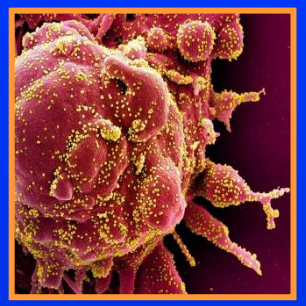
متلازمة ما بعد كورونا
Post COVID-19 Syndrome
Post-acute COVID-19 syndrome
Long COVID



Dr Abdul Monem HAMID

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Service de Pneumologie et Transplantation Pulmonaire

Hôpital FOCH PARIS

30 October 2021

Pour votre santé, Foch s'engage

Contents

1) Introduction
2) Definition
3) Symptoms and clinical manifestations
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5) Functional Status scale and assessment
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up-to-date
27/10/2021
AMH

Introduction

Covid-19 pandemic

1) Who should receive priority in being tested?
2) How to implement contact tracing ?
3) How to treat patients?
4) How to decide who should get ventilators?
5) How to decide who should get vaccines ?
6) How to manage persistent symptoms post-COVID ?
7) What about rehabilitation ?

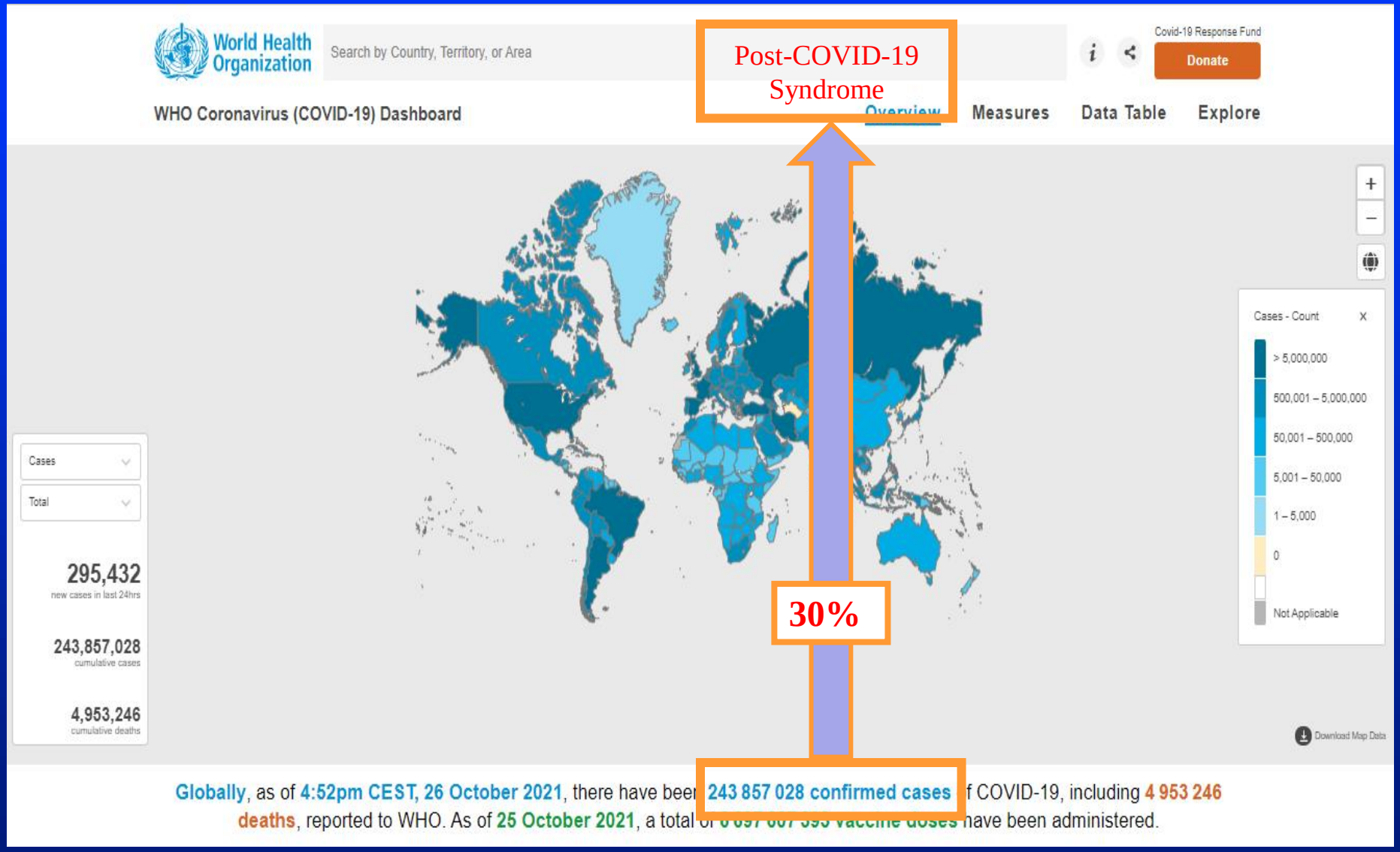
Harald Schmidt, “Vaccine Rationing and the Urgency of Social Justice in the Covid-19 Response,” *Hastings Center Report* 50 (2020): 1-4. DOI: 10.1002/hast.1113

