Long COVID: How Does It Affect Asthma and Asthma Control?

Purvi Parikh, MD

March 9th, 2023
The mission of ALLERGY & ASTHMA NETWORK is to end the needless death and suffering due to asthma, allergies and related conditions through outreach, education, advocacy and research.
Dr. Purvi Parikh

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- Director, Allergy and Asthma Associates of Murray Hill
- National Spokesperson, Allergy & Asthma Network
Today’s Program

01 CURRENT STATE OF COVID-19

02 HOW DOES IT AFFECT THOSE WITH ASTHMA?

03 WHAT TREATMENTS ARE AVAILABLE?
Current State of COVID 19
(Most likely underestimated due to home testing)

https://coronavirus.jhu.edu/map.html
Daily Update for the United States

**Cases**
New Cases (Weekly Total)
- 226,618

Case Trends
- Jan 2023 to Mar 2023

**Deaths**
New Deaths (Weekly Total)
- 2,290

Death Trends
- Jan 2023 to Mar 2023

**Hospitalizations**
New Admissions (Daily Avg)
- 2,837

Admission Trends
- Jan 2023 to Mar 2023

**Vaccinations**
% with Updated Booster Dose
- 16.2%

Total Population

Total Cases
- 103,499,382

Total Deaths
- 1,117,856

Current Hospitalizations
- 8,639

Total Updated Booster Doses
- 53,663,902

CDC | Data as of: March 6, 2023 2:14 PM ET. Posted: March 6, 2023 3:18 PM ET

https://covid.cdc.gov/covid-data-tracker/#datatracker-home
IN THE NEWS

If you've had COVID-19, here's what you need to know about blood clots

Asthma can be blamed for decrease in lung problems, whereas it could be blood clots


COVID-19 Omicron infection linked to new-onset diabetes

A pair of new studies conclude that, compared with their never-infected peers, COVID-19 Omicron survivors may be at a 60% or greater risk of new-onset type 1 or 2 diabetes, a potential precursor of heart attack and stroke

IN THE NEWS

Young People More Likely to Die of Heart Attacks post-COVID

Since the pandemic began, heart attacks across all age groups have become more common. But especially the age group 25-44, with a 29.9% increase

Adults between 45 - 64 saw a 19.6% increase in heart attack deaths

Adults over 65 had a 13.7% increase in heart attack deaths


Woman, 39, had cough diagnosed as COVID-19 pneumonia. It was lung cancer

15% of lung cancer patients have never smoked. If you have lungs, you can get lung cancer

Globally, 65 million people have Long COVID

This number is likely an underestimate

https://www.cidrap.umn.edu/covid-19/more-65-million-people-around-world-may-have-long-covid
Data is biased toward those hospitalized for COVID
*(anyone infected can get Long COVID)*

Less focus on non hospitalized adult data

Current treatment options for Long COVID are needed

Clinical trials are needed to pinpoint the mechanisms of COVID

Marginalized populations need to be included

https://www.cidrap.umn.edu/covid-19/more-65-million-people-around-world-may-have-long-covid
In the U.S. - Nearly 19 Million Have Long COVID

Clinical Infectious Diseases


https://www.cidrap.umn.edu/covid-19/estimate-says-19-million-us-adults-have-long-covid
Nearly 1 in 5 Adults Have Long COVID

*Centers for Disease Control – National Center for Health Statistics*

01

Older adults are less likely to have long COVID than younger adults. Nearly three times as many adults ages 50-59 currently have long COVID than those age 80 and older.

02

Women are more likely than men to currently have long COVID (9.4% vs. 5.5%).

03

Nearly 9% of Hispanic adults currently have long COVID, higher than non-Hispanic White (7.5%) and Black (6.8%) adults, and over twice the percentage of non-Hispanic Asian adults (3.7%).

04

States with the highest percentage of adults with Long COVID were Kentucky (12.7%), Alabama (12.1%), and Tennessee and South Dakota (11.6%). The states with the lowest percentage of adults with Long COVID are Hawaii (4.5%), Maryland (4.7%) and Virginia (5.1%).

