Post-COVID Conditions

Long COVID

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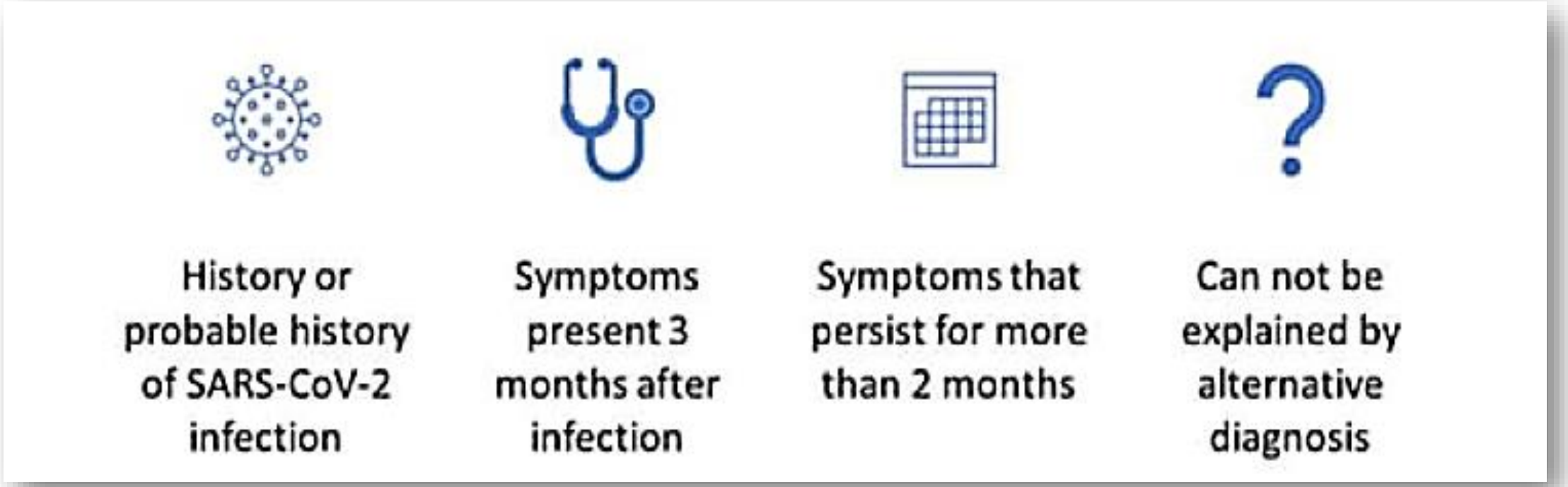
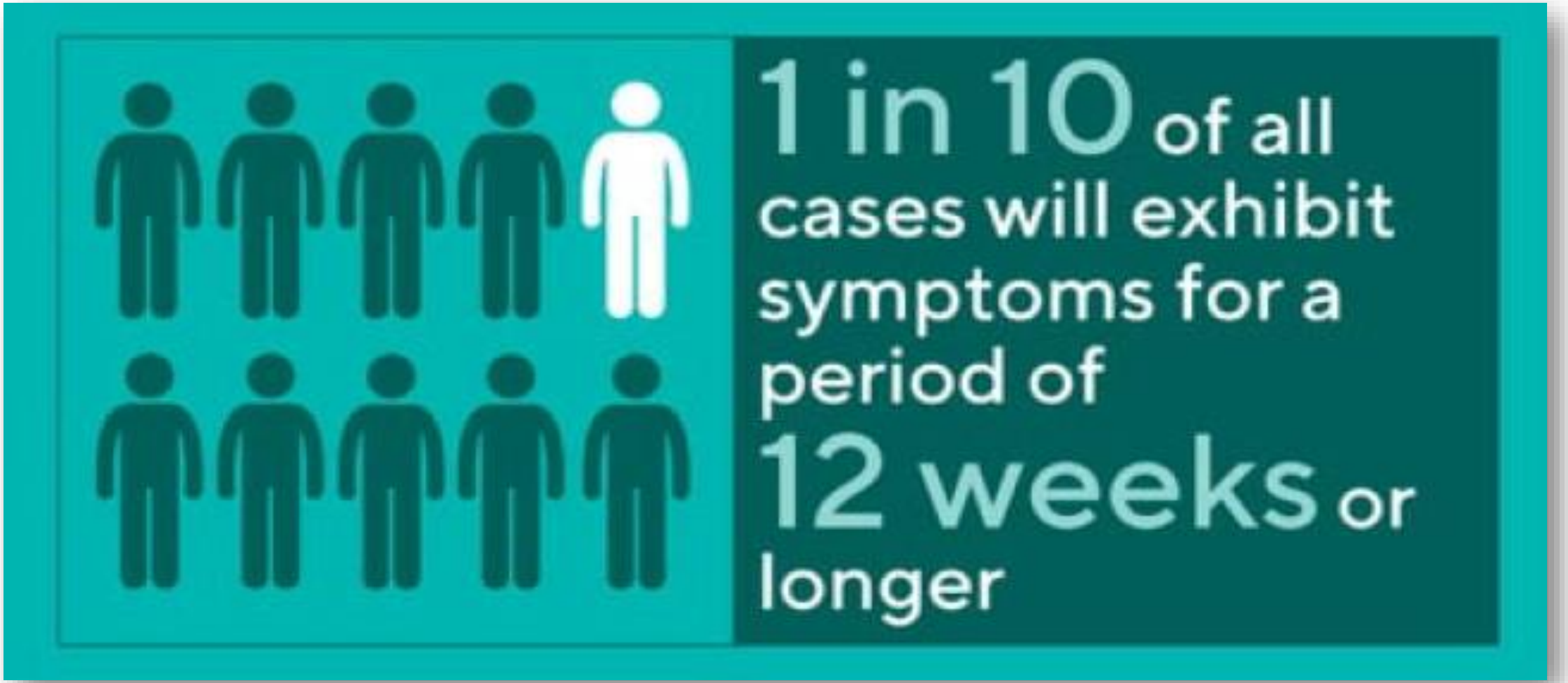
Definition

