



# Evaluating and Supporting Patients Presenting With Fatigue Following COVID-19

Clinician Outreach and Communication Activity (COCA) Call

Thursday, September 30, 2021

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- The presentation will not include any discussion of the unlabeled use of a product or a product under investigational use, except part of the presentation will address the use of COVID-19 vaccine outside of approved age group, except parts of the presentation will discuss treatments for COVID and long COVID which are all under investigational use.
- CDC did not accept commercial support for this continuing education activity.

# Objectives

At the conclusion of today's session, the participant will be able to accomplish the following—

1. Determine which clinical assessments and tests are needed for an individual patient with fatigue.
2. Explain how post-exertional malaise impacts patient management.
3. Describe how to apply health equity considerations to clinical care, activity management, and reconditioning of long COVID patients.

# To Ask a Question

- Using the Zoom Webinar System
  - Click on the “Q&A” button
  - Type your question in the “Q&A” box
  - Submit your question
- If you are a patient, please refer your question to your healthcare provider.
- If you are a member of the media, please direct your questions to CDC Media Relations at 404-639-3286 or email [media@cdc.gov](mailto:media@cdc.gov).

# Today's Presenters

## **Maureen Miller, MD, MPH**

Research, Surveillance, and Management Unit  
Natural History/Post-COVID Conditions Team  
Epidemiology Task Force  
COVID-19 Response  
Centers for Disease Control and Prevention

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Department of Physical Medicine and Rehabilitation  
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## **Joseph E. Herrera, DO**

Professor and System Chair of Rehabilitative Medicine  
Department of Rehabilitation and Physical Medicine  
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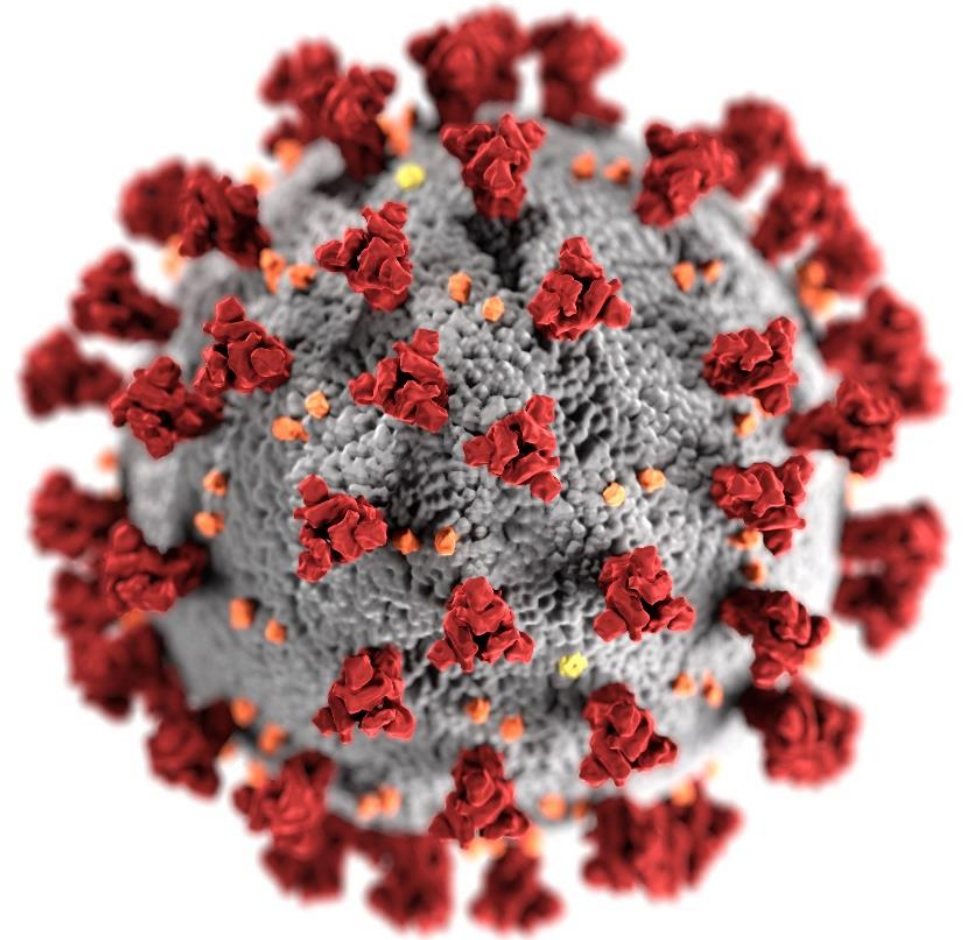
## **Monica Verduzco Gutierrez, MD**

Professor and Chair of Physical Medicine and Rehabilitation  
Department of Physical Medicine and Rehabilitation  
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# Evaluating and Supporting Patients Presenting With Fatigue Following COVID-19

CDC Clinician Outreach and  
Communication Activity (COCA)

Maureen J. Miller, MD, MPH  
Medical Officer  
CDC COVID-19 Response  
Epidemiology Task Force  
Natural History/Post-COVID Conditions Team