New cases


Nouveaux cas
France
Toute la période
60 000
40 000
20 000
0
26 oct. 2021
Nouveaux cas: 6 603
Moy. 7 jours: 5 389
21 mai
16 août
11 nov.
6 févr.
4 mai
30 juil.
25 oct.
Nouveaux cas
Moyenne sur 7 jours

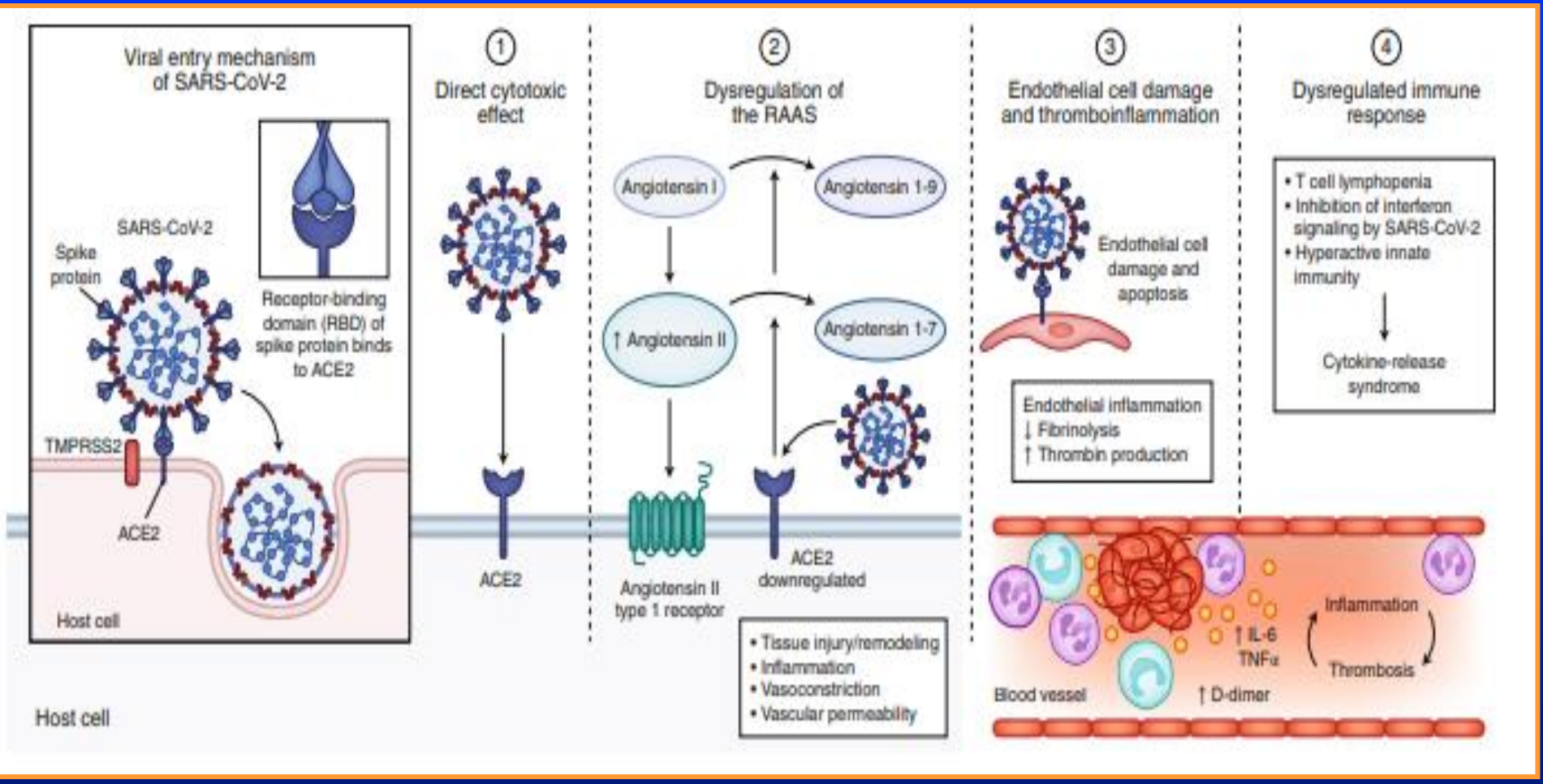

Nouveaux cas
Monde entier
Toute la période
1,0 M
800 000
600 000
