



Evaluating and Supporting Children and Adolescents Presenting with Post-COVID Conditions

Clinician Outreach and Communication Activity (COCA) Call
Thursday, February 23, 2023

Free Continuing Education

- Free continuing education is offered for this webinar.
- Instructions on how to earn continuing education will be provided at the end of the call.

Continuing Education Disclosure

- In compliance with continuing education requirements, all planners and presenters must disclose all financial relationships, in any amount, with ineligible companies over the previous 24 months as well as any use of unlabeled product(s) or products under investigational use.
- CDC, our planners, and presenters wish to disclose they have no financial relationship(s) with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.
- Content will not include any discussion of the unlabeled use of a product or a product under investigational use with the exception of Dr. Laura Malone and Dr. Amanda Morrow's discussion of off label use of medications for managing POTS and chronic headaches, since there are no FDA approved medications for POTS management; they will discuss first line options including beta blockers, fludrocortisone, and midodrine, topiramate, amitriptyline, and cyproheptadine which are approved for other indications.
- CDC did not accept financial or in-kind support from ineligible companies for this continuing education activity.

Objectives

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

1. Describe symptoms and complications in children and adolescents with post-COVID conditions (PCC).
2. Outline AAPM&R Consensus Guidance Statement recommendations to assess children and adolescents with PCC symptoms.
3. Identify appropriate treatments for PCC-related problems in children and adolescents.
4. Highlight accommodations for schools and activities for children and adolescents with PCC.

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

Today's Presenters

Tarayn Fairlie, MD, MPH

Medical Officer

Applied Epidemiology Studies Team

Corona and Other Respiratory Viruses Division

Centers for Disease Control and Prevention

Louise Vaz, MD, MPH

Associate Professor

Division of Pediatric Infectious Diseases

Oregon Health & Science University

Amanda Morrow, MD

Co-director

Pediatric Post-COVID-19 Rehabilitation Clinic

Kennedy Krieger Institute

Johns Hopkins University School of Medicine

Mt. Washington Pediatric Hospital

Laura Malone, MD, PhD

Co-Director

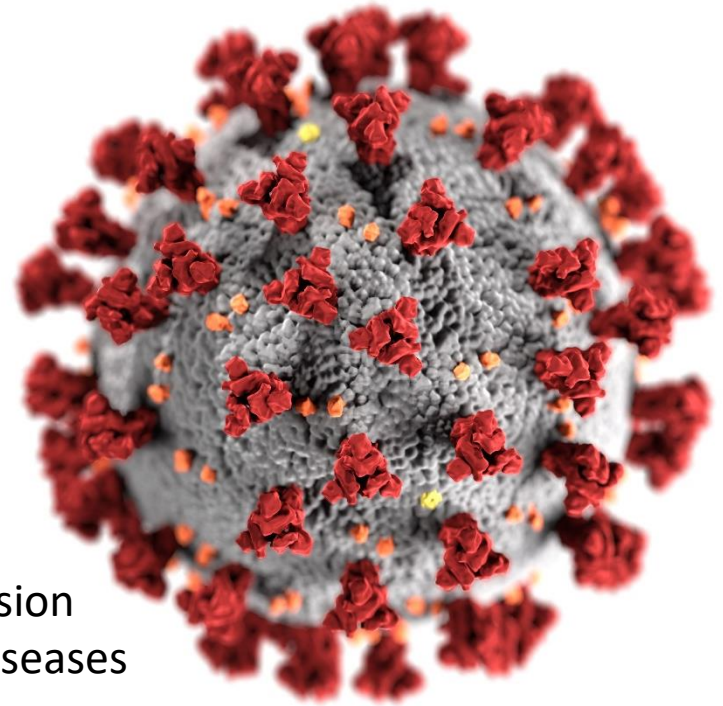
Pediatric Post-COVID-19 Rehabilitation Clinic

Kennedy Krieger Institute

Johns Hopkins University School of Medicine

Understanding Post-COVID Conditions in Children & Adolescents

Tarayn Fairlie, MD, MPH (CTR)
Centers for Disease Control and Prevention
Coronaviruses and Other Respiratory Viruses Division
National Center for Immunization and Respiratory Diseases



cdc.gov/coronavirus

There are many terms used to refer to these conditions

- **Long COVID**
 - Commonly used
- **Post-COVID Condition(s)**
 - CDC and WHO
- **Post-Acute Sequelae of SARS-CoV-2 (PASC)**
 - NIH terminology



A general framework for post-COVID conditions

- Umbrella term for the wide range of physical and mental health consequences, present for **four weeks and beyond after SARS-CoV-2 infection**, *including for patients who had initial mild or asymptomatic acute infection.*