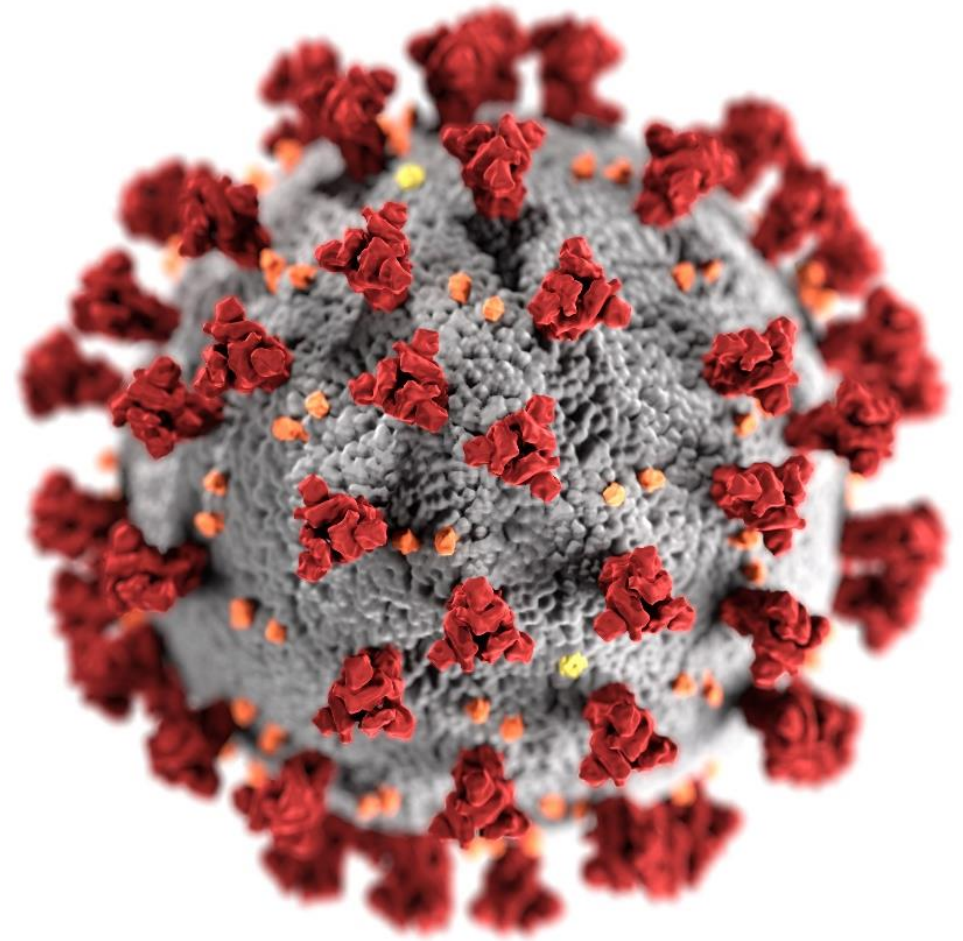


[cdc.gov/coronavirus](https://cdc.gov/coronavirus)





The findings and conclusions in this presentation are those of the author(s) and do not necessarily represent the official position of the Centers for Disease Control and Prevention (CDC).



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# Post-COVID Conditions



- “**Post-COVID conditions**” is an umbrella term for the wide range of physical and mental health consequences that are present **four or more weeks after SARS-CoV-2 infection**, *including by patients who had initial mild or asymptomatic acute infection*
  - Associated with a spectrum of physical, social, and psychological consequences
  - Conditions are heterogeneous and attributable to different underlying pathophysiologic processes
- “Long COVID” is used by many patients for post-COVID conditions



Post-COVID Conditions: Information for Healthcare Providers:

<https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-care/post-covid-conditions.html>

# Proposed Framework Terminology for Conditions Following COVID-19

## General Consequences of Illness and Hospitalization

- Post ICU-syndrome
- Other complications of illness and treatment

## Post-Acute Consequences of SARS-CoV-2 Infection (PASC)

- System-specific pathology (e.g., lung fibrosis, stroke)
- Clinically significant symptoms with unclear pathology (e.g., ME/CFS\*-like, dysautonomia)
- Objective finding of unclear clinical significance (incidental)

**These conditions frequently overlap, patients may experience any combination**

\*Myalgic Encephalomyelitis/Chronic Fatigue Syndrome

# Wide Range of Longer-Term Adverse Health Outcomes from COVID-19

- Worsening pre-existing conditions and disabilities
  - People with disabilities may face barriers to adopting mitigation strategies and access to care
  - Prior workplace accommodations may not be sufficient
- Direct organ damage (lung, heart, kidney, nervous system damage from infection or hypercoagulability events)
- Debilitating symptoms with unclear pathology (fatigue, cognitive impairment, dysautonomia, post-exertional malaise, sleep problems, joint pain, tachycardia, etc.)
- Impaired mental health due to anxiety, depression, PTSD\*



\*Post-Traumatic Stress Disorder

# How Frequently Do Post-COVID Conditions Result in Disability?

- Systematic data on outcomes lasting longer than 12 months not yet available
- Most patients' **symptoms slowly improve** with time
  - Cohort study of COVID-19 participants found decrease in those reporting symptoms from 13.3% at  $\geq 28$  days to 2.3% at  $\geq 12$  weeks [Nature 2021; 27: 626-31](#)
  - Study from China on hospitalized COVID-19 patients found **88% returned to their original work by 12 months** (this excluded 50% who were retired or not employed before COVID-19) [Lancet 2021; 398: 747-58](#)
- Extent of disability associated with persistent symptoms is unknown

**Given size of pandemic, even 1% disability at one year will have impact**



# Evidence of Disability Associated with Post-COVID Conditions

“**Post-COVID-19 Symptoms Were Worse Than Cancer’s Effect**” – JAMA News summary of CDC’s MMWR article [JAMA 2021; 326; 692](#); [MMWR 2021; 70: 967-971](#)

- Compared with patients referred for cancer rehabilitation, post-COVID patients had poorer physical health
  - More difficulty **doing usual work** (37.2% versus 20.4%) or participating in **activities with friends** (33.0% versus 18.8%)
  - **Reduced endurance** in 6-minute walk test (distance of 303m versus 377m)

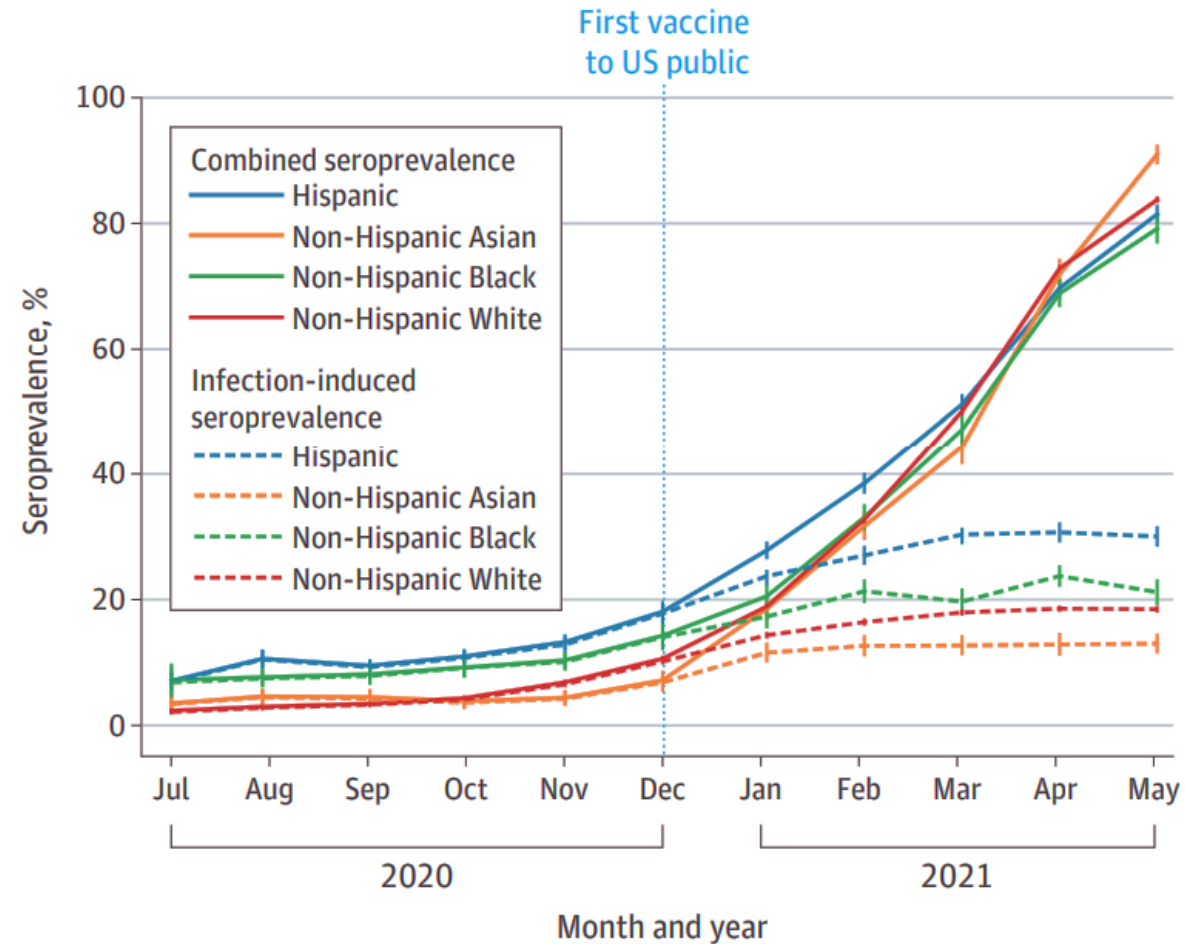
**Patient and advocacy groups’** reports have brought attention to disability associated with post-COVID conditions and the importance of including patients and caregivers in related research



