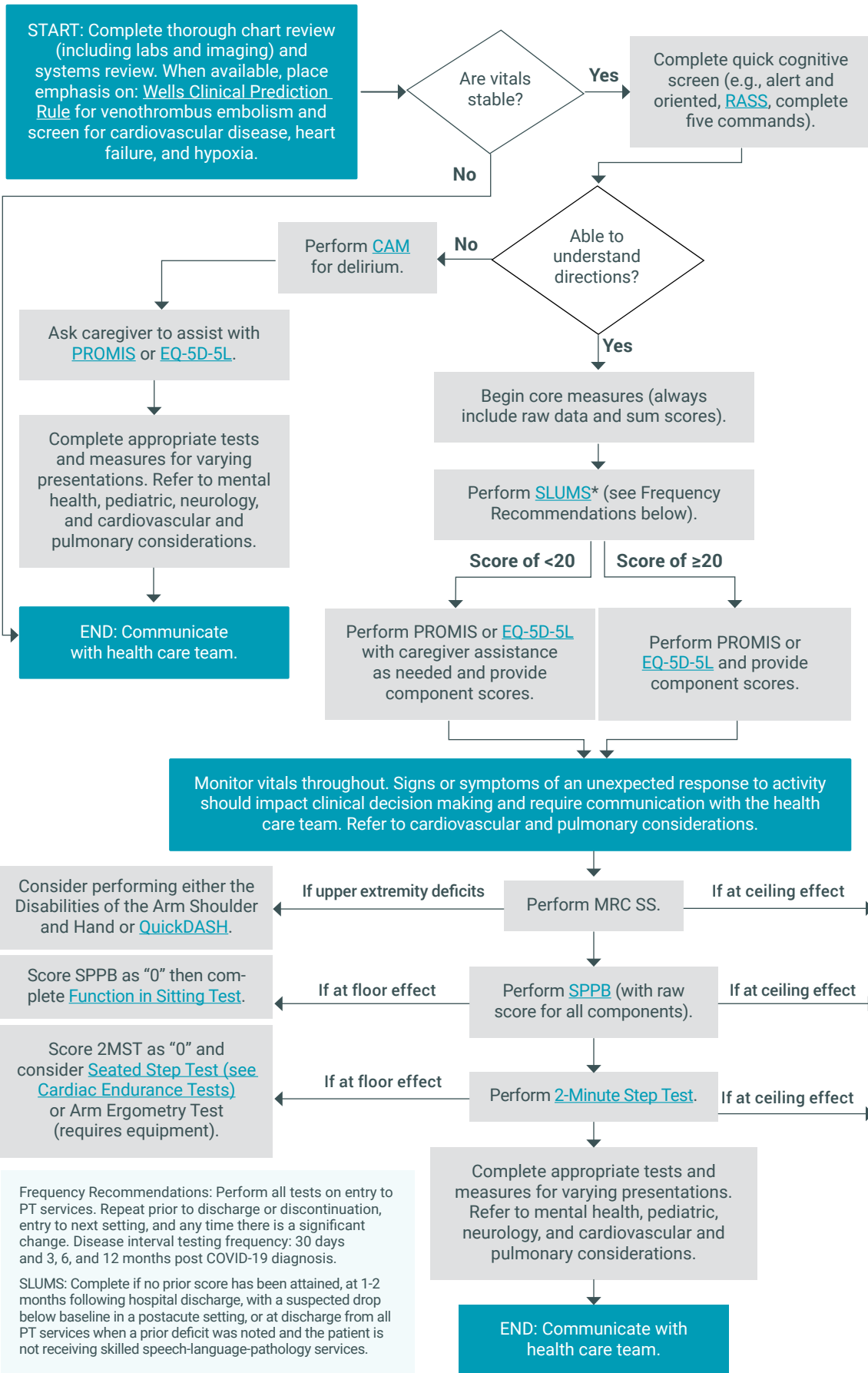
- Monitor the patient's vital signs throughout examination and intervention due to the high prevalence of cardiorespiratory complications for this patient population.
- For patients functioning at a lower level who are unable to earn a score on the outcome measure, record the test as a 0 to allow for tracking of change across the continuum and to inform future collaborative research initiatives.
- For patients who score at the ceiling or floor of a measure, see the progression recommendations within the algorithm. Return to the core set for all subsequent measures; for example, when the patient's status has improved beyond the floor effect or regressed to below the ceiling effect of the outcome measure.
- To capture changes in the patient's abilities, return to the core set for all reassessments.

After Performing the Core Outcome Measures

- Complete additional tests and measures warranted by the patient's clinical presentation.
- If any outcome measure cannot be completed, score the test as a 0 and indicate the reason it was not possible to complete, such as the patient declined to participate, or the patient's delirium prevented participation. This will enable better documentation of change later in the continuum of care.
- For guidance with patients who present with balance deficits, see the neurology considerations within the algorithm.
- Even if in your practice setting you might not report or track changes with each of the proposed outcomes measures, each score remains significant. The score a patient receives at your setting should be shared across the continuum of illness to serve as a baseline or intermediate time point for measuring change in later settings.

