

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.



MEET OUR SPEAKER

Dr. Purvi Parikh

- Clinical Assistant Professor of Medicine NYU Langone School of Medicine
- 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



01

Johns Hopkins Global Map



COVID-19 Dashboard by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU)

Last Updated at (M/D/YYYY)
3/6/2023, 1:20 PM

Total Cases
676,075,121

Total Deaths
6,877,651

Total Vaccine Doses Administered
13,334,895,941

Cases | Deaths by Country/Region /Sovereignty

28-Day Cases
4,320,127

28-Day Deaths
30,650

28-Day Vaccine Doses Administered
105,932,188

US
28-Day: **1,040,263** | **10,429**
Totals: **103,654,533** | **1,122,253**

Japan
28-Day: **515,523** | **3,294**
Totals: **33,286,633** | **72,813**

Germany
28-Day: **388,274** | **2,269**
Totals: **38,210,851** | **168,397**

Russia
28-Day: **342,808** | **996**
Totals: **22,040,875** | **388,355**

Korea, South
28-Day: **305,954** | **420**
Totals: **30,581,499** | **34,049**

Taiwan*
28-Day: **302,092** | **985**
Totals: **9,970,937** | **17,672**

Brazil
28-Day: **213,808** | **1,911**
Totals: **37,076,053** | **699,276**

Austria
28-Day: **139,857** | **167**
Totals: **5,940,935** | **21,922**

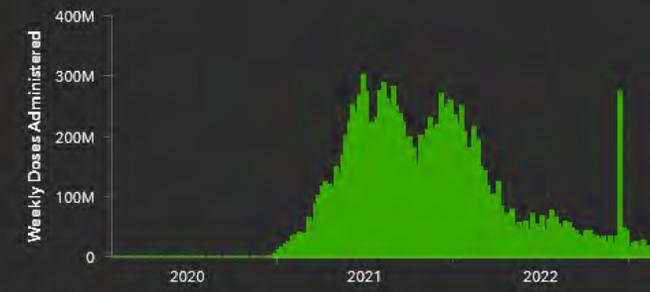
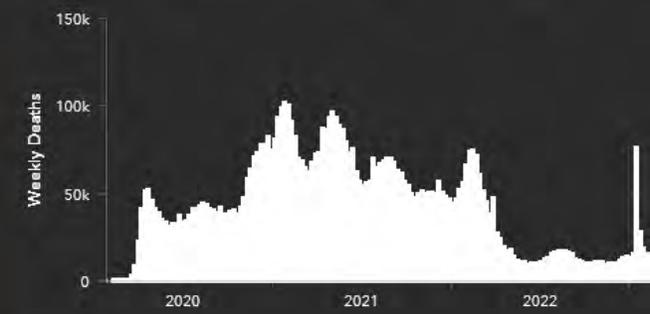
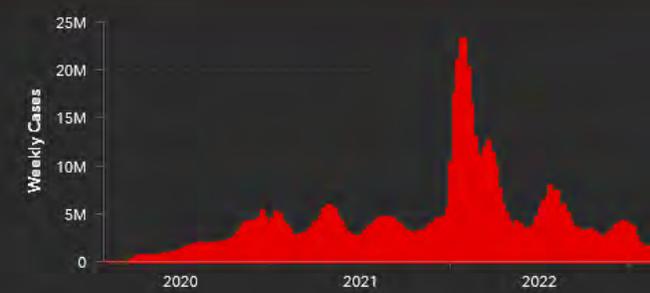
Italy
Admin0 Admin1 Admin2



Esri, FAO, NOAA, USGS

Powered by Esri

28-Day Totals Incidence Case-Fatality Ratio Global Vaccinations US Vaccinations Terms of Use



Weekly 28-Day

(Most likely underestimated due to home testing)

<https://coronavirus.jhu.edu/map.html>



COVID Data Tracker

Centers for Disease Control

Daily Update for the United States

Cases

New Cases (Weekly Total)

226,618

Case Trends



Jan 2023

Mar 2023

Deaths

New Deaths (Weekly Total)

2,290

Death Trends



Jan 2023

Mar 2023

Hospitalizations

New Admissions (Daily Avg)