# Health Equity

- Occurrence of post-COVID conditions is expected to reflect the disproportionate incidence of infection
- Infection-induced seroprevalence may suggest risk for developing long COVID by group
  - U.S. blood donor data indicate higher infection in Hispanic and Non-Hispanic Black persons than for other racial and ethnic groups

**B** Race and ethnicity



Jones JM et al. Estimated US Infection- and Vaccine-Induced SARS-CoV-2 Seroprevalence Based on Blood Donations, July 2020-May 2021. *JAMA* 3 Sept 2021.



# CDC's Efforts Addressing Post-COVID Conditions

- **Examples of CDC's current efforts include:**
  - Partnering with clinicians
  - Analyzing electronic health data
  - Establishing studies with external partners





# CDC Studies of Post-COVID Conditions

- **Enroll cohorts of patients** with COVID-19 and controls without COVID-19
- **Assess baseline health** of the participants
- **Monitor participants over time** and for multiple years
- **Assess outcomes of interest** including:
  - Long-term immunologic response
  - Cardiovascular, respiratory, renal, neurological, psychiatric, mental and physical functioning
- **Identify epidemiologic risk factors**



# CDC Will Continue to Explore:


- **Frequency, severity, and duration** of post-COVID conditions
- **Groups disproportionately impacted** by post-COVID conditions
- Association of **SARS-CoV-2 variants and vaccination** with the incidence of post-COVID conditions
- Models of **health care to assure equity and access**

# Summary: What are Post-COVID Conditions?


- New, returning, or ongoing health problems 4 or more weeks after infection
- Not uncommon
- May occur among patients with COVID-19 regardless of acute illness severity
- In addition to respiratory symptoms, **patients may present with fatigue, sleeping difficulties, depression, anxiety, palpitations, joint pain, and post-exertional malaise**; changes in renal function, nervous and circulatory systems also reported

# Next...



Clinical Guidance |  [Free Access](#)

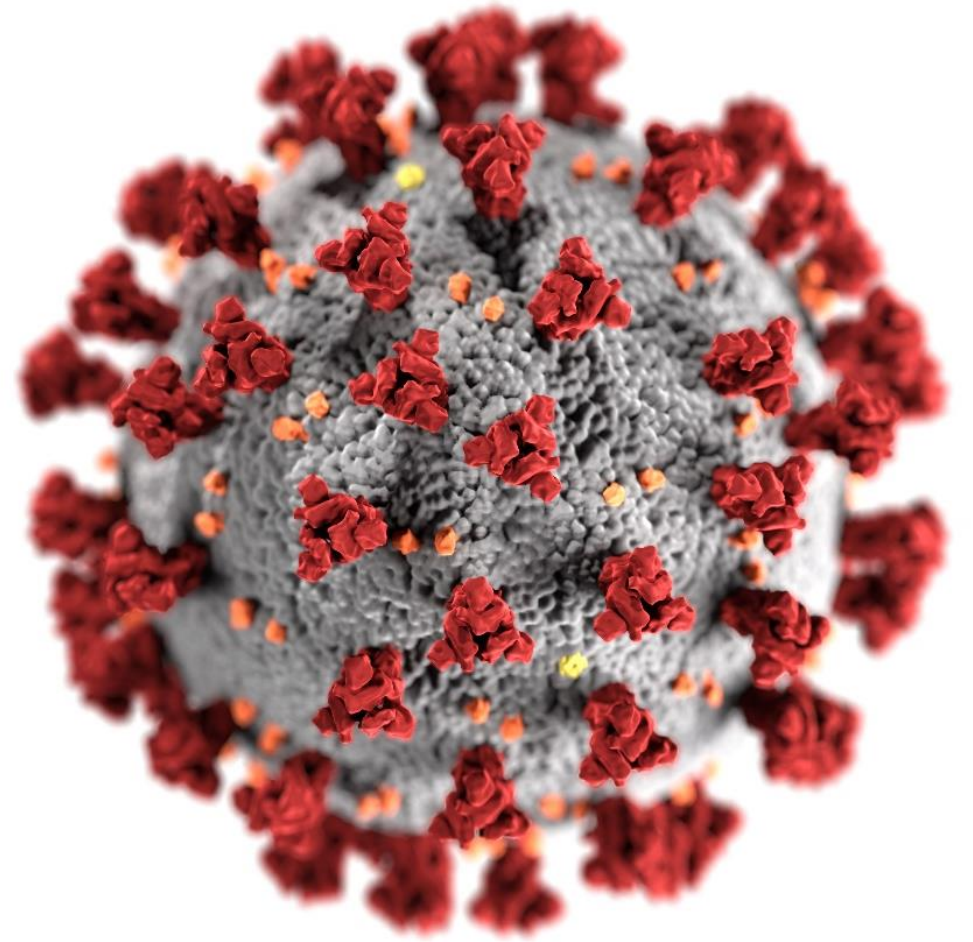
## Multidisciplinary collaborative consensus guidance statement on the assessment and treatment of fatigue in postacute sequelae of SARS-CoV-2 infection (PASC) patients

Joseph E. Herrera DO, William N. Niehaus MD, Jonathan Whiteson MD, Alba Azola MD, John M. Baratta MD, MBA, Talya K. Fleming MD, Soo Yeon Kim MD, Huma Naqvi MD, Sarah Sampsel MPH , Julie K. Silver MD, Monica Verduzco Gutierrez MD, Jason Maley MD, Eric Herman MD, Benjamin Abramoff MD, MS

First published: 04 August 2021 | <https://doi.org/10.1002/pmrj.12684>



**Thank you!**



For more information, contact CDC  
1-800-CDC-INFO (232-4636)  
TTY: 1-888-232-6348 [www.cdc.gov](http://www.cdc.gov)

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.



