

# COVID 19 Long Haul: What Primary Care Needs to Know

---

ALISHA PARADA, MD, FACP

UNIVERSITY OF NEW MEXICO

# Disclosures

---

Nothing to Disclose

# Objectives

---

Understand the definition of SARS-CoV-2 long hauler/ PASC symptoms and how they effect patients with prior COVID infection

Understand the role of the primary care clinician in the evaluation of these symptoms and up to date resources for management and care

Review any current guidelines on evaluation and care



# About me

---

Native New Mexican, trained at the University of New Mexico

Primary Care Physician, complex chronic disease management, transitions of care, Integrative Medicine

Currently Division Chief, General Internal Medicine and Geriatrics

Helped to develop COVID follow up clinic at the University of New Mexico April 2020 for ambulatory care of actively infectious COVID patients who were not hospitalized

Currently also caring for patients with post COVID complaints

# Definitions

---

~10% of patients infected with COVID 19 experience long term symptoms post COVID infection

+ COVID test not a prerequisite for diagnosis

Post-COVID, long-haulers, long COVID, etc.

PASC; Post-acute sequelae of SARS-COV-2 infection

- Research term (NIH)- studies being conducted

NIH definition:

- **Acute COVID-19:** signs and symptoms of COVID-19 for up to 4 weeks.
- **Ongoing symptomatic COVID-19:** signs and symptoms of COVID-19 from 4 to 12 weeks.
- **Post-COVID-19 syndrome:** signs and symptoms that develop during or after an infection consistent with COVID-19, continue for more than 12 weeks and are not explained by an alternative diagnosis.

CDC definition: > 4 weeks after SARS-CoV-2 infection

- regardless of symptom severity
- New or recurrent symptoms

[Post-COVID Conditions: Information for Healthcare Providers \(cdc.gov\)](#)

[Overview | COVID-19 rapid guideline: managing the long-term effects of COVID-19 | Guidance | NICE](#)

# Post-COVID

---

## Multi-organ effects:

- Mild to severe
- Cannot predict severity of symptoms or organ damage on severity of illness
  - Post-mortum studies showing damage out of proportion of symptoms

## Post Intensive Care Syndrome

- Complicates post COVID syndrome, overlapping

## Uncontrolled underlying medical conditions

- New diagnosis or chronic
- Lack of medical care during pandemic
- Significant weight gain during lock-down
- Direct effect of virus

# Most commonly reported symptoms:



# Severe complications of COVID infection

---

Thromboembolism

Ventricular dysfunction

Interstitial lung disease

Myocarditis

Pericarditis

MI

Dysrhythmia

Stroke

Encephalitis

Cranial neuropathies

Psychological



# Hospital Readmissions in COVID patients

---

Premier Health Database-865 hospitals

In hospitalized patients, 9% were readmitted to the same hospital within 2 months of discharge (n=106,543 with COVID dx)

Multiple readmissions in 1.6%

- Risk factors: age >65, chronic medical issues (COPD, Heart Failure, CKD), SNF or Home Health Care
- Readmission diagnoses: Infectious (COVID19), circulatory and digestive
- Non-hispanci white patients readmitted more frequently

[Lavery AM, Preston LE, Ko JY, et al. Characteristics of Hospitalized COVID-19 Patients Discharged and Experiencing Same-Hospital Readmission - United States, March-August 2020. MMWR Morb Mortal Wkly Rep. 2020 Nov 13;69\(45\):1695-1699. doi: 10.15585/mmwr.mm6945e2](#)

# Hospital Readmissions

---

Multi hospital cohort in Michigan

- 1 in 3 patients died during hospitalization or within 60 days of discharge
- Survivors reported ongoing symptoms causing significant morbidity
- 1 in 5 had 0 primary care follow up within 60 days of discharge

[Chopra V, Flanders SA, O'Malley M, et al. Sixty-Day Outcomes Among Patients Hospitalized With COVID-19. Ann Intern Med. 2020 Nov 11. doi: 10.7326/M20-5661external icon](#)