2,837

Admission Trends



Jan 2023

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

<https://www.today.com/health/coronavirus/covid-blood-clots-warning-signs-rcna70086?search=lehman%20blood%20clots>

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

<https://www.cidrap.umn.edu/covid-19/covid-19-omicron-infection-linked-new-onset-diabetes>



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

<https://onlinelibrary.wiley.com/doi/10.1002/jmv.28187>

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*

https://www.today.com/health/disease/lung-cancer-symptoms-non-smoker-rcna70128?utm_campaign=likeshopme&cid=sm_npd_td_in_td-bio_180511&utm_medium=instagram&utm_source=dash%20hudson&utm_content=www.instagram.com/p/Co0yMrhOCLz/



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://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciac961/6948437>

<https://www.cidrap.umn.edu/covid-19/estimate-says-19-million-us-adults-have-long-covid>



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

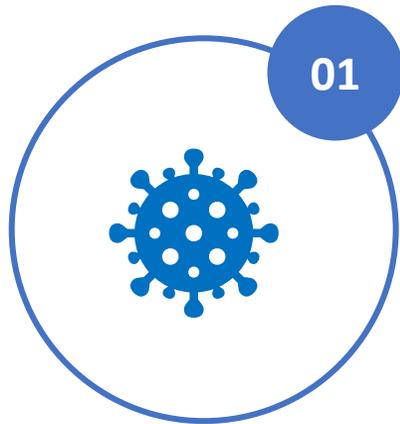
Nearly 9% of Hispanic adults currently have long COVID, higher than non-Hispanic White (7.5%) and Black (6.8%) adults, and over twice the percentage of non-Hispanic Asian adults (3.7%).

04

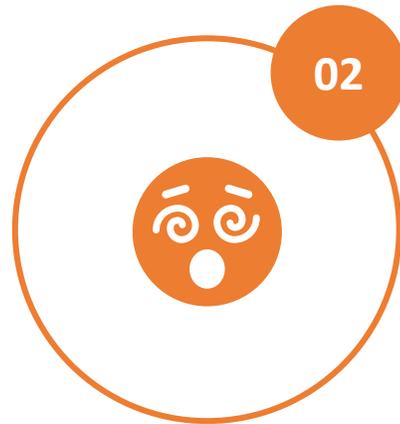
States with the highest percentage of adults with Long COVID were Kentucky (12.7%), Alabama (12.1%), and Tennessee and South Dakota (11.6%). The states with the lowest percentage of adults with Long COVID are Hawaii (4.5%), Maryland (4.7%) and Virginia (5.1%).

Symptoms of Long COVID

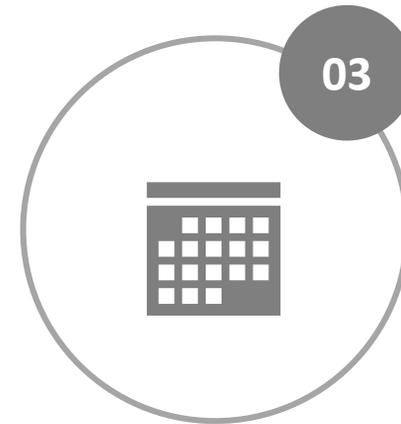
Centers for Disease Control



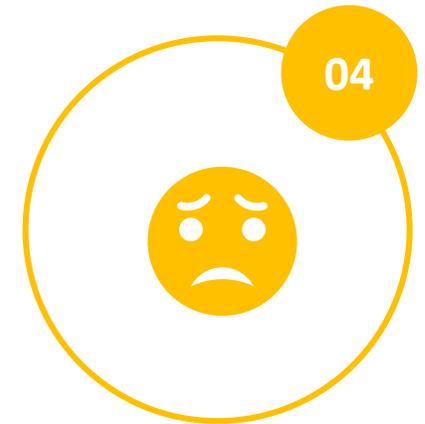
New, returning, or ongoing health problems