# **Multi-Disciplinary Collaborative Consensus Guidance Statement on the Assessment and Treatment of Fatigue in Post-Acute Sequelae of SARS-CoV-2 infection (PASC) Patients**

**September 30, 2021**

**Faculty**

**Benjamin A. Abramoff, MD, MS, Penn Medicine**

**Joseph E. Herrera, DO, Icahn School of Medicine at Mount Sinai**

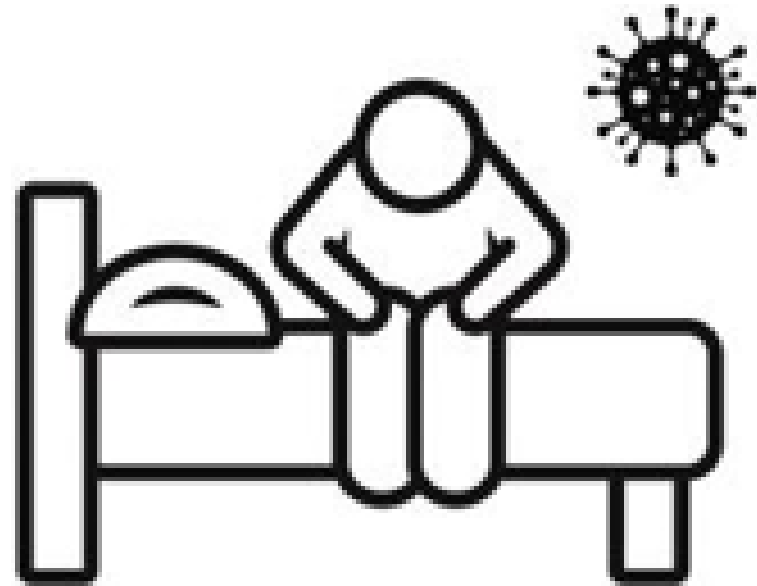
**Monica Verduzco-Gutierrez, MD, UT Health San Antonio**

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# Millions of Americans have survived COVID-19



Months later, many still struggle to get out of bed.

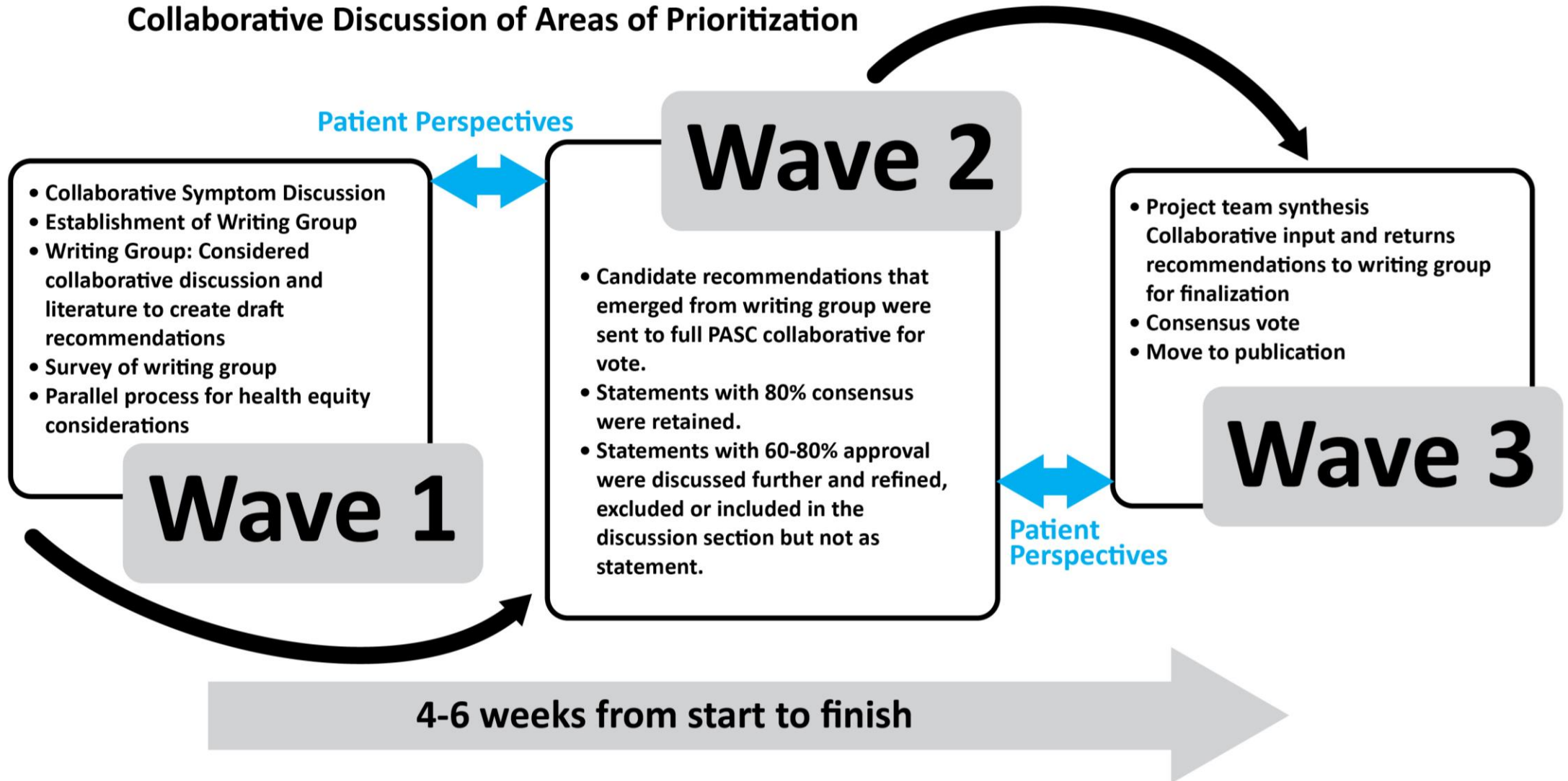
# Learning Objectives

- Apply the PASC Consensus Guidance Statement Methods into everyday practice
- Identify and diagnose fatigue in individuals with PASC
- Utilize assessment recommendations
- Differentiate and apply appropriate PASC-related fatigue treatments
- Identify health equity considerations and examples in PASC-related fatigue
- Summarize the future directions in assessing and treating PASC-related fatigue

NOTE: These Consensus Guidance Statements are intended to reflect current best practices in patient assessment, testing, and treatments. They should not preclude clinical judgment and must be applied in the context of the specific patient, with adjustments for patient preferences, comorbidities, and other factors.