Centers for Disease Control

Symptoms of Long COVID

01 New, returning, or ongoing health problems

02 Wide range of symptoms that can last weeks, months - or even years

03 Can slowly improve over time

04 Symptoms can be hard to manage

Symptoms of Long COVID

05: Can affect multiple organs

06: New health conditions like diabetes, heart conditions, blood clots, or neurological conditions can develop

07: Severe illness (ICU admissions) can lead to muscle weakness, difficulty processing thoughts, and PTSD

08: Symptoms can be hard to explain — and blood tests, chest x-rays and electrocardiograms can all appear normal

Common Long COVID Symptoms

- Fatigue that interferes with daily life
- Symptoms worse after physical/mental efforts
- Fever
- Brain Fog
- Lightheadedness
- Headache
- Sleep problems
- Depression or anxiety
- Diarrhea/Stomach Pain
- Joint or muscle pain
- Rash
- Change in menstrual cycles
How Does COVID Impact Asthma?
Asthma Control Worsening after COVID

One study showed that it didn’t matter if COVID symptoms were mild or moderate.

Some asthma patients had a chronic worsening of their asthma that required an increase in medication to stabilize their asthma.

Worsening of asthma control after COVID-10, NIH https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9524244/
Respiratory symptoms

- Difficulty Breathing
- Cough (is it persistent?)
- Chest Pain or tight chest
- Wheezing
- Shortness of breath

Could Lung Issues Be Something Else?

From the “In the News” slide:

Blood clots in the lungs can mimic asthma symptoms

COVID blood clot symptoms

- Difficulty breathing
- Irregular heartbeat or faster than normal
- Chest pain or discomfort that is worse when you take a breath or cough
- Feeling lightheaded or faint
- Coughing up blood

https://www.cdc.gov/ncbddd/dvt/infographic-risk.html
Also from the “In the News” slide

Lung Cancer can mimic asthma

- Difficulty breathing
- Irregular heartbeat or faster than normal
- Chest pain or discomfort that is worse when you take a breath or cough
- Feeling lightheaded or faint
- Coughing up blood

Contact your doctor to rule out any secondary causes for lung problems
Children and Adolescents Can Also Be Impacted

Centers for Disease Control

May have trouble describing the symptoms

Can affect school, homework, sports, and other activities

Accommodations: extra time on tests, rest times, modified class schedule

Accommodations can help: thinking, concentrating, or physical activities

Increasing Asthma Medications to Achieve Control

**Children 5 years and younger**

**Personalized asthma management:**
Assess, Adjust, Review response

- Symptoms
- Exacerbations
- Side-effects
- Parent satisfaction

**Asthma medication options:**
Adjust treatment up and down for individual child’s needs

**PREFERRED CONTROLLER CHOICE**

<table>
<thead>
<tr>
<th>STEP 1</th>
<th>STEP 2</th>
<th>STEP 3</th>
<th>STEP 4</th>
</tr>
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<tbody>
<tr>
<td>Daily low dose inhaled corticosteroid (ICS) (see table of ICS dose ranges for pre-school children)</td>
<td>Daily leukotriene receptor antagonist (LTRA), or intermittent short courses of ICS at onset of respiratory illness</td>
<td>Low dose ICS + LTRA Consider specialist referral</td>
<td>Continue controller &amp; refer for specialist assessment</td>
</tr>
</tbody>
</table>

**Other controller options**

**RELIEVER**

- As-needed short-acting β₂-agonist

**CONSIDER THIS STEP FOR CHILDREN WITH:**

- Infrequent viral wheezing and no or few interval symptoms
- Symptom pattern not consistent with asthma but wheezing episodes requiring SABA occur frequently, e.g. ≥2 per year. Give diagnostic trial for 3 months. Consider specialist referral.
- Symptom pattern consistent with asthma, and asthma symptoms not well-controlled or ≥3 exacerbations per year.

**Exclude alternative diagnoses**
- Symptom control & modifiable risk factors
- Comorbidities
- Inhiler technique & adherence
- Parent preferences and goals

**Treat modifiable risk factors and comorbidities**
- Non-pharmacological strategies
- Asthma medications
- Education & skills training
Increasing Asthma Medications to Achieve Control

**Children 6-11 years**

**Personalized asthma management:**
Assess, Adjust, Review

- Symptoms
- Exacerbations
- Side-effects
- Lung function
- Child and parent satisfaction

**Confirmation of diagnosis if necessary**
- Symptom control & modifiable risk factors (including lung function)
- Comorbidities
- Inhaler technique & adherence
- Child and parent preferences and goals