Framework for Variety of Conditions Following SARS-CoV-2 Infection

General Consequences of Illness and Hospitalization

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

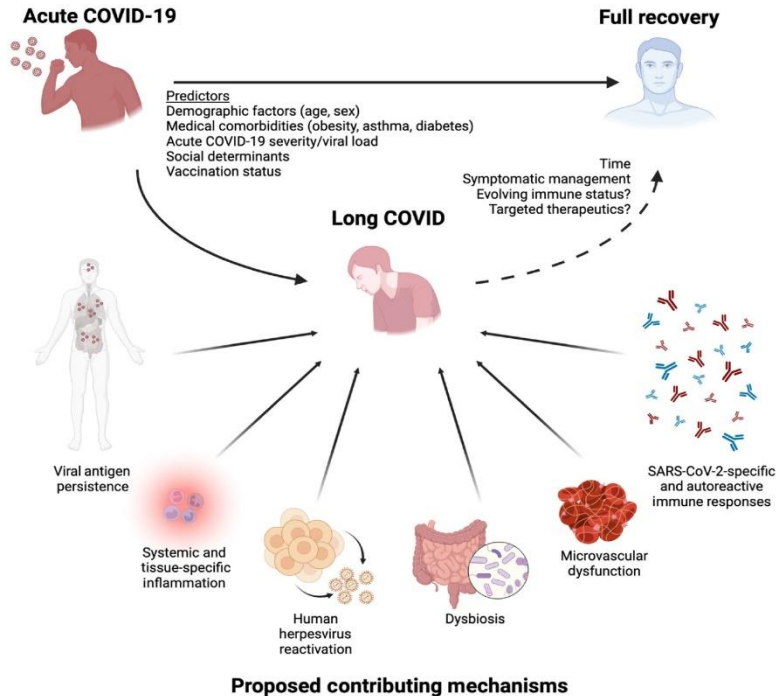
Post-Acute Consequences of SARS-CoV-2 Infection

- System-specific pathology (e.g., lung fibrosis, stroke)
- Clinically significant symptoms with unclear pathology (e.g., ME/CFS*-like, dysautonomia)

Conditions frequently overlap
Patients may experience any combination



Multiple proposed potential mechanisms for post-COVID conditions



- Proposed mechanisms could include viral persistence, systematic and tissue specific inflammation, autoimmunity, microvascular dysfunction
- Whether potential mechanisms and risk factors differ for children is unknown

Trends in Immunology

[Peluso and Deeks. Early clues regarding the pathogenesis of long-COVID: Trends in Immunology \(cell.com\) 2022](#)

Symptoms of post-COVID conditions may differ among children

- **Dyspnea or increased respiratory effort**
- **Fatigue**
- **Anosmia or dysgeusia**
- **Chest pain**
- **Headache**
- **Lightheadedness**
- Palpitations and/or tachycardia
- Arthralgia
- Myalgia
- Paresthesia
- Cough
- Abdominal pain
- Diarrhea
- Insomnia and other sleep difficulties
- Fever
- Impaired daily function and mobility
- Pain
- Rash (e.g., urticaria)
- Mood changes
- Menstrual cycle irregularities
- Post-exertional malaise and/or poor endurance
- “Brain fog,” cognitive impairment



<https://www.cdc.gov/coronavirus/2019-ncov/long-term-effects/index.html>

[Borch L et al. Long COVID symptoms and duration children. European Journal Pediatrics 2022](#)

Challenges in understanding post-COVID conditions in children and adolescents

- Difficulties in assessment of young children include
 - Inability of younger children to verbalize symptoms
 - Inconsistent manifestation of symptoms
 - Assessments of conditions may be dependent on expected developmental milestones
- Limitations of current research
 - Varying time points for assessments
 - Lack of control groups
 - Small sample size



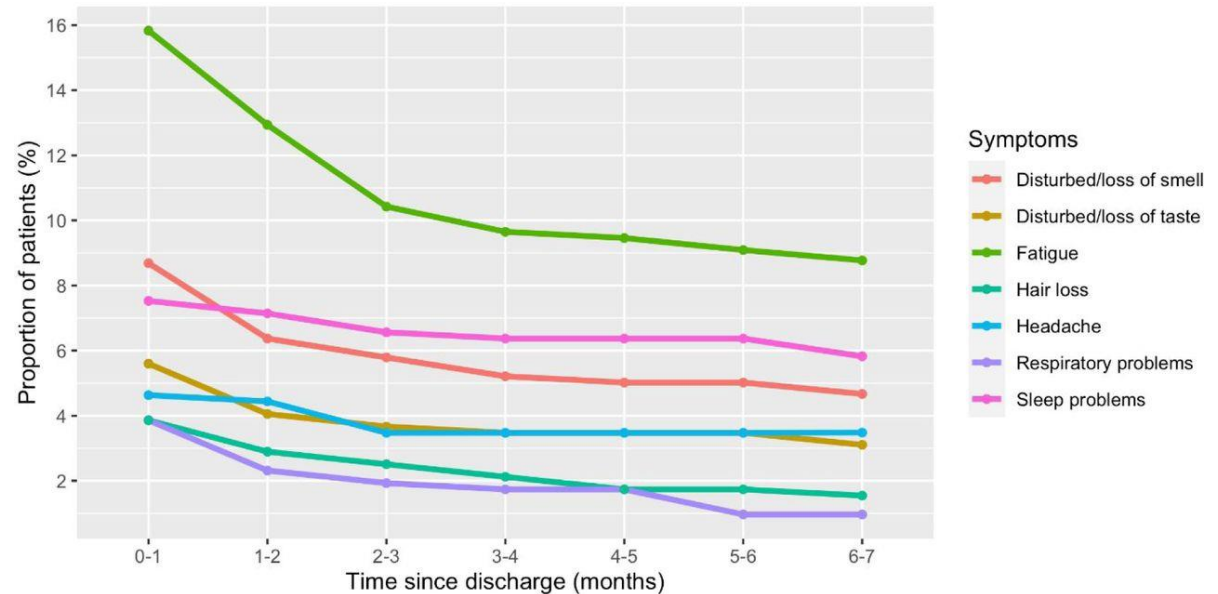
Post-COVID conditions in children previously hospitalized for COVID-19