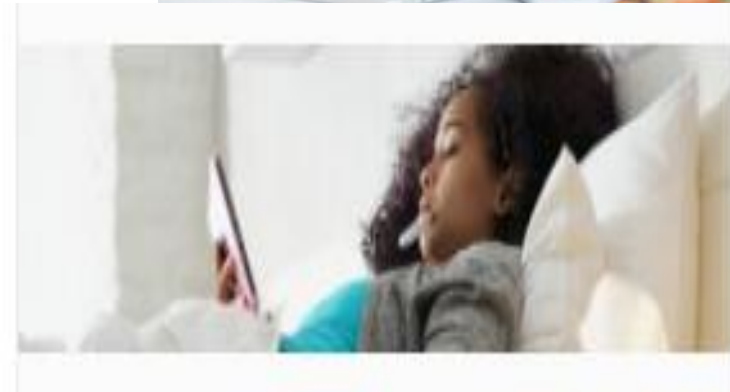
# Consensus Statement Methodology

## Collaborative Discussion of Areas of Prioritization



# Fatigue

- Fatigue is among the most common persistent symptoms following COVID-19 in both individuals who have been hospitalized and those who have not.
- Fatigue can be physical, cognitive, or emotional, mild to severe, intermittent to persistent, and affect a person's energy, motivation, and concentration
- Individuals are seeking care from their clinicians for fatigue following COVID-19



# Fatigue Assessment Recommendations

#	Statement
1	Fatigue patterns throughout their normal day
1a	Patient responses to initiating and escalating activity on their fatigue.
1b	Changes in daily functioning and activity levels.
1c	Physical functioning and endurance should be assessed in order to inform activity and therapy recommendations.
2	Assess for changes in activities of daily living, independent activities of daily living, school, work, and avocational (i.e., hobbies)
3	A full patient history with review of pre-existing conditions should be conducted
4	Patients should be evaluated for conditions that may exacerbate fatigue symptoms and warrant further testing and potential subspecialty referral (see Table 2)
5	Investigate medications that may be contributing to fatigue. Of note, antihistamine, anticholinergic, and antidepressant/anxiolytic medications can contribute to fatigue in patients with PASC.
6	Basic lab work-up should be considered in new patients or those without lab work-up in the 3 months prior to visit including complete blood count with differential, chemistries including renal and hepatic function tests, thyroid stimulating hormone, c-reactive protein or erythrocyte sedimentation rate, and creatinine kinase. Other laboratory tests may be considered based on the results of the above tests or if there is specific concern for co-morbid conditions as outlined in Table 2.

**TABLE 2: Common PASC System Manifestations, Symptoms, Additional Testing/Studies and Referral Options**

	Further studies to consider in addition to basic laboratory evaluation	Referral
<b>Cardiovascular</b>	B-type natriuretic peptide (BNP), troponins, D-dimer, chest x-ray (CXR), electrocardiogram (EKG), echocardiogram (ECHO), exercise stress test/cardiopulmonary exercise test (EST/CPET), Holter monitor, cardiac magnetic resonance imaging	Cardiology
<b>Pulmonary</b>	D-dimer, pulmonary function tests (PFTs), CXR, computerized tomography (CT) chest (w/contrast if concerned for a pulmonary embolism)	Pulmonology
<b>Endocrine</b>	Thyroid stimulating hormone (TSH)/Free T4 (thyroxine), cortisol levels, growth hormone, luteinizing hormone (LH), follicle stimulating hormone (FSH), testosterone (men), estradiol (women)	Endocrinology

**TABLE 2: Common PASC System Manifestations, Symptoms, Additional Testing/Studies and Referral Options**

	Further studies to consider in addition to basic laboratory evaluation	Referral
<b>Autoimmune</b>	Imaging of affected joints, antibody screen based on ongoing symptoms	Rheumatology
<b>Mood Disorders</b>	An anxiety and depression screen (for example, the Hospital Anxiety and Depression Scale (HADS), Beck Depression Inventory (BDI) fast screen; Patient Health Questionnaire ( PHQ)-2/9, Geriatric Depression Scale (GDS)	Psychiatry
<b>Sleep Disorders</b>	Sleep apnea screen (for example, the STOP-BANG questionnaire or Epworth Sleepiness Scale (ESS)) overnight sleep study for oximetry and sleep apnea	Sleep Medicine



# Relationship to ME/CFS

- Fatigue in individuals with PASC may appear similar to myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS)
- Some individuals with PASC may later develop ME/CFS
- The majority of individuals with PASC do not meet ME/CFS diagnostic criteria, in the experience of the collaborative
- Diagnostic criteria for ME/CFS and additional information are available from CDC at <https://www.cdc.gov/me-cfs>
- The Collaborative's consensus guidance covers care of the general population of individuals with PASC, with consideration that individuals with PASC may have or develop ME/CFS

# TABLE 4: PASC Fatigue Treatment Recommendations

#	Statement
1	Begin an individualized and structured, titrated return to activity program.
2	Discuss energy conservation strategies.
3	Encourage a healthy dietary pattern and hydration.
4	Treat, in collaboration with appropriate specialists, underlying medical conditions, such as pain, insomnia/sleep disorders (including poor sleep hygiene), and mood issues which may be contributing to fatigue.