**Treatment of modifiable risk factors & comorbidities**
- Non-pharmacological strategies
- Asthma medications (adjust down or up)
- Education & skills training

**Asthma medication options:**
Adjust treatment up and down for individual child’s needs

**PREFERRED CONTROLLER**
to prevent exacerbations and control symptoms

- **STEP 1**
  - Low dose ICS taken whenever SABA taken

- **Other controller options**
  - Consider daily low dose ICS

**RELEIVER**
As-needed short-acting beta2-agonist (or ICS-formoterol reliever for MART as above)

**STEP 2**
Daily low dose inhaled corticosteroid (ICS) (see table of ICS dose ranges for children)

**STEP 3**
Low dose ICS-LABA, OR medium dose ICS, OR very low dose ICS-formoterol maintenance and reliever therapy (MART).

**STEP 4**
Medium dose ICS-LABA, OR low dose ICS-formoterol maintenance and reliever therapy (MART).

**STEP 5**
Refer for phenotypic assessment & higher dose ICS-LABA or add-on therapy, e.g. anti-IgE
Increasing Asthma Medications to Achieve Control

Adults & adolescents 12+ years
Personalized asthma management
Assess, Adjust, Review
for individual patient needs

CONTROLLER and PREFERRED RELIEVER
(Track 1). Using ICS-formoterol
as reliever reduces the risk of
exacerbations compared with
using a SABA reliever

CONTROLLER and ALTERNATIVE RELIEVER
(Track 2). Before considering
a regimen with SABA reliever,
check if the patient is likely to be
adherent with daily controller

Other controller options
for either track

CONFIRMATION OF DIAGNOSIS IF NEEDED
Symptom control & modifiable
risk factors (including lung function)
Comorbidities
Inhaler technique & adherence
Patient preferences and goals

TREATMENT OF MODIFIABLE RISK FACTORS
AND COMORBIDITIES
Non-pharmacological strategies
Asthma medications (adjust down/up/between tracks)
Instruction & skills training

STEP 1
Take ICS whenever SABA taken
RELIEVER: As-needed short-acting β2-agonist

STEP 2
Low dose maintenance ICS-LABA
RELIEVER: As-needed low-dose ICS-formoterol

STEP 3
Low dose maintenance ICS-LABA

STEP 4
Add-on LAMA
Refer for phenotypic assessment:
anti-IgE, anti-IL5R, anti-IL4R
Consider high dose ICS-LABA

12 and older
What Treatments Are Available?
Medications Used to Treat COVID-19

Pain reliever & OTC drugs may be enough – but check with your doctor to see if other medications might be needed.

01 ANTIVIRAL DRUGS
Researchers are testing the antiviral drugs favipiravir and merimepodib. Studies have found that the combination of lopinavir and ritonavir isn’t effective.

02 ANTI-INFLAMMATORY THERAPY
Used to treat or prevent dysfunction of several organs & lung injury from infection-associated inflammation

DEXAMETHASONE
One type of anti-inflammatory drug that researchers are studying to treat or prevent organ dysfunction and lung injury – Reduces risk of death by 30% for people on ventilators & 20% for people who need supplemental oxygen

03 IMMUNE-BASED THERAPY
Convalescent plasma, stem cells, and monoclonal antibodies. Monoclonal antibodies are proteins created in a lab that can help the immune system fight off viruses

Approved vs Emergency Use Authorization

Federal Drug Administration (FDA)

**Approved Treatments**

- Antiviral drug Veklury (remdesivir)
  - Adults and certain pediatric patients
  - *Given by IV*
- Immune modulators
  - Olumiant (baricitinib)
  - Actemra (tocilzumab)
  - *For hospitalized patients*

**Emergency Use Authorization**

- Monoclonal antibodies
- Oral antiviral pills
  - Paxlovid
  - Lagevro (molnupiravir)

https://www.fda.gov/consumers/consumer-updates/know-your-treatment-options-covid-19
What is Pulmonary Rehabilitation?

Treatment program of educational classes and supervised exercise provided by pulmonologists, respiratory therapists, occupational therapist, physical therapists, social workers, and dietitians

Breathing
- Breathing techniques, such as yoga

Counseling
- Counseling for emotional problems

Energy Level
- Learn energy saving ways to do everyday tasks

Education
- Learn about respiratory medications, oxygen therapy, disease processes, and nutrition

Exercise
- Exercise training

2 in 3 people who participate report positive outcomes - although many people don’t know this program exists
Who Qualifies for Pulmonary Rehabilitation (PR)?