- Groups more likely to experience ongoing symptoms:

-Older children and adolescents

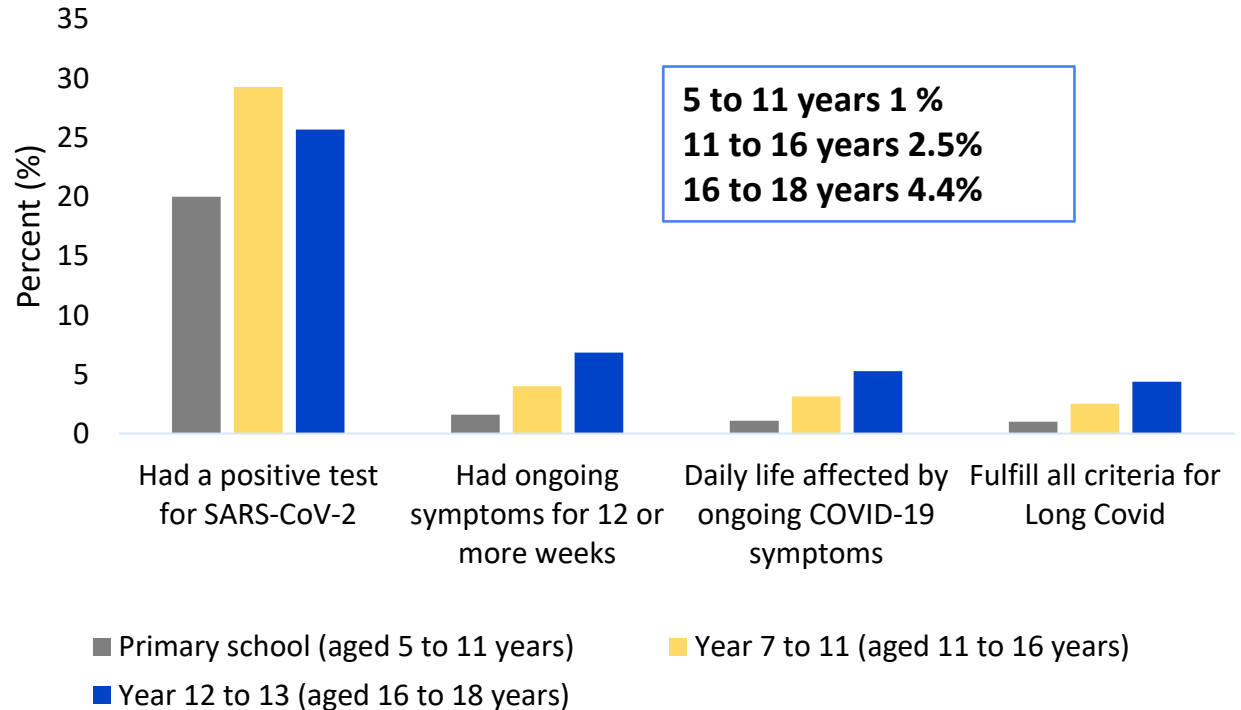
-Children with history of allergic disease

- Symptoms decrease over time



Non-hospitalized children also experience post-COVID conditions

- Survey of school age children and parents in the UK (n = 4,530)
 - Weighted to ages 5 - 18 years, UK population
- Occurrence higher among adolescents



Increased occurrence of select symptoms among non-hospitalized SARS-CoV-2 positive children compared to SARS-CoV-2 negative controls

Symptom	Total (N = 474), n (%)	aOR	95% CI
Loss of smell	23 (4.87)	10.2	1.31–79.07
Sadness	20 (4.24)	5.31	1.22–23.06
Having difficulty sleeping at night or getting to sleep	33 (6.99)	2.84	1.06–7.59
Mood swings	28 (5.93)	3.94	1.16–13.40
Anxiety	29 (6.14)	2.99	1.01–8.90



Maria Zavala, et al. Acute and Persistent Symptoms in Children With Polymerase Chain Reaction (PCR)–Confirmed Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Infection Compared With Test-Negative Children in England: *Clinical Inf Diseases*, July 2022

Post-COVID conditions less likely to occur after vaccine breakthrough

- Report of ongoing symptoms or new conditions less likely among those **vaccinated** prior to infection compared to **unvaccinated**:
 - **Less likely** to have **symptoms** from 12 weeks to 6 months after infection compared to persons unvaccinated
 - **Lower occurrences of new conditions** in persons with infection after vaccination compared to persons unvaccinated
 - COVID-19 illness among vaccinated persons tends to be less severe, lower risk for post-COVID conditions
- Results focused on adult population, only two studies included adolescents

- [Zisis et al. OFID. May 2022](#)
- [Impact of COVID-19 vaccination on the risk of developing long-COVID and on existing long-COVID symptoms: A systematic review – ScienceDirect](#)
- [UKHSA review shows vaccinated less likely to have long COVID than unvaccinated - GOV.UK \(www.gov.uk\)](#)
- [The effectiveness of coronavirus disease 2019 \(COVID-19\) vaccine in the prevention of post-COVID-19 conditions: A systematic literature review and meta-analysis | Antimicrobial Stewardship & Healthcare Epidemiology | Cambridge Core](#)