# TABLE 4: PASC Fatigue Treatment Recommendations

Classification of PASC Fatigue	Definition
<b>Mild</b>	<ul style="list-style-type: none"><li>• Intact mobility</li><li>• Can perform activities of daily living and do light housework (often with difficulty)</li><li>• Able to continue working or going to school but may have stopped other, nonessential activities</li><li>• Often take time off, require modifications to their schedule</li><li>• Use weekends to recover from their work week.</li></ul>
<b>Moderate</b>	<ul style="list-style-type: none"><li>• Decreased community mobility</li><li>• Limited in their performance of instrumental activities of daily living (particularly preparing meals, shopping, doing laundry, using transportation, and performing housework)</li><li>• Require frequent rest periods and naps and have generally stopped work or school.</li></ul>
<b>Severe</b>	<ul style="list-style-type: none"><li>• Individuals are mostly confined to the home</li><li>• May have difficulty with activities of daily living (eating, bathing, dressing, transferring, toileting, mobility) Leaving the home for these individuals is very limited and often leads to prolonged/severe after-effects.</li></ul>

# PASC Fatigue Treatment Recommendation #1: **aapm&r**

## Mild fatigue

**Begin an individualized and structured phased return to activity program**

- Continue all household and community activities that have been tolerated with a slow return to higher intensity activities
- Exercise following the “rule of tens” increasing duration, intensity, and frequency of activity/exercise by 10% every 10 days
- Using the Rate of Perceived Exertion (RPE) scale, start at RPE 10–11/Light and progressing to 14-15/Hard on resumption of exercise.
- Go back to previous level if activity is not tolerated

# PASC Fatigue Treatment Recommendation #1: **aapm&r**

## Moderate fatigue

**Begin an individualized and structured phased return to activity program**

- Continuation of household and limited community activities that have been tolerated
- Patients should begin an activity or aerobic exercise program with exertion at sub-maximal levels, RPE 9–11/Very Light-Light
- Consider referral to a rehabilitation therapist with knowledge of post-COVID care to guide an individually titrated, symptom-guided program.
- Go back to previous level if activity is not tolerated

# PASC Fatigue Treatment Recommendation #1: **aapm&r**

## Severe fatigue

**Begin an individualized and structured phased return to activity program**

- Continue any household activities that have been tolerated without symptom exacerbation
- Begin a physical activity program, including upper and lower extremity stretching and light muscle strengthening before targeted aerobic activity
- Once tolerated, patients can begin an activity or aerobic exercise program at submaximal levels, RPE 7–9/Extremely to Very Light
- Consider referral to a physician with knowledge of post-COVID care (such as a physiatrist) to guide an individualized rehabilitation program
- Go back to previous level if activity is not tolerated

# PASC Fatigue Treatment Recommendation #2: **aapm&r**

## The Four Ps

### Energy conservation strategies

- **Pacing.** Avoiding the push and crash cycle that is common in post-COVID recovery.
- **Prioritizing.** Encourages a patient to focus and decide on which activities need to get done and which activities can be postponed to avoid overexertion and crashing.
- **Positioning.** Modifying activities to make them easier to perform.
- **Planning.** Encourages the patient to plan the day or week to avoid overexertion and to recognize energy windows.

# PASC Fatigue Treatment Recommendation #2:

## Returning to work accommodations:

### Energy conservation strategies

- Working a limited number of hours
- Working from home
- Adjusting work activities
- Using durable medical equipment
- Additional breaks
- Adjusting the work environment
- Referral to vocational rehabilitation counselor can be helpful in structuring the return activities and communicating with employers



# PASC Fatigue Treatment Recommendation #3:



Encourage patients to follow a healthy dietary pattern and stay hydrated throughout the day.

- No scientific data to support the “prescription” of one specific diet for the management of PASC-related fatigue.
- Acute symptomatic COVID-19 is associated with a vigorous immune response and PASC theorized to be related to persistence of this immune dysregulation.
- Mast cell activation syndrome with histamine release suggested to play a role in PASC related-fatigue.
- Some dietary recommendations have been made for individuals with ME/CFS, and similar dietary recommendations may be beneficial for PASC-related fatigue.
- Fatigue related to autonomic dysfunction in individuals with PASC, specifically postural orthostatic tachycardia syndrome (POTS), can be partially addressed with adequate water and salt intake.
- Fatigue due to muscle atrophy in the context of weight loss is reported in PASC and can be improved with appropriate caloric and protein intake.

# PASC Fatigue Treatment Recommendation #4: **aapm&r**

Treat, in collaboration with appropriate specialists, underlying medical conditions, such as pain, insomnia/sleep disorders (including poor sleep hygiene), and mood issues which may be contributing to fatigue.

## **TABLE 2: Common PASC System Manifestations, Symptoms, Additional Testing/Studies and Referral Options**

- Cardiovascular
- Pulmonary
- Endocrine
- Autoimmune
- Mood disorders
- Sleep disorders

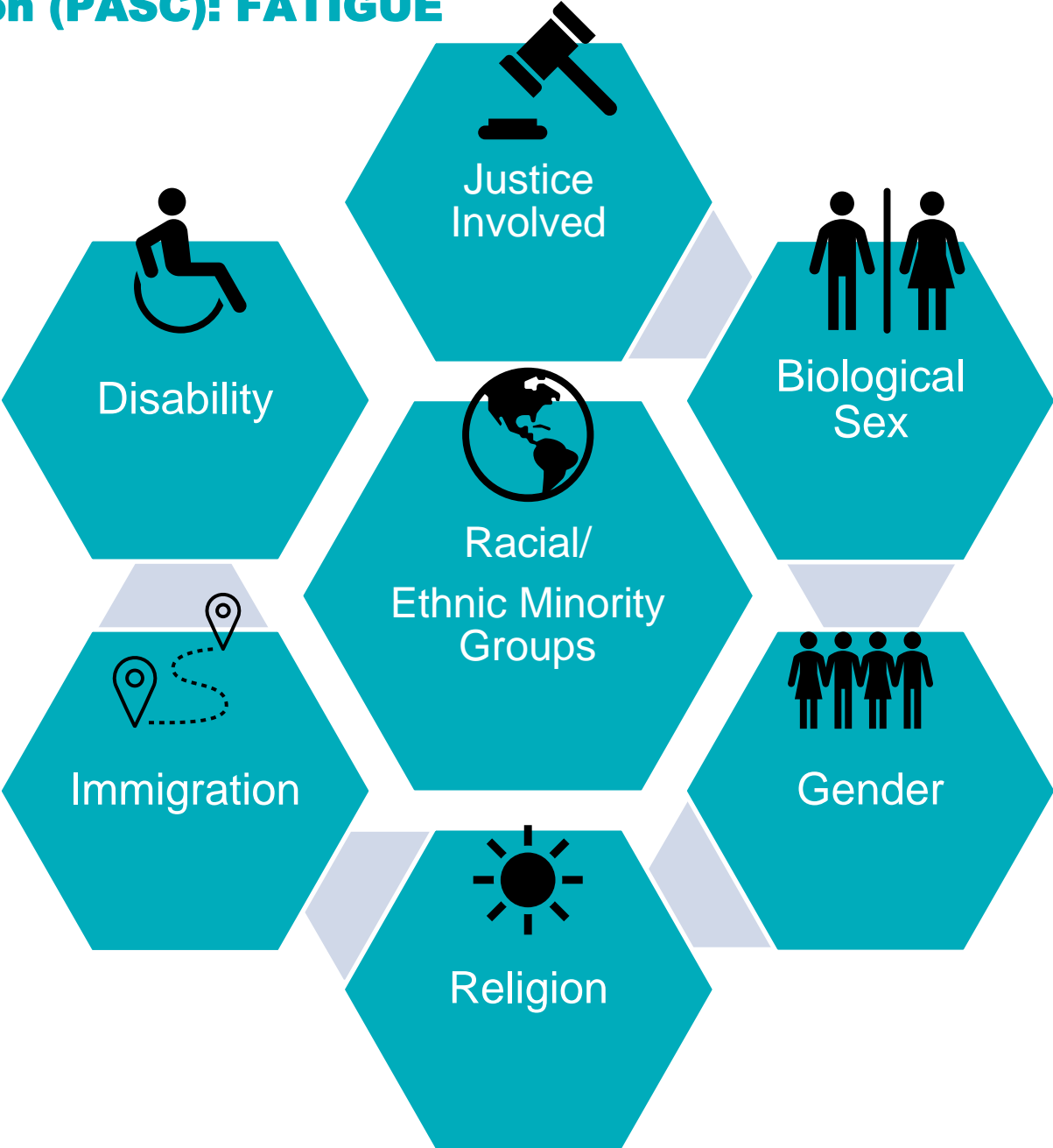
There was no consensus on the use of supplements or medications.