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



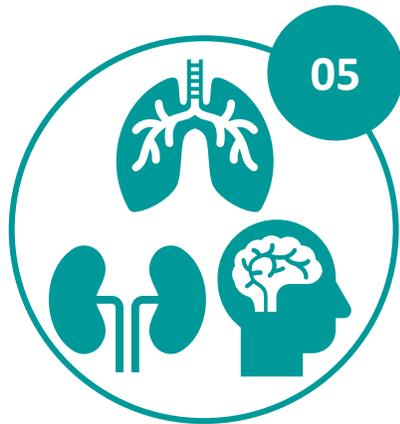
Can slowly improve over time



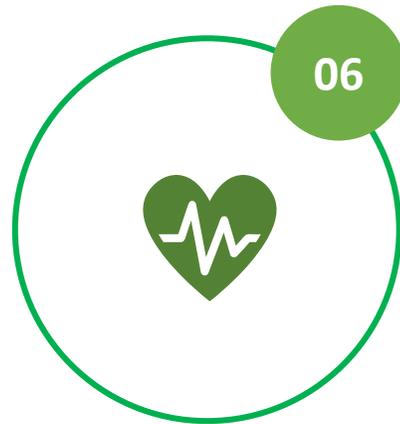
Symptoms can be hard to manage

Symptoms of Long COVID

Centers for Disease Control



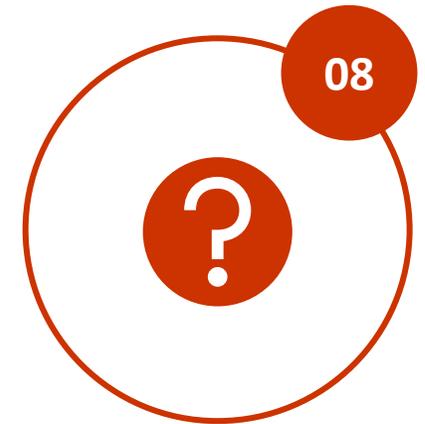
Can affect multiple organs



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



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



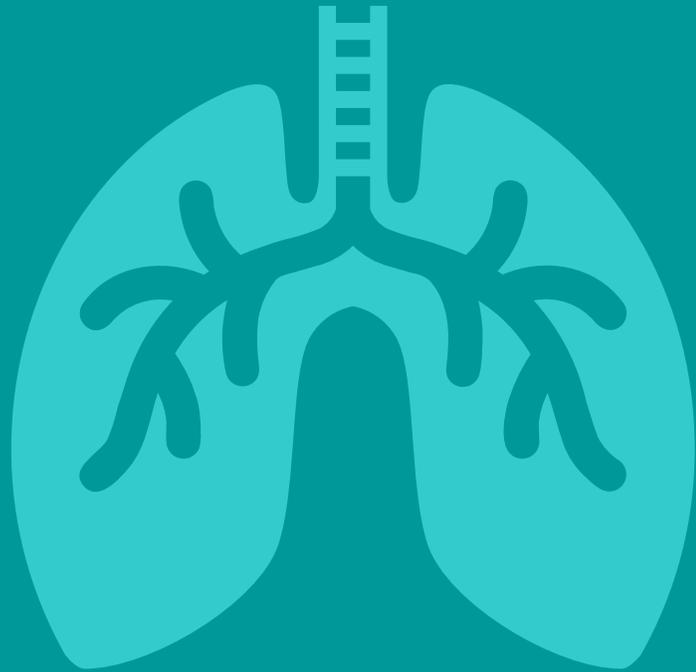
Symptoms can be hard to explain – and blood tests, chest x-rays and electrocardiograms can all appear normal

Common Long COVID Symptoms

Centers for Disease Control



How Does COVID Impact Asthma?