Self-Knowledge Check

- Which of the following risk factors are associated with an increased occurrence of post-COVID conditions?
 - A. Allergic disease
 - B. Older age (>12)
 - C. Unvaccinated status
 - D. A and B
 - E. A, B, and C



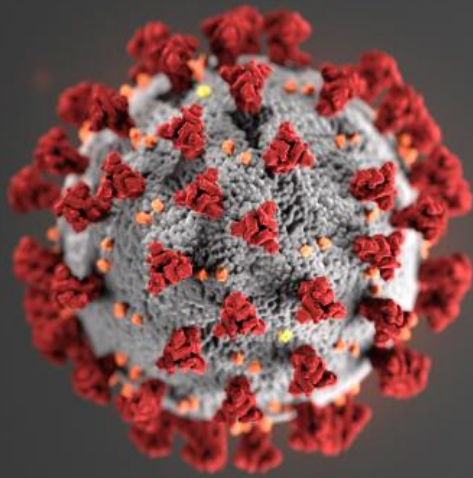
Self-Knowledge Check Answer

- The correct answer is
 - **E. Older age (>12), unvaccinated status, and allergic disease** are all associated with increased occurrence of post-COVID conditions.



Summary and ongoing questions of post-COVID conditions among children and adolescents

- Post-COVID conditions occur among children and adolescents with COVID-19 regardless of acute illness severity, but at **higher frequency** among:
 - **Hospitalized** or those who had **more severe illness**
 - **Adolescents**
- Post-COVID conditions are **less likely to occur after vaccine breakthrough**
- Many key questions remain, including:
 - **Frequency, severity, and duration** of post-COVID conditions
 - **Groups disproportionately impacted** by post-COVID conditions
 - Association of **SARS-CoV-2 variants** with incidence of post-COVID conditions
 - Impact on **daily activities** and **participation in school**



For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 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.



Assessment and Treatment of Post-acute Sequelae of SARS-CoV-2 Infection (PASC) in Children and Adolescents

February 23, 2022

Laura A. Malone, MD, PhD

Amanda K. Morrow, MD

Louise E. Vaz, MD,MPH

Lead authors, Pediatric Workgroup,
AAPM&R Multidisciplinary PASC Collaborative

Disclaimer

- 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)
- CDC was not part of the development of AAPM&R's series of PASC consensus guidance statements

Learning Objectives

- Identify and diagnose symptoms and complications in children and adolescents with post-acute sequelae of SARS-CoV-2 (PASC)
- Use PASC Consensus Guidance Statement recommendations to assess children and adolescents PASC symptoms
- Identify appropriate treatments for PASC-related problems in children and adolescents
- Highlight accommodations for schools and activities

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.