- Some PASC-collaborative clinics do not use pharmacologic agents whereas others use agents when conservative management has been tried and comorbid conditions have been addressed.
- Patients often express interest in and desire for medications and herbal remedies/supplements. It is important to specifically ask patients about all products that they may be using in order to provide appropriate counseling.


# Other therapies

- The use of acupuncture has also been reported by collaborative patient representative members to improve fatigue.
- Although there has not been direct evidence to support its use in PASC-related fatigue, there is some preliminary low-quality evidence that supports its use in ME/CFS.

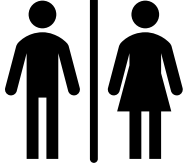
# Health Equity Considerations and Examples in Post-Acute Sequelae of SARS-CoV-2 Infection (PASC): FATIGUE



# Example 1: Health Equity Considerations and Examples in Post-Acute Sequelae of SARS-CoV-2 Infection (PASC): FATIGUE

Category	Comment	What is Known	Clinical Considerations
<p data-bbox="188 401 746 515"><b>Racial/Ethnic Minority Groups</b></p>  <p data-bbox="147 782 759 1339"><i>Example: People who identify as Black (including African-American), American-Indian/Alaska Native, Pacific Islander, Asian-American, and Mixed Race, and/or Latino/Hispanic (ethnicity)</i></p>	<p data-bbox="810 401 1200 1158">BIPOC (Black, Indigenous and People of Color) communities have been especially impacted by the global pandemic. worse outcomes after infection.</p>	<p data-bbox="1253 401 1643 1082">Social determinants of health, societal factors and structural racism have disproportionate effects on underinvested communities.</p>	<p data-bbox="1745 401 2339 872">PASC-related fatigue is multifactorial, with its effects compounded for individuals already under the burden of racial and ethnic disparities and injustice.</p> <p data-bbox="1745 893 2390 1360">Standardized treatment and management may decrease implicit bias. May require a multi-disciplinary approach to healthcare to address ongoing systemic inequities.</p>

## Example 2: Health Equity Considerations and Examples in Post-Acute Sequelae of SARS-CoV-2 Infection (PASC): FATIGUE

Category	Comment	What is Known	Clinical Considerations
<p><b>Biologic Sex</b></p>  <p><i>Example: Pregnant women</i></p>	<p>Physiologic and biologic sex differences should be considered for both the diagnosis and treatment of PASC-related fatigue.</p>	<p>Pregnant women frequently have pregnancy-related fatigue, and they may be at higher risk for more severe COVID-19 infections and symptoms, particularly women who have certain comorbidities and other characteristics (e.g., older age, diabetes, kidney disease, obesity).</p>	<p>Pregnant women who are status post COVID-19 infections may experience pregnancy-related fatigue in addition to PASC-related fatigue.</p> <p>The risks and benefits of medications and other interventions should be assessed for both mother and fetus.</p> <p>Exercise prescriptions may be impacted by symptoms such as excessive vomiting and weight loss in the 1st trimester and large girth, back pain, or pre-eclampsia in the 3rd trimester.</p>

# Health Equity Considerations and Examples in Post-Acute Sequelae of SARS-CoV-2 Infection (PASC): FATIGUE



## Example of Diversity, Equity, and Inclusion (DEI) Content Integrated into the Fatigue Consensus Guidance Statement

Symptoms of fatigue may be reported more commonly in female adults and in older age groups. (28) COVID-19 symptoms may be more severe in pregnant women (51) and pregnancy itself (and the post-partum period) is a well-known cause of fatigue due to a host of biologic and behavioral factors.



# Future Directions in Assessing and Treating PASC-Related Fatigue

- Individuals with PASC-related fatigue can experience a wide range of symptom severity, from bothersome to severe disability. Fatigue can lead to frustration and difficulty progressing with other treatment recommendations.
- The goal of this PASC Collaborative Consensus Guidance Statement is to create a coordinated and systematic approach to the evaluation and treatment of patients presenting with PASC.
- The recommendations represent a consensus of large national multidisciplinary collaborative of centers focused on the treatment of individuals with PASC.
- The recommendations are based on the most current available data, extrapolation from evidence in similar conditions, and the combined clinical experience of treating thousands of patients with PASC-related fatigue.
- The pathophysiology causing fatigue after COVID-19 still warrants ongoing research to better understand mechanisms and appropriate evaluation/treatment while acknowledging the cause of fatigue is likely multifactorial and may be specific to the individual.

Visit [www.aapmr.org/longcovid](http://www.aapmr.org/longcovid) to access the  
publication.

# To Ask a Question

- Using the Zoom Webinar System
  - Click on the “Q&A” button
  - Type your question in the “Q&A” box
  - Submit your question
- If you are a patient, please refer your question to your healthcare provider.
- If you are a member of the media, please direct your questions to CDC Media Relations at 404-639-3286 or email [media@cdc.gov](mailto:media@cdc.gov).