02

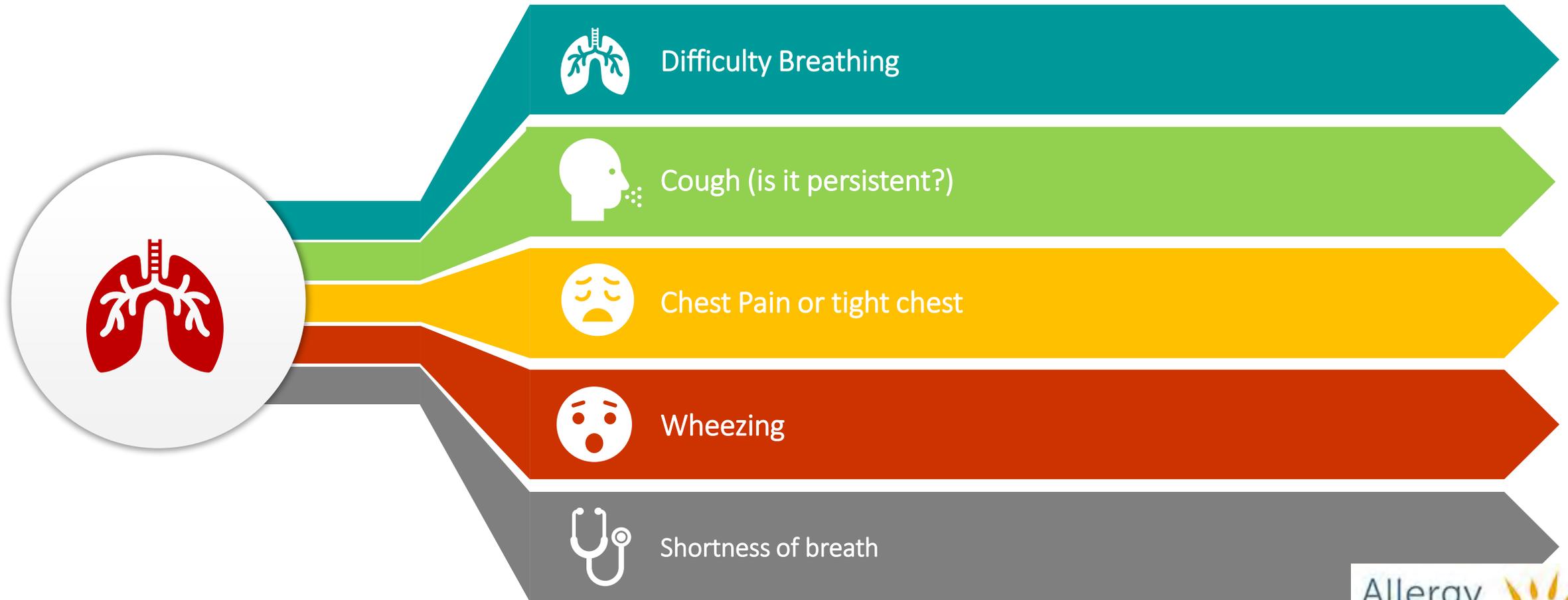
Asthma Control Worsening after COVID



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

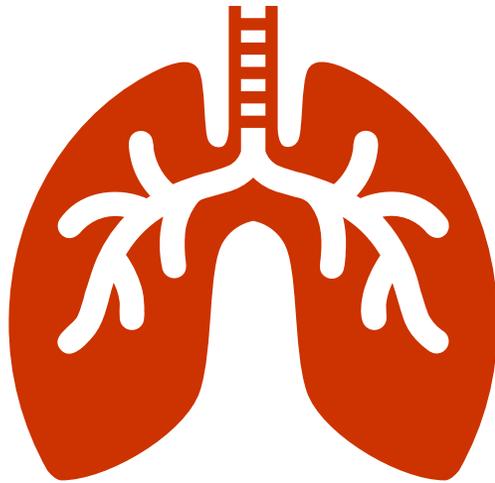
Some asthma patients had a chronic worsening of their asthma that required an increase in medication to stabilize their asthma

Respiratory symptoms



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

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>

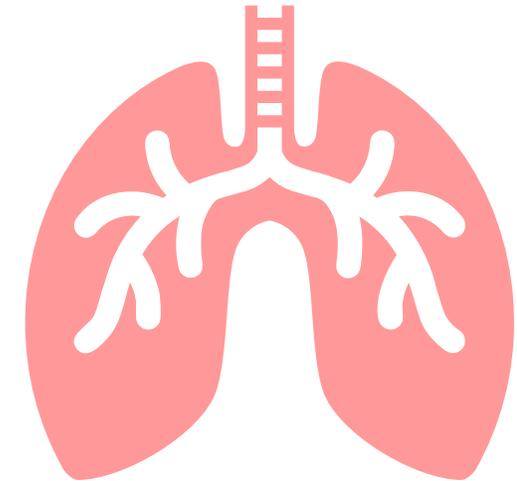
<https://www.today.com/health/coronavirus/covid-blood-clots-warning-signs-rcna70086?search=dale%20lehman>

Could Lung Issues Be Something Else?