# Multiorgan dysfunction and COVID infection

---

NHS hospitals in England, n=47,780

- 30% patients readmitted
- 12% died after discharge
- Rates of respiratory disease, DM and CVD increased in COVID patients compared to matched controls

[Ayoubkhani D, Khunti K, Nafilyan V, et al. Post-covid syndrome in individuals admitted to hospital with covid-19: retrospective cohort study. BMJ. 2021 Mar 31;372:n693. doi:10.1136/bmj.n693external icon](#)

# Myalgic Encephalitis/Chronic Fatigue Syndrome

---

Prevalence of 0.17-0.89% in gen population

- Women>men
- May be triggered by infection/stressors

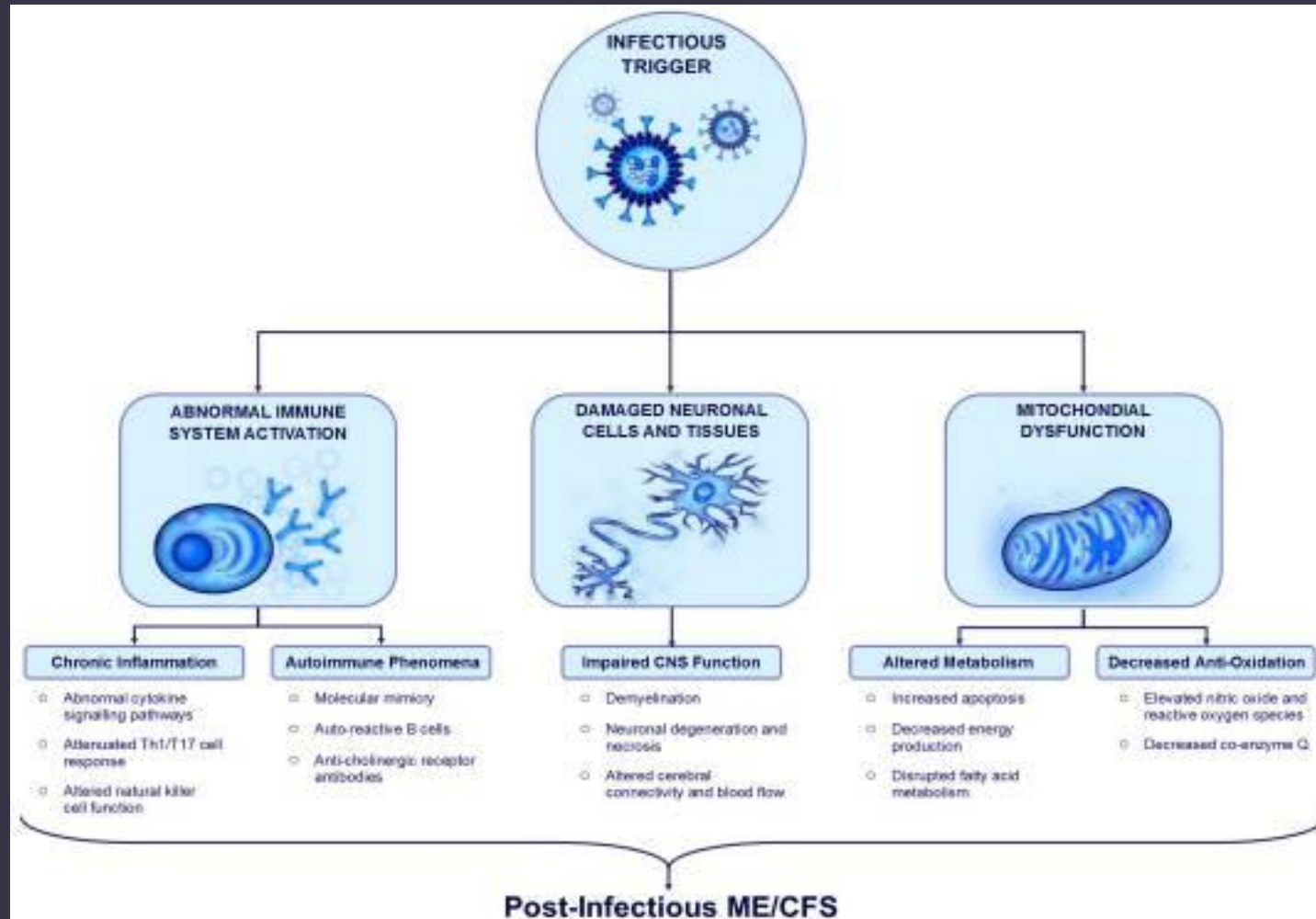
5 core symptoms for diagnosis

- Fatigue
- Post-exertional malaise
- Cognitive changes
- Sleep disturbance
- Orthostatic intolerance

Secondary symptoms may be present

Symptoms not relieved by rest, persist more than 6 months without any significant clinical or lab findings

# Post-Infectious ME/CFS



# Primary Care role in post COVID infection

---

# Primary Care is Essential

---

CDC currently recommends that Primary Care Providers are the first line of evaluation

- Work up symptoms based on routine medical guidance
- “back to basics”
- Perform history and physical, order compliant specific labs, routine annual disease related screenings
- For respiratory complaints, 6-min walk test, lung exam, consider further imaging if necessary

# Work up

---

No current guidelines on frequency of follow up imaging, labs

- Some current consensus on chest ray 12 weeks post infection for continued symptoms

For patients with complications from COVID infection (severe)

- Seek specialty guidance for patients significant complications (myocarditis, ILD, neurological deficits, immunocompromised)

Use validated tools to assess cognitive impairment, mood disturbances

Evaluate quality of life, social determinants

Patient Centered/Holistic Approach

Interdisciplinary team based care

Challenging in rural communities



# "Long covid" in primary care

Assessment and initial management of patients with continuing symptoms

Post-acute covid-19 appears to be a multi-system disease, sometimes occurring after a relatively mild acute illness. Clinical management requires a whole-patient perspective. This graphic summarises the assessment and initial management of patients with delayed recovery from an episode of covid-19 that was managed in the community or in a standard hospital ward.