**MAYO Clinic**

- Asthma
- Bronchiectasis
- Chronic Bronchitis
- COPD
- Cystic Fibrosis
- Emphysema
- Lung Transplant
- Neuromuscular disease
- Occupational or environmental lung disease
- Post-thoracic surgery
- Pulmonary Fibrosis
- Pulmonary hypertension
- Respiratory Failure
- Sarcoidosis

PR will help you learn how to live better with your condition, improve your strength, reduce your shortness of breath, and increase your ability to stay active.

https://www.mayoclinic.org/departments-centers/pulmonary-rehabilitation-program/overview/ovc-20398578
Devices That Can Be Used

Flutter valve
(helps clear mucus from the lungs)

Incentive Spirometer
(trains you to breathe deeply and slowly - to inflate all areas of the lung)
At Home Oxygen

- Oxygen concentrators for the home
- Ordered by your doctor
- Delivered to your home and set up by a home health care agency
- Bubbler bottle can be added (it works like a humidifier to prevent airway from becoming dry)
- Small size tanks for travel that strap over your shoulder
Cannula vs Oxygen Mask

How do you know which to use?
Oxygen can cause other materials that burn to ignite more easily, and burn faster

Fires involving oxygen can be explosive. **No open flames allowed (smoking, vaping, candles, etc)**

https://www.usfa.fema.gov/prevention/outreach/media/pictographs/pictograph45.html
Learn to Pace Yourself with the “Spoon Theory”

Self Pacing Strategy Developed in 2003 by writer Christine Miserandino

If you use all of your “spoons” (or energy) today, you will have to borrow from tomorrow’s spoons.

But, you will pay for it tomorrow when you start the day with less spoons (or energy) meaning you will have more fatigue, inactivity, and an increase in symptoms.

https://health.clevelandclinic.org/spoon-theory-chronic-illness/
How Many Spoons (or Energy) Does Each Activity Take?

- Get out of bed
- Get dressed
- Take pills
- Watch TV
- Shower
- Style hair
- Surf the web
- Read or study
- Make a meal, eat
- Socialize
- Clean the house
- Drive somewhere
- Work/ school
- Shopping
- Doctor visit
- Exercise
COVID Qualifies As a Disability

“In July, 2021, “long COVID” (also known as post-COVID conditions) was added as a recognized condition that could result in a disability under the Americans with Disability Act (ADA)” *

- Section 504 of the Rehabilitation Act of 1973
- Section 1557 of the Patient Protection and Affordable Care Act

* If it substantially limits one or more major life activities (examples on next slide)

https://www.hhs.gov/civil-rights/for-providers/civil-rights-covid19/guidance-long-covid-disability/index.html#footnote10_0ac8mdc
Examples of Limits to Daily Activity

U.S. Department of Health & Human Services

A person with long COVID who has lung damage that causes shortness of breath, fatigue, and related effects is substantially limited in respiratory function, among other major life activities.

A person with long COVID who has symptoms of intestinal pain, vomiting, and nausea that have lingered for months is substantially limited in gastrointestinal function, among other major life activities.

A person with long COVID who experiences memory lapses and “brain fog” is substantially limited in brain function, concentrating, and/or thinking.

https://www.hhs.gov/civil-rights/for-providers/civil-rights-covid19/guidance-long-covid-disability/index.html#footnote10_0ac8mdc
Monitor Your Condition – Seek Emergency Care:

- Trouble breathing
- Persistent pain or pressure in the chest
- New confusion
- Inability to wake or stay awake
- Pale, gray or blue-colored skin, lips or nailbeds, depending on skin tone

Call 911 – Tell them you have COVID
<table>
<thead>
<tr>
<th>Monoclonal Antibody Treatment</th>
<th>VS</th>
<th>COVID Antiviral Pill</th>
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</thead>
<tbody>
<tr>
<td>Uses COVID-19 antibodies to help a person's body fight off the infection</td>
<td>Limits the ability of the virus to replicate</td>
<td></td>
</tr>
<tr>
<td>Given IV or a single-dose injection</td>
<td>Can be taken at home</td>
<td></td>
</tr>
<tr>
<td>Antibodies reduce the 'viral load' - amount of virus in a person's body</td>
<td>Reduces risk of hospitalization and death</td>
<td></td>
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</table>