Also from the “In the News” slide

Lung Cancer can mimic asthma

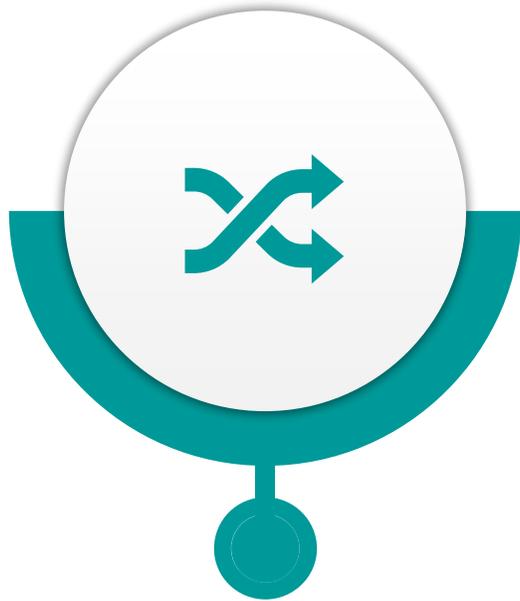
- Difficulty breathing
- Irregular heartbeat or faster than normal
- Chest pain or discomfort that is worse when you take a breath or cough
- Feeling lightheaded or faint
- Coughing up blood



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



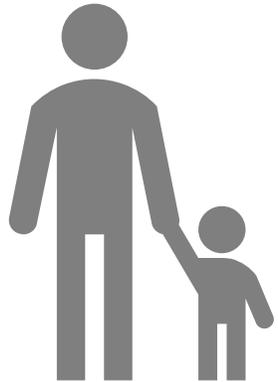
Accommodations:
extra time on
tests, rest times,
modified class
schedule



Accommodations
can help: thinking,
concentrating, or
physical activities

Increasing Asthma Medications to Achieve Control

Children 5 years and younger



Children 5 years and younger

Personalized asthma management:

Assess, Adjust, Review response

Symptoms
Exacerbations
Side-effects
Parent satisfaction



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

Treat modifiable risk factors and comorbidities
Non-pharmacological strategies
Asthma medications
Education & skills training

Asthma medication options:

Adjust treatment up and down for individual child's needs

PREFERRED CONTROLLER CHOICE

STEP 1

STEP 2

Daily low dose inhaled corticosteroid (ICS)
(see table of ICS dose ranges for pre-school children)

STEP 3

Double 'low dose' ICS

STEP 4

Continue controller & refer for specialist assessment

Other controller options

Daily leukotriene receptor antagonist (LTRA), or intermittent short courses of ICS at onset of respiratory illness

Low dose ICS + LTRA
Consider specialist referral

Add LTRA, or increase ICS frequency, or add intermittent ICS

RELIEVER

As-needed short-acting β_2 -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. ≥ 3 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.

Asthma diagnosis, and asthma not well-controlled on low dose ICS

Asthma not well-controlled on double ICS

Before stepping up, check for alternative diagnosis, check inhaler skills, review adherence and exposures

Increasing Asthma Medications to Achieve Control

Children 6-11 years



Children 6-11 years

Personalized asthma management:
Assess, Adjust, Review

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

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

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

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

PREFERRED CONTROLLER
to prevent exacerbations and control symptoms

STEP 1
Low dose ICS taken whenever SABA taken

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 (MART)

STEP 4
Medium dose ICS-LABA, OR low dose† ICS-formoterol maintenance and reliever therapy (MART). Refer for expert advice

STEP 5
Refer for phenotypic assessment ± higher dose ICS-LABA or add-on therapy, e.g. anti-IgE

Other controller options

Consider daily low dose ICS

Daily leukotriene receptor antagonist (LTRA), or low dose ICS taken whenever SABA taken

Low dose ICS + LTRA

Add tiotropium or add LTRA

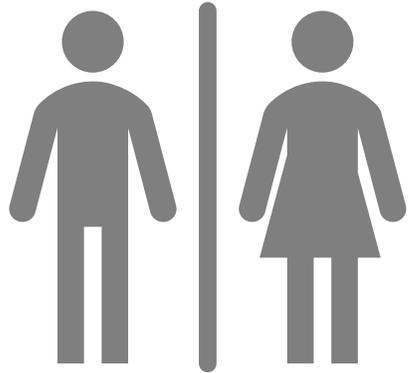
Add-on anti-IL5, or add-on low dose OCS, but consider side-effects

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

*Very low dose: BUD-FORM 100/6 mcg
†Low dose: BUD-FORM 200/6 mcg (metered doses).