*The Task Force is developing recommendations for secondary outcome measures to provide a more full understanding of impairments, including recommendations for tests and measures for individuals across the lifespan; those with lower functional levels, such as patients still in the ICU; and those with higher functional levels, such as athletes returning to sport. The Task Force also is developing a recommendation to screen for additional impairments such as delirium, depression, anxiety, and upper extremity dysfunction.

COVID-19 Core Outcome Measures: Clinical Application Algorithm



SPECIAL CONSIDERATIONS

Cardiovascular and Pulmonary: Refer to the American College of Sports Medicine for screening and exercise testing guidelines. Follow individualized vital sign parameter orders from the provider. Throughout the evaluation, record a [dyspnea scale score](#) and [rate of perceived exertion](#). Complete the [6-Minute Walk Test](#) when the patient is able to complete the gait speed portion of the SPPB (as space allows). Consider the [Ankle Brachial Index](#).

Mental health: Consider the impact of social isolation, emotional state, functional ability loss, critical care survivorship, and changes in work or life situations on the patient's mental health, and screen and refer appropriately. Consider the [Hospital Anxiety and Depression Screen](#) and screening for posttraumatic stress disorder.

Pediatric Population: Patients under 18 years of age require special considerations, which will be addressed in a separate algorithm under development.

Neurology: Consider the impact of impaired sensory systems and coordination. If there are dual-task deficits, consider the [Timed Up and Go Cognitive Test](#). For upper extremity neurological deficits, consider the [Finger Tapping Test](#) and the [Goal Attainment Scale](#). For lower extremity neurological or balance deficits, consider the [Neuro Core Outcomes Set](#). If presentation is similar to stroke, refer to [StrokeEDGE](#).

Frequency Recommendations: Perform all tests on entry to PT services. Repeat prior to discharge or discontinuation, entry to next setting, and any time there is a significant change. Disease interval testing frequency: 30 days and 3, 6, and 12 months post COVID-19 diagnosis.

SLUMS: Complete if no prior score has been attained, at 1-2 months following hospital discharge, with a suspected drop below baseline in a postacute setting, or at discharge from all PT services when a prior deficit was noted and the patient is not receiving skilled speech-language-pathology services.

KEY: *Link to developer website, and use search feature to find measure. Multiple measure descriptions are available; select the most appropriate for your patient.

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Process

The Cross-Academy/Section COVID-19 Core Outcome Measure Task Force was organized in April 2020 and comprises members appointed by the following APTA academies and sections: the Academy of Acute Care Physical Therapy, the Cardiovascular and Pulmonary Section, APTA Geriatrics, the Home Health Section, the Academy of Neurologic Physical Therapy, the Academy of Oncologic Physical Therapy, the Academy of Orthopaedic Physical Therapy, and the Private Practice Section. Members include clinicians, academicians, and scientists who provide perspectives across the continuum of patient care and from varied clinical specialty areas.

We used available information from the United States and other countries to determine the most common impairments related to COVID-19, and then identified constructs — cognition, endurance, function, quality of life, and strength — that best reflect these impairments.

We identified key documents that section and academy members would reference for guidance on outcome measures for patients diagnosed with COVID-19. From these documents, we identified and screened 90 applicable outcome measures for inclusion and exclusion criteria (the detailed methods of which are forthcoming). The outcome measures that met these criteria moved forward for possible inclusion as a core outcome measure. We shared the criteria on the APTA website to obtain input and ensure the list was complete. Fifty-two respondents from a variety of clinical practice settings and specialty areas identified seven additional measures that quantified the key constructs. Those seven met the inclusion and exclusion criteria and were added to the discussion for core outcome measures.

From the outcomes that met the criteria for each of the constructs, we identified measures that captured change across the greatest number of functional levels, from dependent to return-to-high-level activities, such as sports. We considered additional factors, which included: the degree to which the measure captured the desired construct, the psychometric properties of the measure, the need for and availability of training and instructions for the measure, availability in different languages, level of difficulty of patient directions, and the time required to complete the measure.

Following construct-specific discussions, we combined the top identified measures from each construct into a draft set of core outcome measures. We reviewed this draft set for overall time to complete, appropriateness across functional levels, and ability to fully capture the desired constructs. We then considered all other measures within each construct as an addition or replacement for each measure within the draft set, repeating this process until we reached consensus that we could make no further improvements.

The final set of core outcome measures is supported by evidence to capture change in cognition, endurance, function, quality of life, and strength across the greatest number of functional levels for individuals diagnosed with COVID-19. The Task Force recommends that all patients diagnosed with COVID-19 with goals in these constructs complete these outcome measures. These recommendations will allow for improved clinical decision-making and monitoring of change across the continuum of care.

Next Step

Outline processes for selecting the core outcome measures, including methodology, measures removed from consideration, and measures considered but not selected.

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