Neither treatment is a replacement for the COVID-19 vaccine.
## Tips to help your mind, body, and emotions

<table>
<thead>
<tr>
<th></th>
<th>Manage information</th>
<th>Reduce Boredom</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td><strong>Limit Social Media</strong>&lt;br&gt;Choose 1-2 trusted news sources – check once a day</td>
<td><strong>Try something new</strong>&lt;br&gt;Play/exercise – get outdoors when possible&lt;br&gt;Focus on education</td>
</tr>
<tr>
<td>02</td>
<td><strong>Practice compassion</strong>&lt;br&gt;Focus on self kindness, connection and mindfulness.&lt;br&gt;Call, text, email, friends. Do something for others – bake, donate, etc&lt;br&gt;Use appropriate touch – hug, hold hands when safe&lt;br&gt;Address underlaying medical needs</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td><strong>Remind yourself that this is temporary</strong>&lt;br&gt;Reinforce strengths, abilities and gifts&lt;br&gt;Practice 5-4-3-2-1 grounding (5 things you can see, 4 things you can feel, 3 things you can hear, 2 things you can smell, 1 positive thing about yourself)</td>
<td><strong>Recognize feelings of loss</strong>&lt;br&gt;Name the losses and their importance&lt;br&gt;Allow time for processing&lt;br&gt;Access a counselor if needed</td>
</tr>
<tr>
<td>04</td>
<td></td>
<td><strong>Eat Healthy and Sleep</strong>&lt;br&gt;Eat fruit and veggies&lt;br&gt;Stay hydrated&lt;br&gt;Sleep at least 7 hours a night&lt;br&gt;BREATHE….deep, relaxing belly breaths</td>
</tr>
</tbody>
</table>
Resources

U.S. Department of Labor – Office of Disability Employment Policy – Coronavirus Resources

Federally funded COVID support and services for:

- Caregiver, Family Support
- Child Care, Early Childhood Development, Education
- Community Services, Supports
- Education Supports
- Food and Nutrition Supports
- Health Care Coverage and Access
- Housing
- Income, Financial Assistance
- Job Assistance
- Know Your Rights

Family and Medical Leave (FMLA)

*Provides certain employees with up to 12 weeks of unpaid, job protected leave per year*

**FMLA applies to:**
- Public agencies
- Public and private elementary and secondary schools
- Companies with more than 50 employees

**FMLA can be used for:**
- The birth and care of a newborn child of employee
- Placement with the employee of a child for adoption/foster care
- Care for an immediate family member (spouse, child, or parent) with serious health condition
- Medical leave if employee is unable to work because of a serious health condition

Source: U.S. Department of Labor
Family and Medical Leave (FMLA)

“Employees are eligible for leave if they have worked for their employer at least 12 months, at least 1,250 hours over the past 12 months, and work at a location where the company employs 50 or more employees within 75 miles.”

“Whether an employee has worked the minimum 1,250 hours of service is determined according to FLSA principles for determining compensable hours or work.”

Also:

Military family leave afford FMLA protections specific to the needs of military families

Planning for Long Covid

Find a Community

- Find people with the same condition
- Sense of community gives patients a place to discuss topics related to Long COVID
- Peer support - can meet virtually or meet up to see others
- Offer camaraderie and support
Planning for Long Covid

Experts suggest long covid patients and their families create a financial plan to prepare for a lengthy illness.

If needed, seek out:
- Food assistance
- Local programs offering transportation
- Housing stipends
- Utility bills

Start looking sooner, rather than later
Possible Accommodations for Long Covid

May be needed for children and adults

It’s important to provide flexibility as long covid patients may not have health or stamina to function properly.

Offer work from home options

Support is needed from employers and HR departments.
Long COVID is a Real Medical Condition

There are hundreds of centers across the U.S. that have clinicians from different specialties that collaborate to treat various Long COVID symptoms.

Hope and help are available

Put your questions in the question box
We’ll get to as many as we can!
Please remain online for 2 – 3 minutes to complete an evaluation survey!

Thank you!
Next Webinar

Join us for our next webinar:

Disparities in Allergy & Asthma Care: Leveling the Playing Field

Wednesday, March 22nd, 2023
4:00 PM ET