Increasing Asthma Medications to Achieve Control

12 and older



Adults & adolescents 12+ years

Personalized asthma management

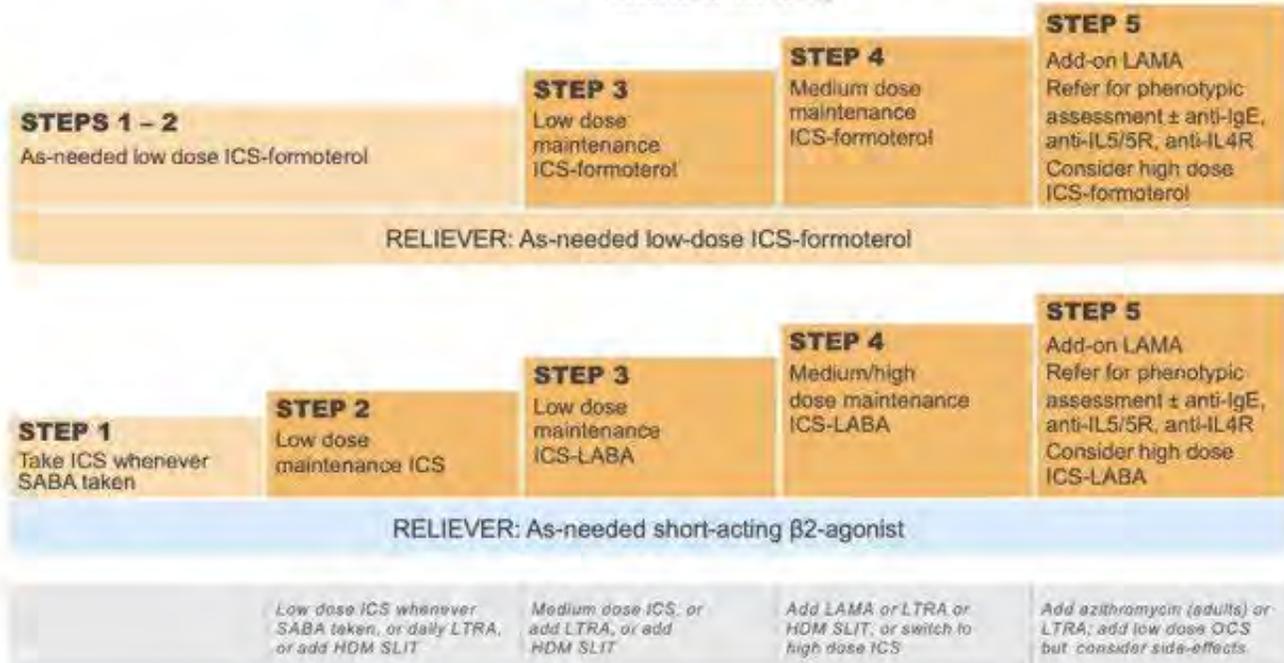
Assess, Adjust, Review
for individual patient needs



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



What Treatments Are Available?



02

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.

COVID-19 MEDICATIONS

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

03

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

04

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 (tocilizumab)
 - *For hospitalized patients*

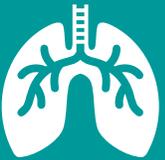
Emergency Use Authorization

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

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 Safety

U.S. Fire Administration

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.health.ny.gov/prevention/injury_prevention/children/toolkits/fire/docs/home_oxygen_fire_safety.pdf

<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

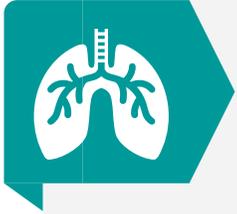
“In July, 2021, “long COVID” (also known as post-COVID conditions) was added as a recognized condition that could result in a disability under the Americans with Disability Act (ADA)” *

- 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)***

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.