### An uncertain picture

The long term course of covid-19 is unknown. This graphic presents an approach based on evidence available at the time of publication. However, caution is advised, as patients may present atypically, and new treatments are likely to emerge

### Managing comorbidities

Many patients have comorbidities including diabetes, hypertension, kidney disease or ischaemic heart disease. These need to be managed in conjunction with covid-19 treatment. Refer to condition specific guidance, available in the associated article by Greenhalgh and colleagues

### Investigations

Clinical testing is not always needed, but can help to pinpoint causes of continuing symptoms, and to exclude conditions like pulmonary embolism or myocarditis. Examples are provided below:

**Blood tests**

- Full blood count
- Electrolytes
- Liver and renal function
- Troponin
- C reactive protein
- Creatine kinase
- D-dimer
- Brain natriuretic peptides
- Ferritin – to assess inflammatory and prothrombotic states

**Other investigations**

- Chest x ray
- Urine tests
- 12 lead electrocardiogram

### Clinical assessment

**04** Full history: From date of first symptom

Current symptoms: Nature and severity

**Examination, for example:**

- Temperature
- Heart rate and rhythm
- Blood pressure
- Respiratory examination
- Functional status
- Pulse oximetry
- Clinical testing (If indicated)

Assess comorbidities

Social and financial circumstances

### Social, financial, and cultural support

Prolonged covid-19 may limit the ability to engage in work and family activities. Patients may have experienced family bereavements as well as job losses and consequent financial stress and food poverty. See the associated article by Greenhalgh and colleagues for a list of external resources to help with these problems

### Safety netting and referral

The patient should seek medical advice if concerned, for example:

- Worsening breathlessness
- PaO<sub>2</sub> < 96%
- Unexplained chest pain
- New confusion
- Focal weakness

Specialist referral may be indicated, based on clinical findings, for example:

- Respiratory** if suspected pulmonary embolism, severe pneumonia
- Cardiology** if suspected myocardial infarction, pericarditis, myocarditis or new heart failure
- Neurology** if suspected neurovascular or acute neurological event

**Pulmonary rehabilitation** may be indicated if patient has persistent breathlessness following review

### Medical management

- Symptomatic, such as treating fever with paracetamol
- Optimise control of long term conditions
- Listening and empathy
- Consider antibiotics for secondary infection
- Treat specific complications as indicated

### Self management

- Daily pulse oximetry
- Attention to general health
- Rest and relaxation
- Self pacing and gradual increase in exercise if tolerated
- Set achievable targets

**Diet**

- Sleep
- Quitting smoking
- Limiting alcohol
- Limiting caffeine

### Mental health

**In the consultation:**

- Continuity of care
- Avoid inappropriate medicalisation
- Longer appointments for patients with complex needs (face to face if needed)

**In the community:**

- Community linkworker
- Patient peer support groups
- Attached mental health support service
- Cross-sector partnerships with social care, community services, faith groups

# Recommended Approach

---

Continuity of care

Shared Decision Making

Trauma Informed Care

Symptoms Journals

At Home Self Monitoring-provide parameters

- Oxygen saturations
- Blood pressure
- CBGs

# Resources in NM

---

## Limited

- Nationally- multiple COVID long hauler clinics being developed
  - Most are Interdisciplinary
- University of New Mexico- in progress
  - University of New Mexico-in progress
  - PASC research (waiting on decision)
  - ECHO long hauler session (grant submitted)
  - Mircobiome studies (grants in progress)
- University of New Mexico-currently
  - COVID pulmonary clinic- for patients with hypoxia >60 days from infection
  - Neurocognitive research studies
  - COVID follow up clinic (Transitions of Care Clinic)

# Case Discussions

---

# References

---

[Post-COVID Conditions: Information for Healthcare Providers \(cdc.gov\)](#)

[Overview | COVID-19 rapid guideline: managing the long-term effects of COVID-19 | Guidance | NICE](#)

[Post-intensive care syndrome: impact, prevention, and management | European Respiratory Society \(ersjournals.com\)](#)

[Lavery AM, Preston LE, Ko JY, et al. Characteristics of Hospitalized COVID-19 Patients Discharged and Experiencing Same-Hospital Readmission - United States, March-August 2020. MMWR Morb Mortal Wkly Rep. 2020 Nov 13;69\(45\):1695-1699. doi: 10.15585/mmwr.mm6945e2](#)

[Chopra V, Flanders SA, O'Malley M, et al. Sixty-Day Outcomes Among Patients Hospitalized With COVID-19. Ann Intern Med. 2020 Nov 11. doi: 10.7326/M20-5661external icon](#)

[Ayoubkhani D, Khunti K, Nafilyan V, et al. Post-covid syndrome in individuals admitted to hospital with covid-19: retrospective cohort study. BMJ. 2021 Mar 31;372:n693. doi:10.1136/bmj.n693external icon](#)

[Poenaru S, Abdallah SJ, Corrales-Medina V, Cowan J. COVID-19 and post-infectious myalgic encephalomyelitis/chronic fatigue syndrome: a narrative review. Ther Adv Infect Dis. 2021;8:20499361211009385. Published 2021 Apr 20. doi:10.1177/20499361211009385](#)

[The Johns Hopkins Post-Acute COVID-19 Team \(PACT\): A Multidisciplinary, Collaborative, Ambulatory Framework Supporting COVID-19 Survivors - The American Journal of Medicine \(amjmed.com\)](#)

## For patients

- [Long COVID \(sign.ac.uk\)](#)
- [Coronavirus \(COVID-19\): Longer-term effects \(long COVID\) | NHS inform](#)
- [How to conserve your energy – RCOT](#)
- [001751 covid19-the road to recovery activity planner v3.pdf \(csp.org.uk\)](#)
- [How to look after your mental health during the coronavirus outbreak | Mental Health Foundation](#)