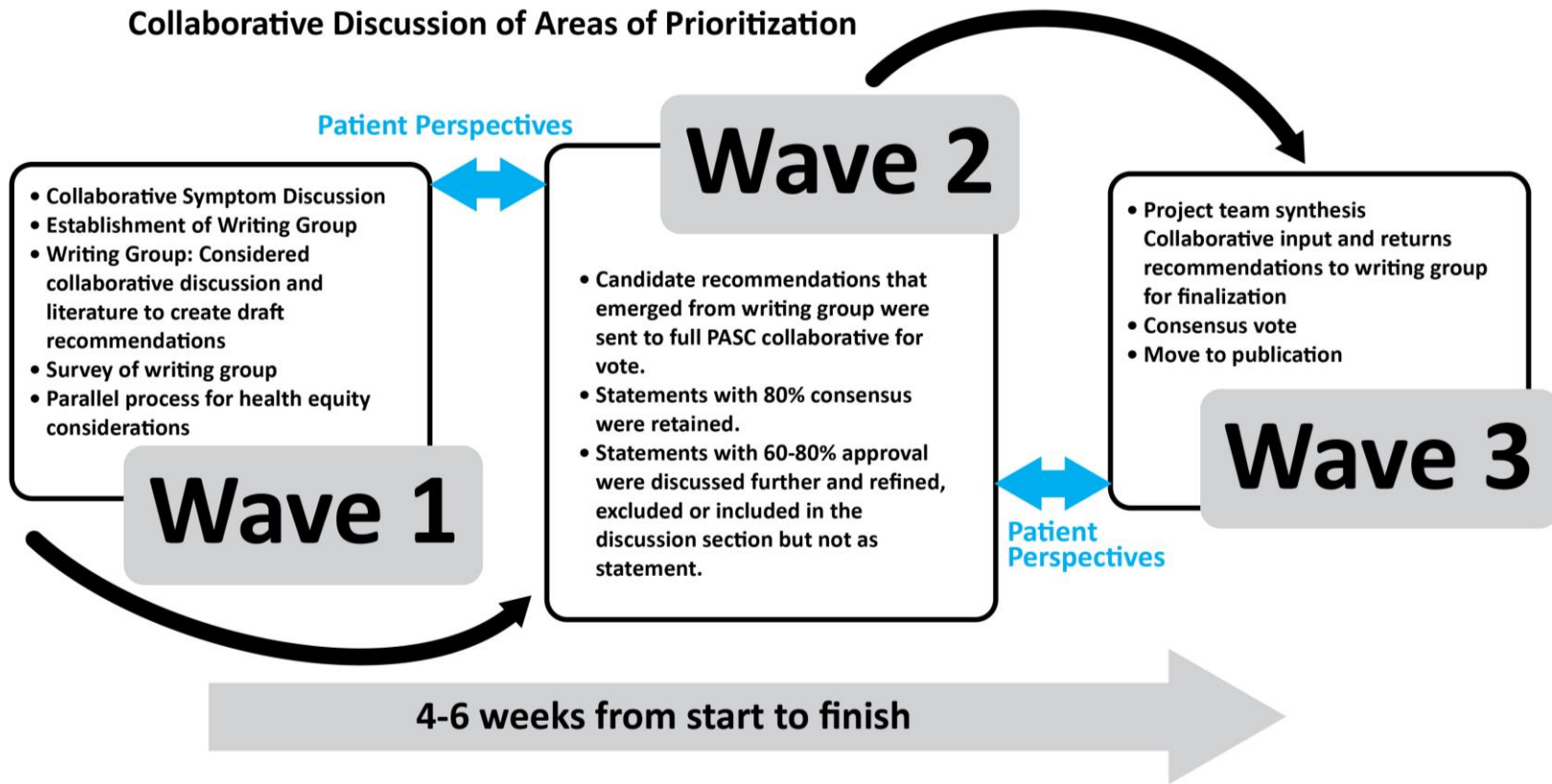
Consensus Guidance Statements

This consensus guidance statement is one in a series extending across the breadth of the most prevalent or recognized post-acute sequelae of SARS-CoV-2 (PASC):

- Fatigue
- Breathing Issues
- Cognitive Symptoms
- Cardiovascular Symptoms and Complications
- Autonomic Dysfunction
- **Children and Adolescents**
- Neurological Issues (forthcoming)
- Mental Health (forthcoming)

Consensus Statement Methodology

Collaborative Discussion of Areas of Prioritization



Pediatric Considerations

- Approach to the child may differ:
 - Young children or those with developmental disabilities may have difficulty describing their symptoms.
 - Histories may include other parties (parents, coaches, teachers).
 - Children have fewer preexisting chronic health conditions.
 - Some conditions that may increase risk of PASC in adults are uncommon in pediatrics.
 - Children may not require the same laboratory or radiographic tests as adults.
 - PASC can represent a stark departure from baseline.
 - Overlap of psychosocial effects (e.g., social isolation, fear of illness etc.)

Common PASC Symptoms in Children and Adolescents

Systemic: fatigue

Pain: headaches,
abdominal, chest

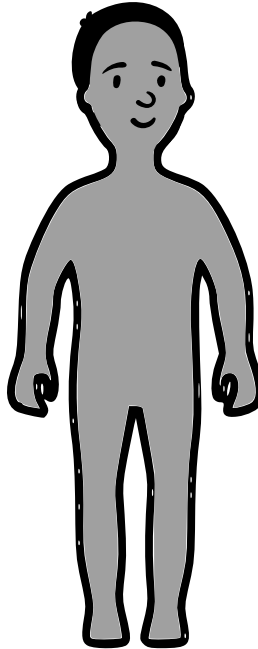
Dysgeusia, parosmia/anosmia

Orthostatic intolerance,
dizziness

Palpitations, dyspnea

Depression, anxiety

Cognitive fatigue



Initial Assessment of PASC in Children and Adolescents

- **Thorough history and physical**
 - Characterize the symptoms; assess for level of functional activity limitations
- **Evidence of past infection**
 - Prior positive test; negative testing may not rule out PASC
 - Distinctive clinical features of COVID-19 (anosmia/ageusia) without an alternative diagnosis
 - A strong epidemiological link (e.g., SARS-CoV-2 positive close contact)
- **Lab/diagnostic workup:** Targeted labs/diagnostics based on symptoms to exclude other diagnoses

Diagnosis of PASC Symptoms in Children and Adolescents

- Physical exam and labs **may be normal**
- Differentiate PASC from preexisting or new conditions that require a different therapeutic approach.
- PASC is clinical diagnosis and **diagnosis of exclusion**

Red Flags:

On History:

- Prolonged fevers (100.4F or greater) ≥ 10 days
- Significant weight loss
- Vomiting or headaches at night or early morning
- Developmental regression
- Syncope
- Chronic cough

On Exam:

- Focal neurologic deficits
- Enlarging lymphadenopathy (nodes >2 cm); extracervical nodes
- Hepatosplenomegaly
- Joint swelling/redness
- Cardiac murmurs

Self-Knowledge Check Question

Common symptoms in children with PASC may include:

- A. Fatigue
- B. Abdominal pain
- C. Headaches
- D. Shortness of breath
- E. All the above

Self-Knowledge Check Answer

Answer: E. All the above

Rationale: Some children may experience a multitude of symptoms after COVID-19. Common symptoms include fatigue, pain (e.g., headaches, abdominal pain, myalgias), and cardiovascular symptoms like palpitations and shortness of breath.