Monitor Your Condition – Seek **Emergency** Care:

Trouble
breathing

01

Persistent
pain or
pressure in
the chest

02

New
confusion

03

Inability to
wake or
stay awake

04

Pale, gray or blue-
colored skin, lips or
nailbeds,
depending on skin
tone

05

Call 911 – Tell them you have COVID



COVID-19 Treatments

Monoclonal Antibody Treatment

VS

COVID Antiviral Pill

Uses COVID-19 antibodies to help a person's body fight off the infection

Given IV or a single-dose injection

Antibodies reduce the 'viral load' - amount of virus in a person's body

Limits the ability of the virus to replicate

Can be taken at home

Reduces risk of hospitalization and death

Neither treatment is a replacement for the COVID-19 vaccine.

Allergy & Asthma NETWORK

AllergyAsthmaNetwork.org

Allergy & Asthma NETWORK

Tips to help your mind, body, and emotions

01

Manage information

Limit Social Media
Choose 1-2 trusted news sources – check once a day

02

Practice compassion

Focus on self kindness, connection and mindfulness.
Call, text, email, friends. Do something for others – bake, donate, etc
Use appropriate touch – hug, hold hands when safe
Address underlying medical needs

03

Remind yourself that this is temporary

Reinforce strengths, abilities and gifts
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*)

04

Reduce Boredom

Try something new
Play/exercise – get outdoors when possible
Focus on education

05

Recognize feelings of loss

Name the losses and their importance
Allow time for processing
Access a counselor if needed

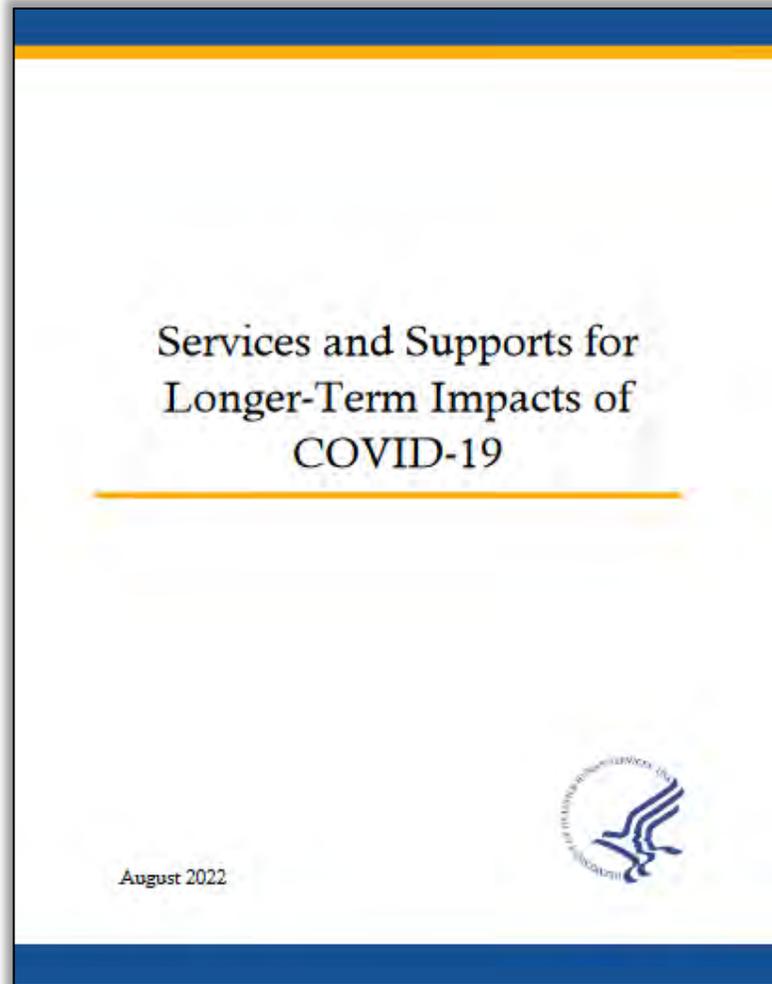
06

Eat Healthy and Sleep

Eat fruit and veggies
Stay hydrated
Sleep at least 7 hours a night
BREATHE....deep, relaxing belly breaths

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 series 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

<https://resphealth.org/wp-content/uploads/2022/12/Long-COVID-Clinics-Final-1.pdf>





QUESTIONS



**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