400 000
200 000
0
26 oct. 2021
Nouveaux cas: 433 790
Moy. 7 jours: 419 293
21 avr.
22 juil.
22 oct.
22 janv.
24 avr.
25 juil.
25 oct.
Nouveaux cas
Moyenne sur 7 jours

Why talk about Post COVID Syndrom?



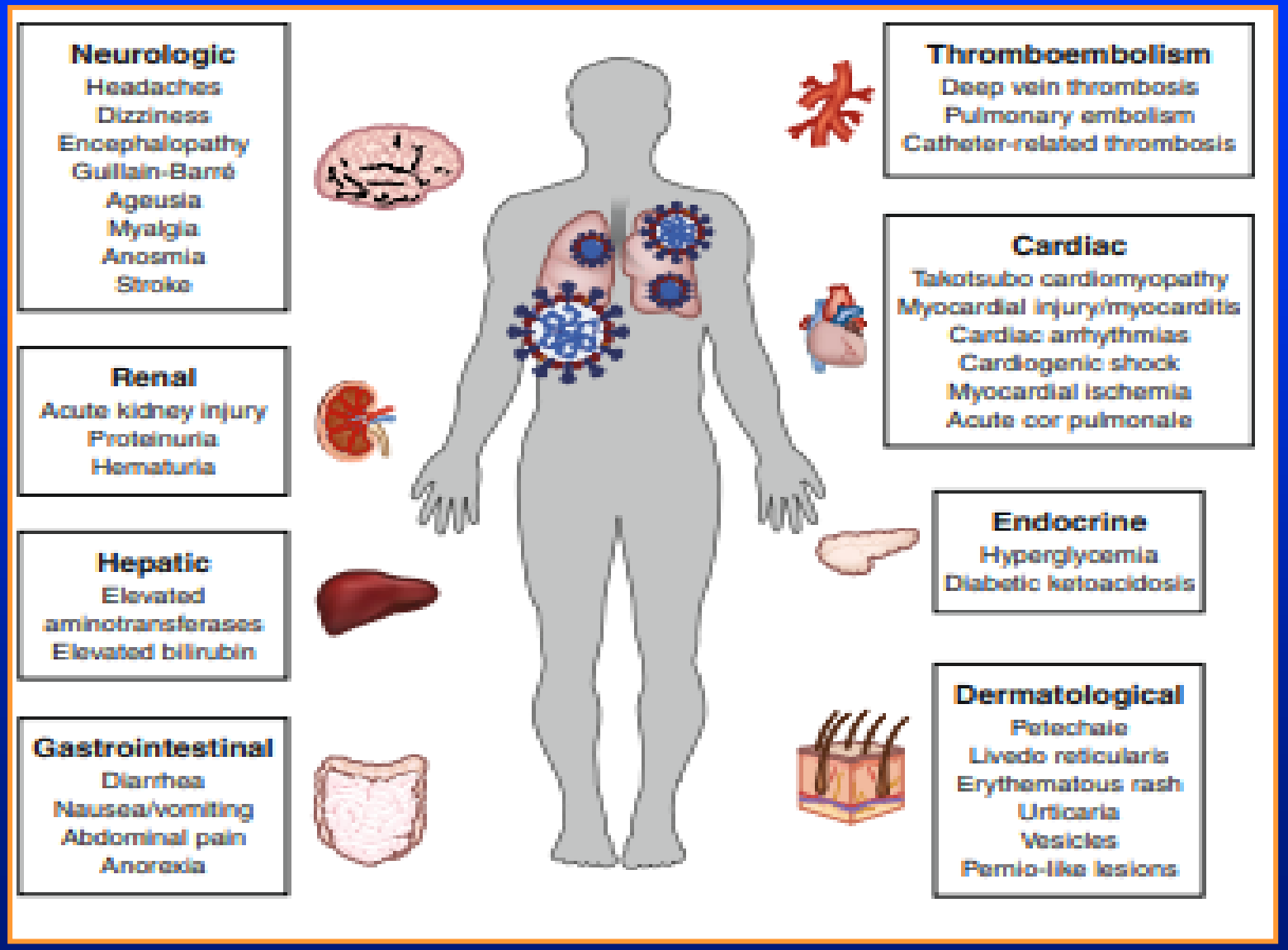
WHO Coronavirus (COVID-19) Dashboard | WHO Coronavirus
htpps://covid19,who,into