- (WHO) : continuation or development of new symptoms 3 months after the initial covid 19 infection, with these symptoms lasting for at least 2 months with no other explanation.



How common is?



Predictors / Risk Factors for Long-COVID

NO VACCINATION
SEVERE COVID
ILLNESS

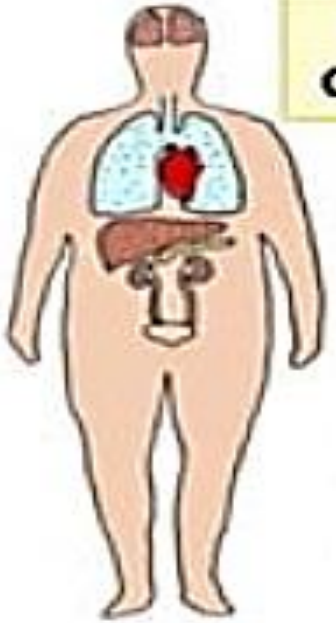
Abnormal Lab Results

- Lymphopenia
- Thrombocytopenia
- Elevated D-dimer, LDH, Troponin
- Elevated CRP, Ferritin, IL-6
- Deranged Coagulation Profile

Older Age Groups

Long COVID

Underlying Comorbidities



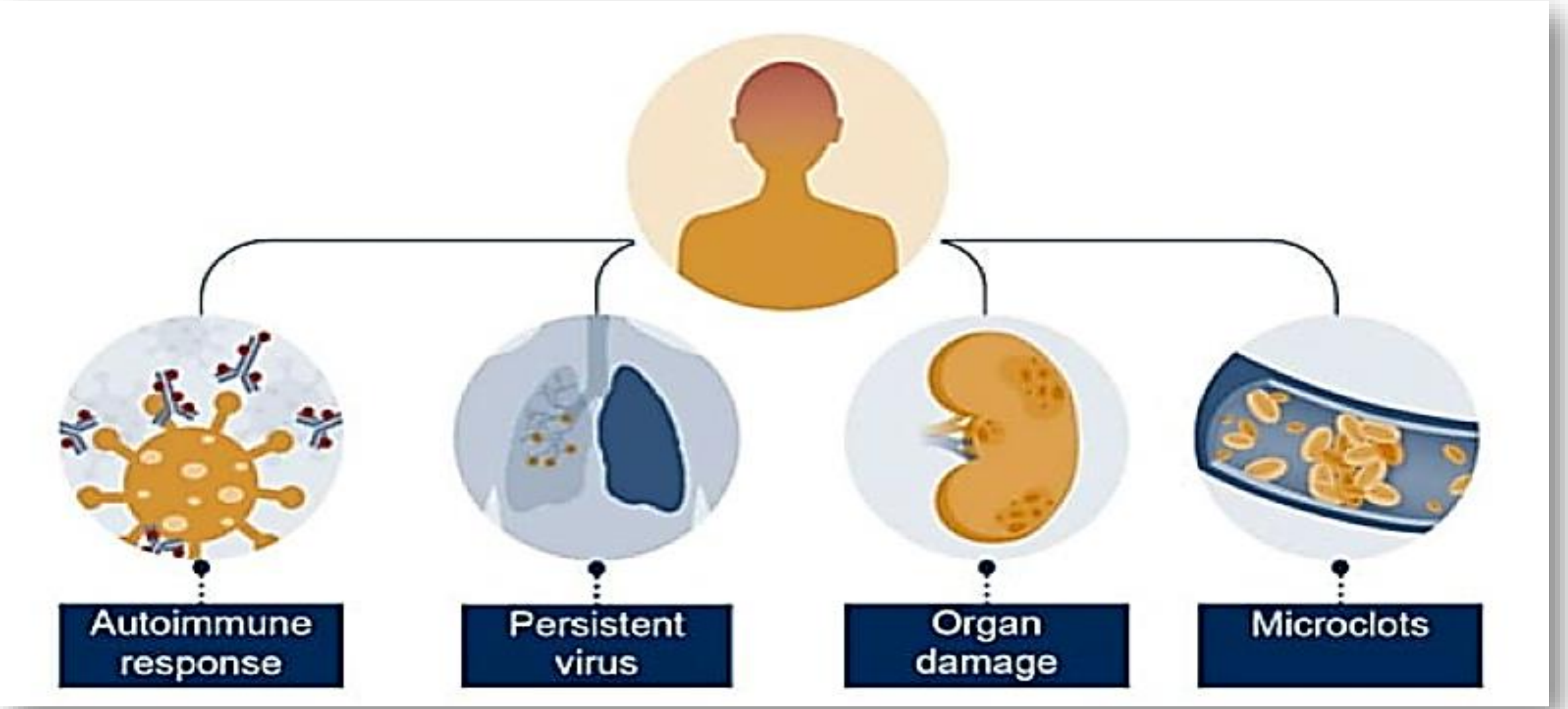
- Diabetes
- Hypertension
- Obesity
- Cardiovascular diseases
- Smoking
- Chronic alcoholism
- Chronic kidney disease