Systemic/Constitutional Symptoms

- Fatigue, physical activity/exercise intolerance

Symptom Assessment:

- Characterize fatigue pattern and sleep habits
- Evaluate for post-exertional malaise (worsened symptoms 12–48 hours after mild physical, cognitive, or emotional exertion)
- Screen for baseline and current physical activity levels
 - Modified pediatric Borg or the OMNI Rating of Perceived Exertion scales to assess exercise intolerance
- Nutrition evaluation
- Medication review including vitamins/supplements
- Screen for substance use in age-appropriate populations
- Screen for other medical causes of fatigue
- Consider whether meets criteria for myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS)

Systemic/Constitutional Symptoms

- Some overlap between fatigue patterns in PASC and myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS)

Proposed Diagnostic Criteria for ME/CFS

Diagnosis requires that the patient have the following three symptoms:

1. A substantial reduction or impairment in the ability to engage in pre-illness levels of occupational, educational, social, or personal activities, that persists for more than 6 months and is accompanied by fatigue, which is often profound, is of new or definite onset (not lifelong), is not the result of ongoing excessive exertion, and is not substantially alleviated by rest, and
2. Post-exertional malaise,* and
3. Unrefreshing sleep*

At least one of the two following manifestations is also required:

1. Cognitive impairment* or
2. Orthostatic intolerance

* Frequency and severity of symptoms should be assessed. The diagnosis of ME/CFS should be questioned if patients do not have these symptoms at least half of the time with moderate, substantial, or severe intensity.

For more information, visit www.iom.edu/MECFS

 INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES
Advising the nation • Improving health

aapm&r

Systemic/Constitutional Symptoms

Evaluation:

- Full physical exam including thorough neuromuscular exam
- Consider testing physical function/endurance (i.e., 6-minute walk test, 30 second sit to stand test)
- Bloodwork: CBC, CMP, TSH/free T4, iron panel, ferritin, vitamin D
- Sleep study only if concerns for sleep apnea or sleep disorder

Treatment:

- Treat any known medical causes of fatigue based on screening results (e.g., iron supplementation for anemia)
- Lifestyle modifications: optimize nutrition, hydration, sleep
- Slowly advance physical activity/exercise as tolerated with a focus on PACING
 - Avoid symptom exacerbation and post-exertional malaise
- A multidisciplinary approach may be beneficial
 - Pediatric rehabilitation medicine, physical therapy, occupational therapy, mental health, other subspecialists as needed
- Complementary therapies: acupuncture, yoga, Tai Chi, massage, meditation

Autonomic Dysfunction/Postural Orthostatic Tachycardia Syndrome (POTS)

- Fatigue, lightheadedness/dizziness in upright positions, brain fog, exercise intolerance, post-exertional malaise, headaches, gastrointestinal symptoms, heart racing, palpitations, heat intolerance, hyperhidrosis

Diagnosis:

Diagnostic criteria for POTS (2019 NIH Expert Consensus Meeting):

- A sustained heart rate (HR) increment of at least 30 beats/minute within 10 minutes of standing; for individuals between 12–19 years old, the required HR increment is at least 40 beats/minute.
- An absence of orthostatic hypotension
- Frequent orthostatic symptoms
- Duration of symptoms for at least 3 months
- Absence of other conditions explaining symptoms

Evaluation:

- Ten-minute passive standing test can be performed in a clinic setting
- Referral for tilt table test if needed to confirm diagnosis
- Screen for joint hypermobility using Beighton Scale as Ehlers Danlos Syndrome (EDS) is a common comorbidity

Autonomic Dysfunction/Postural Orthostatic Tachycardia Syndrome (POTS)

- Fatigue, lightheadedness/dizziness in upright positions, brain fog, exercise intolerance, post-exertional malaise, headaches, gastrointestinal symptoms, heart racing, palpitations, heat intolerance, hyperhidrosis

Lifestyle interventions:

- Goal fluid (2-3 L/day) and salt intake (4-6 grams/day)
- Physical activity with pacing
 - Start with recumbent activity and progress to upright positions as tolerated
- Compression garments (20–30 mmHg)
- Elevate head of bed (4–6 inches)
- Physical countermeasure maneuvers: crossing legs, tensing muscles

First-line medications:

- Beta blocker (such as atenolol or propranolol) to lower heart rate
- Fludrocortisone to expand blood volume
- Midodrine to increase vasoconstriction

Treatment:

Cardiology

- Chest pain, palpitations, dizziness

Evaluation:

- Complete cardiac and pulmonary physical examinations (PE) including chest wall tenderness
- Testing dependent on history and PE and may include:
 - Chest pain: ECG, troponin, CXR, echocardiogram
 - Palpitations: ECG, Holter monitor, event monitor, echocardiogram, thyroid testing
 - Dizziness: ECG, orthostatic vital signs, neurologic exam

Treatment:

- Send to ER if concerns for acute ischemia
- Referral to cardiology if concern for cardiac etiology (chest pain with exercise, radiation of the pain to the neck, jaw, or down the arms, and/or chest pain accompanied by dizziness and/or loss of consciousness)
- Differentiate sinus tachycardia from other abnormal cardiac rhythms by ECG or other monitoring technology and treat underlying cause (i.e., autonomic dysfunction, respiratory disease, acute illness, etc.)