# Continuing Education

- All continuing education for COCA Calls is issued online through the CDC Training & Continuing Education Online system at <https://tceols.cdc.gov/>.
- Those who participate in today's COCA Call and wish to receive continuing education please complete the online evaluation by **November 1, 2021**, with the course code **WC2922-093021**. The access code is **COCA093021**.
- Those who will participate in the on-demand activity and wish to receive continuing education should complete the online evaluation between **November 2, 2021**, and **November 2, 2023**, and use course code **WD2922-093021**. The access code is **COCA093021**.
- Continuing education certificates can be printed immediately upon completion of your online evaluation. A cumulative transcript of all CDC/ATSDR CEs obtained through the CDC Training & Continuing Education Online System will be maintained for each user.

# Today's COCA Call Will Be Available to View On-Demand

- **When:** A few hours after the live call ends
- **What:** Video recording
- **Where:** On the COCA Call webpage  
[https://emergency.cdc.gov/coca/calls/2021/callinfo\\_093021.asp](https://emergency.cdc.gov/coca/calls/2021/callinfo_093021.asp)

# Upcoming COCA Calls & Additional COVID-19 Resources

- Thursday, October 7, 2021 (2:00 – 3:00 PM ET): 2021–2022 Recommendations for Influenza Prevention and Treatment in Children: An Update for Pediatric Practitioners (*Free CE*) ([https://emergency.cdc.gov/coca/calls/2021/callinfo\\_100721.asp](https://emergency.cdc.gov/coca/calls/2021/callinfo_100721.asp))
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**COCA Call**



CDC Clinician Outreach  
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COCA Call Announcements contain all information subscribers need to participate in COCA Calls. COCA Calls are held as needed.



**COCA Learn**



CDC Clinician Outreach  
and Communication Activity

Monthly newsletter that provides information on CDC training opportunities, conference and training resources, the COCA Partner Spotlight, and the Clinician Corner.



**Clinical Action**



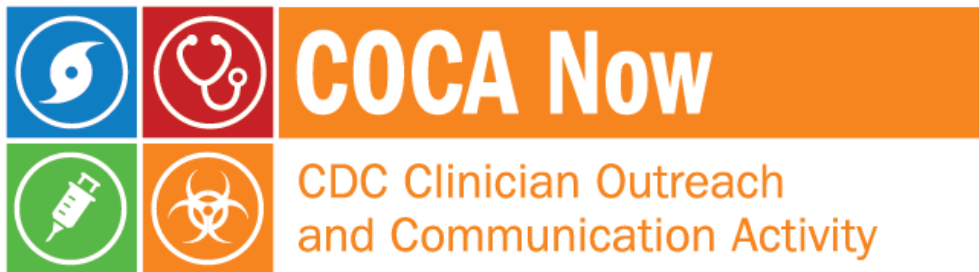
CDC Clinician Outreach  
and Communication Activity

As-needed messages that provide specific, immediate action clinicians should take. Contains comprehensive CDC guidance so clinicians can easily follow recommended actions.

# COCA Products & Services



Monthly newsletter providing updates on emergency preparedness and response topics, emerging public health threat literature, resources for health professionals, and additional information important during public health emergencies and disasters.



Informs clinicians of new CDC resources and guidance related to emergency preparedness and response. This email is sent as soon as possible after CDC publishes new content.

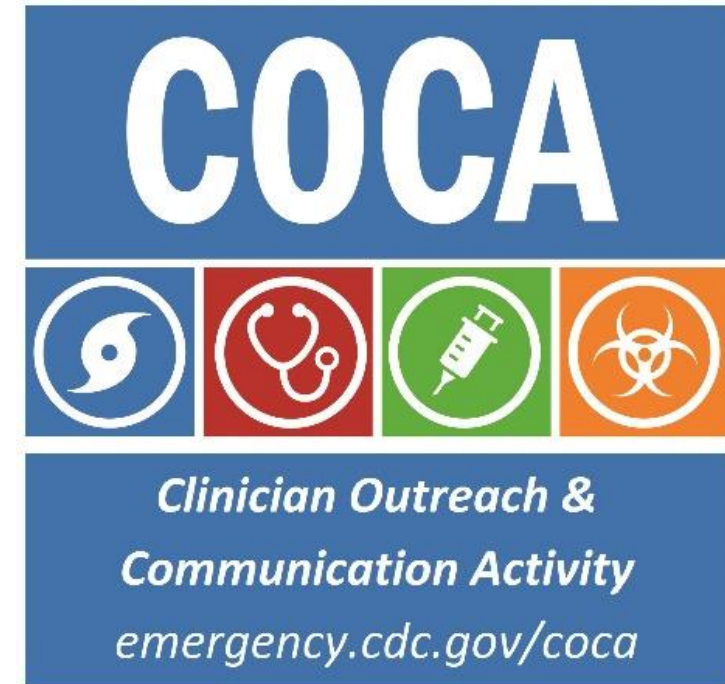


CDC's primary method of sharing information about urgent public health incidents with public information officers; federal, state, territorial, and local public health practitioners; clinicians; and public health laboratories.



# Join COCA's Mailing List

- **Receive information about:**
  - Upcoming COCA Calls
  - Health Alert Network (HAN) messages
  - CDC emergency response activations
  - Emerging public health threats
  - Emergency preparedness and response conferences
  - Training opportunities



[emergency.cdc.gov/coca/subscribe.asp](https://emergency.cdc.gov/coca/subscribe.asp)

# Join Us On Facebook!



The screenshot shows the Facebook profile for COCA (CDC Clinician Outreach and Communication Activity). The profile picture features a diverse group of healthcare professionals. The cover photo shows a group of six people, including nurses and doctors, smiling. The page includes a navigation menu on the left with options like Home, About, Posts, Photos, Events, and Community, along with a 'Create a Page' button. The main content area shows a 'Status' section with a text input field and a 'Posts' section with a recent event announcement. The right sidebar displays location information (Atlanta, Georgia), community statistics (21,420 likes, 21,217 followers), and a map of the CDC location.

**COCA**  
CDC Clinician Outreach and Communication Activity - COCA ✓  
@CDCClinicianOutreachAndCommunicationActivity

Home  
About  
Posts  
Photos  
Events  
Community  
[Create a Page](#)

Liked Following Share ... [Sign Up](#)

Status [COCA](#)  
Write something on this Page...

Posts  
**COCA** CDC Clinician Outreach and Communication Activity - COCA shared their event.  
October 31 at 1:18pm · 🌐  
Clinicians, you can earn FREE CE with this COCA Call! Join us for this COCA Call November 7, 2017 at 2:00PM.

Government Organization in Atlanta, Georgia  
Community [See All](#)  
👍 21,420 people like this  
📡 21,217 people follow this  
About [See All](#)  
Map showing location near Clifton Rd NE and Houston St.

# Thank you for joining us today!



[emergency.cdc.gov/coca](https://emergency.cdc.gov/coca)