Disease severity, Length of ICU stay & Assisted Ventilation

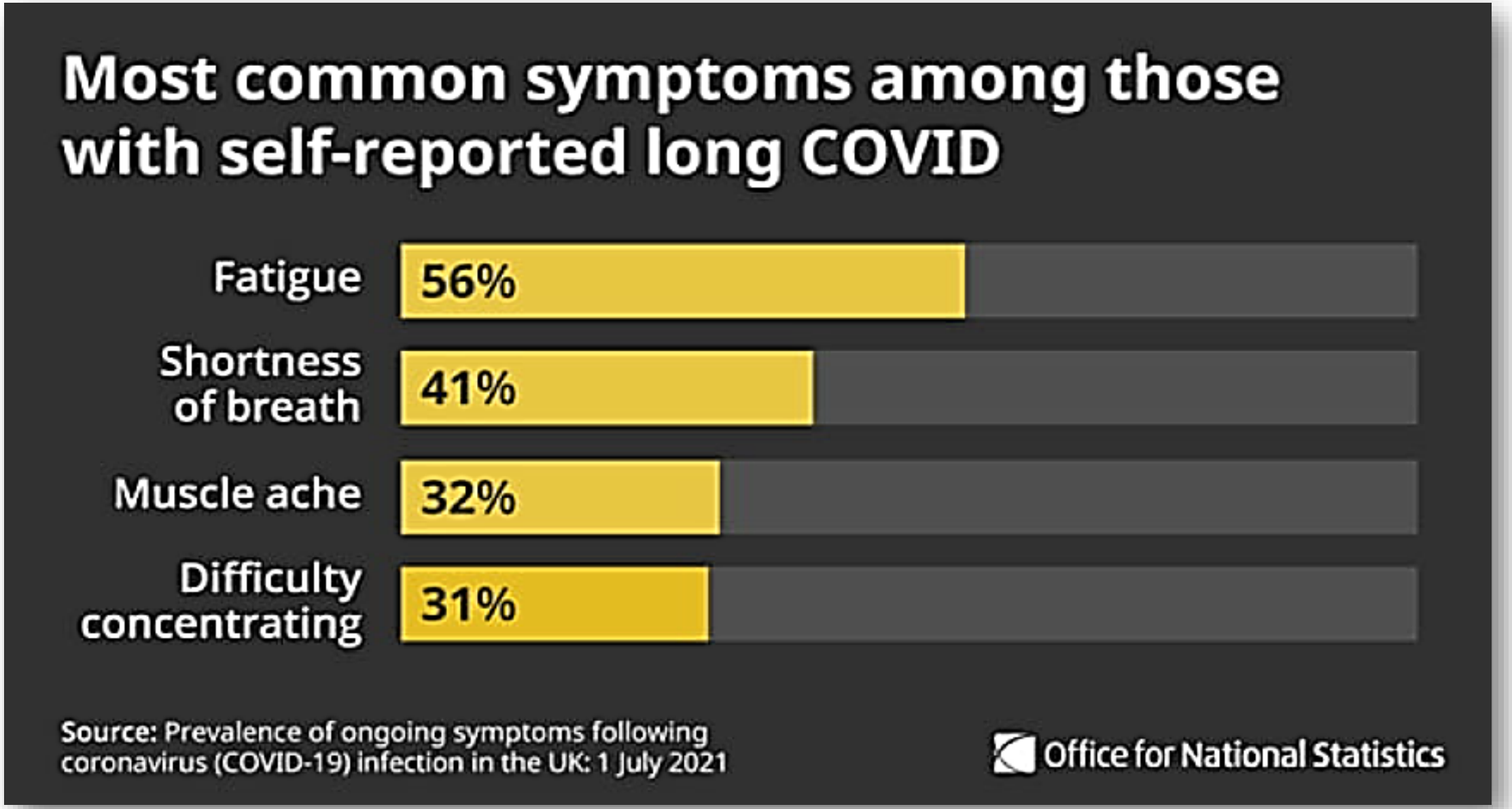
Miscellaneous Factors

- > 5 Symptoms during 1st week of infection
- Middle aged females (50-60 years)
- Superadded infection

- **Mechanism :**


Autoimmune response
Persistent virus
Organ damage
Microclots

Symptoms


Most common symptoms among those with self-reported long COVID
Fatigue
56%
Shortness of breath
41%
Muscle ache
32%
Difficulty concentrating
31%
Source: Prevalence of ongoing symptoms following coronavirus (COVID-19) infection in the UK: 1 July 2021
Office for National Statistics

- Respiratory symptoms

Cough

Chest pain

Fast-beating or pounding heart

- Neurological symptoms

Headache

Sleep problems

Pins-and-needles feelings

Change in smell or taste

Depression or anxiety

- **Digestive symptoms**

Diarrhea

Stomach pain

Reproductive system

Erectile dysfunction

Irregular menstruation

Reduced sperm count

Other symptoms

Joint or muscle pain

Rash

Changes in menstrual cycles

Diabetes


Kids Get
Long COVID Too

Diagnostic tools

- Tilt table tests for POTS postural orthostatic tachycardia syndrome
- MRI scans : cardiovascular impairment
- Hyperpolarized MRI : pulmonary gas exchange abnormalities
- Microclots corneal microscopy : identify small fiber neuropathy
- New fragmentation of QRS complex as indicative of cardiac injury
- Biomarkers / immune markers
- Dogs can identify individuals with long COVID on the basis of sweat samples

Symptoms and/or biological mechanism	Treatments
Postexertional malaise	Pacing
POTS Postural Orthostatic Tachycardia Syndrome	Pharmacological: β-blockers, pyridostigmine, fludrocortisone, midodrine