Self-Knowledge Check Question

A 16 year old male had COVID-19 2 months ago. He notes that sometimes he can't keep up with his soccer team like he used to. He is able to participate in practice but afterward is so tired that he can't get out of bed to go to school the next day. What is this an example of?

- A. Exercise intolerance
- B. Deconditioning
- C. Depression
- D. Post-exertional malaise
- E. Hypothyroidism

Self-Knowledge Check Answer

Answer: D. Post-exertional malaise

Rationale: Post-exertional malaise is defined as a worsening of symptoms after physical, mental, or emotional exertion. Symptoms may worsen 12 to 48 hours after the activity and can last for days or even weeks. It is also one of the key features in the diagnostic criteria for ME/CFS.

Respiratory/Pulmonary

- Shortness of breath, cough, wheezing

Evaluation:

- Pulse oximetry (consider at rest and with walking)
- Chest x-ray
- Pre- and post-bronchodilator spirometry
- If physical findings noted on lung exam → body plethysmography
- If history of previous abnormal chest x-ray or requirement of supplemental oxygen during acute COVID illness → diffusing capacity for carbon monoxide

Treatment:

- Most symptoms improve with time
- Bronchodilator (e.g., albuterol) trial
- Referral to ENT physician/speech-language pathologist if ILO/PVFM suspected (difficulty with inspiration or tightness to throat)
- Breathing exercises to reduce breathlessness (e.g., diaphragmatic breathing)

Neurology

- Cognitive symptoms: “brain fog,” attention difficulties, memory problems, word finding difficulties, trouble concentrating, declining school performance

Symptom Assessment:

-Cognition: Patient-Reported Outcomes Measurement Information System [PROMIS] Parent Proxy Short forms
-Attention: Vanderbilt ADHD Diagnostic Rating Scale
-Mood: Patient Health Questionnaire-9, Generalized Anxiety Disorder Scale-7

Referrals:

- **Brief/targeted neuropsychological evaluation** (significant change in cognition, accommodations still needed after 1-2 months, acute COVID ICU hospitalization)
OR
- Comprehensive neuropsychological evaluation (premorbid medical or developmental conditions, accommodations still needed after 6-12 months)
- OT or SLP for cognitive rehabilitation
- Neurology (developmental regression, abnormal movements, hallucinations, abnormal neuro exam)

Neurology

- Headaches: many children have multiple “headache types”

Screen for red flags:

headaches that wake the child from sleep or worse lying flat; weakness of face, arm, or leg; worsens with strain (coughing, sneezing); recurrent vomiting without nausea; worsening visual symptoms



Head CT
Brain MRI/MRV

Treatment:

- **Lifestyle interventions:** hydration, regular meals, exercise, regular sleep, stress management
- Counsel on medication overuse and rebound headaches
- Vitamin supplementation (e.g., magnesium, melatonin, coenzyme Q10, riboflavin)
- Nonpharmacologic therapies (like yoga, acupuncture, relaxation therapies with deep breathing exercises)

Otolaryngology

- Anosmia/hyposmia, ageusia/dysgeusia

Evaluation:

- Refer to ENT: Presence of associated nasal symptoms (e.g., congestion, obstruction, rhinorrhea, +/- facial pain) OR Isolated loss of smell/loss of taste (LOS/LOT) >4 weeks
- Imaging: LOS/LOT >6 weeks + nasal symptoms OR LOS/LOT + neurological symptoms

Treatment:

- Most self-resolves in 3–6 months
- Olfactory training if LOS/LOT >2 weeks after resolution of other COVID-19 symptoms
AbScent (<https://abscent.org>), *Fifth Sense* (<https://www.fifthsense.org.uk>)
- Intranasal steroids if LOS/LOT >2 weeks with associated nasal symptoms

Gastrointestinal

- Abdominal pain, nausea and/or vomiting, chronic diarrhea, reflux/indigestion/belching, decrease appetite
 - reported to last for 2–3 months after recovering from the initial illness

Screen for red flags:

weight loss, growth deceleration, focal abdominal pain vs periumbilical or nonspecific abdominal pain, hematochezia/hematemesis, family history of inflammatory bowel disease or celiac, significant diarrhea, bilious emesis

Evaluation/ Treatment:

- Bloodwork and/or imaging as indicated
- Dyspepsia → trial of acid blocker such as H2 blocker or proton pump inhibitor if dyspepsia is a concern
- Irritable bowel syndrome/ functional abdominal pain → trial of probiotic and identify triggers (e.g., food, microbiome, stress). Can also consider appetite stimulant (cyproheptadine)

Musculoskeletal

- Pain: muscular, joint, generalized

Evaluation:

- Assess for family history of fibromyalgia and/or rheumatologic disorders
- Neurologic and musculoskeletal exam + joint hypermobility with Beighton score

Treatment:

- Physical therapy
- Topical anti-inflammatories (trolamine salicylate, diclofenac) or numbing agents (lidocaine) as needed for localized pain
- Minimize regular use of systemic OTC pain medications (acetaminophen, ibuprofen) to minimize overuse effects
- Complementary therapies (e.g., acupuncture, yoga, massage, meditation, biofeedback, chiropractic)
- Address mental health concerns, refer to behavioral psychology for pain coping