	Non-pharmacological: increase salt and fluid intake, intravenously administered salt, compression stockings
Immune dysfunction	Intravenous immunoglobulin
Cognitive dysfunction	Cognitive pacing
Cognitive dysfunction	Postconcussion syndrome protocols
Fatigue	Coenzyme Q_{10}, D-ribose
Pain, fatigue, neurological symptoms	Low-dose naltrexone
Fatigue, unrefreshing sleep, brain fog	Low-dose aripiprazole
Autoimmunity	BC007
Abnormal clotting	Anticoagulants
Abnormal clotting	Apheresis

Viral persistence and antivirals (COVID-19)	Paxlovid **Nirmatrelvir/ritonavir**
Viral persistence and antivirals (reactivations such as of EBV, HCMV and VZV)	Valaciclovir, famciclovir, valganciclovir and other antivirals
Endothelial dysfunction	Sulodexide
Gastrointestinal symptoms	Probiotics
Dysautonomia	Stellate ganglion block
Endothelial function, microcirculation, inflammatory markers and oxidative stress	Pycnogenol
MCAS **Mast cell activation syndrome**	H_1 and H_2 antihistamines, particularly famotidine
Autonomic dysfunction	Transcutaneous vagal stimulation

Expected recovery time course

Depends on risk factors , severity of acute illness

- Shorter recovery (e.g., two weeks) for those with mild disease

- Longer recovery (e.g., two to three months or longer) for those with more severe disease

- *In the largest study to date, long COVID symptom duration was 9 months in hospitalized individuals and 4 months in nonhospitalized individuals.*

Preventing long covid

- Taking up offers of COVID-19 vaccines/boosters

WeThankU

Thank you for your
amazing support in 2020