Mental Health and Psychiatric Symptoms

- **Anxiety:** is the most common mental health concern in adults with PASC, with emerging evidence in youth
 - Monitor closely for school avoidance
- **Depression:** occasionally also associated with changes in behavior that may be uncharacteristic for the youth (e.g., increased irritability, social withdrawal)
- Important to screen for **suicidality**

- Generalized Anxiety Disorder Scale (GAD-7): (ages 12+ years)
- Patient-Reported Outcomes Measurement Information System (PROMIS) Pediatric Item Bank v2.0–Anxiety: (ages 5–17 years)
- Screen for Child Anxiety Related Emotional Disorders (SCARED): scale (ages 8–18 years)

- Patient Health Questionnaire-9 (PHQ-9) scale
- Patient-Reported Outcomes Measurement Information System (PROMIS) Pediatric Item Bank v2.0–Depressive Symptoms (ages 5–17 years)
- Center for Epidemiological Studies Depression Scale for Children (CES-DC) scale

- PHQ-9 scale
- Ask Suicide-Screening Questions (ASQ) questionnaire

Mental Health and Psychiatric Symptoms

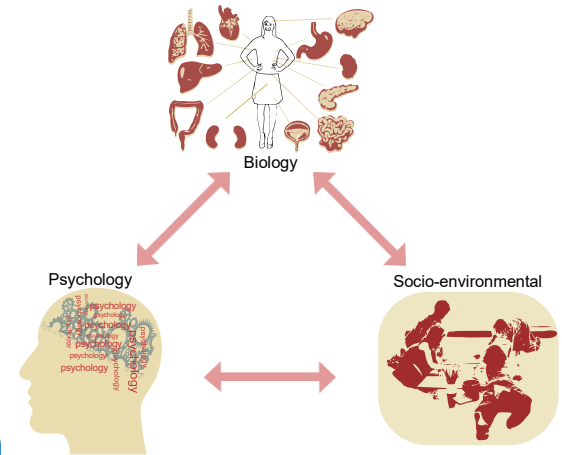
- **PTSD/acute stress disorder:**

- adult studies: 25% of patients experiencing PASC had posttraumatic symptoms
- may be elevated in children with history of hospitalization, prolonged period in intensive care, or history of multiple procedures

- UCLA Posttraumatic stress disorder (PTSD) Assessment Tool
- Clinician-Administered PTSD Scale for DSM-5—Child/Adolescent Version (CAPS-CA-5)

- Some patients may experience somatization and Somatic Symptoms and Related Disorders (SSRDs)
 - thorough medical investigation into any newly emerging physical symptom is always recommended

Important to recognize and treat the interaction between mental health, physical symptoms, and environment



School & Activity Accommodations

Important to have a meeting with school to discuss accommodations & obtain collateral from multiple sources (e.g., 504, individualized education program [IEP], individualized health plan)

Possible Interventions

- Prioritizing academic demands & excuse/limit nonessential classwork/homework
- Increased time for exams or assignments (i.e., x1.5, x2.0) & rest breaks during instruction
- Copies of teacher notes prior to start of class/note taker in class
- Adjusted school days (i.e., shortened/alternative)
- Adapted PE or reduced demands during physical activity
- Elevator privileges
- Allow use of rolling backpack/school bag
- Allow access to water/salty snacks

Pacing both
with physical
and
cognitive
activity!

Make lifestyle
interventions
accessible at
school

Self-Knowledge Check Question

What would be useful in helping children with PASC attend school?

- A. 504/IEP/individualized health plan meeting
- B. Talk to school counselor
- C. Obtain feedback from teachers
- D. All or any of the above

Self-Knowledge Check Answer

Answer: D. All or any of the above

Rationale: Developing a plan for accommodations and individualized medical considerations for children with PASC can be helpful. Many times, this includes obtaining collateral from multiple sources like school counselors and teachers. A 504 or IEP plan is designed to ensure children with disabilities and/or physical/mental impairments to attend and make progress in a public school. An individualized health plan may address how to deal with medical conditions experienced at school, but the format or existence may vary from state to state or school.

Conclusions

- Pediatric PASC can present with many different symptoms affecting multiple organ systems and is a diagnosis of exclusion.
- Children with PASC often have normal labs, imaging, and physical exam.
- Treatment is generally supportive, targeted to address and alleviate specific symptoms.
- Pediatric PASC can significantly impact a child's functioning and quality of life. A multidisciplinary approach to care can be helpful.

Thank You...

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

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 **Monday, March 27, 2023**, with the course code **WC4520-022323**. The access code is **COCA022323**.
- Those who will participate in the on-demand activity and wish to receive continuing education should complete the online evaluation between **March 28, 2023**, and **March 28, 2025**, and use course code **WD4520-022323**. The access code is **COCA022323**.
- 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/2023/callinfo_022323.asp

**A transcript and closed-captioned video will be available shortly after the original video recording posts on the COCA Call webpage.*

Upcoming COCA Calls & Additional Resources

- Join us for our next COCA Call, Tuesday, February 28 at 2 PM ET.
Topic: [Epidemiology, Testing, and Management of Extensively Drug-Resistant Shigellosis](#)
- Continue to visit <https://emergency.cdc.gov/coca/> to get more details about upcoming COCA Calls.
- Subscribe to receive notifications about upcoming COCA calls and other COCA products and services at emergency.cdc.gov/coca/subscribe.asp.

Thank you for joining us today!



emergency.cdc.gov/coca