Pathophysiology of SARS-CoV-2



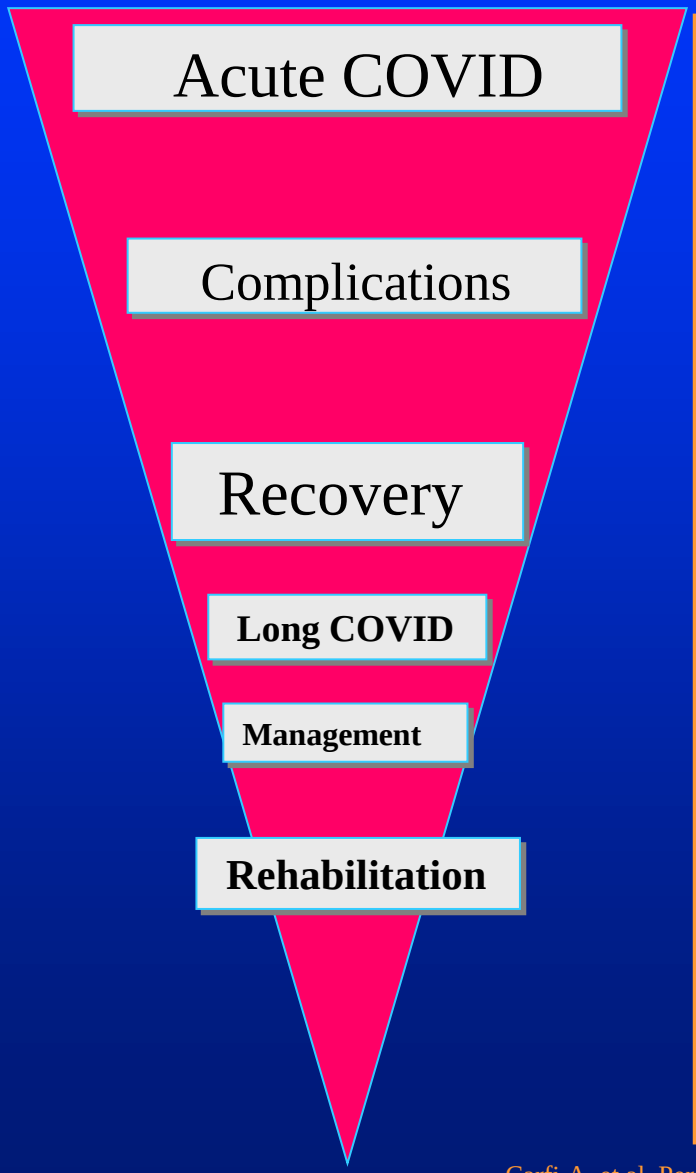
Nature Medicine **volume 26**, pages1017–1032(2020)

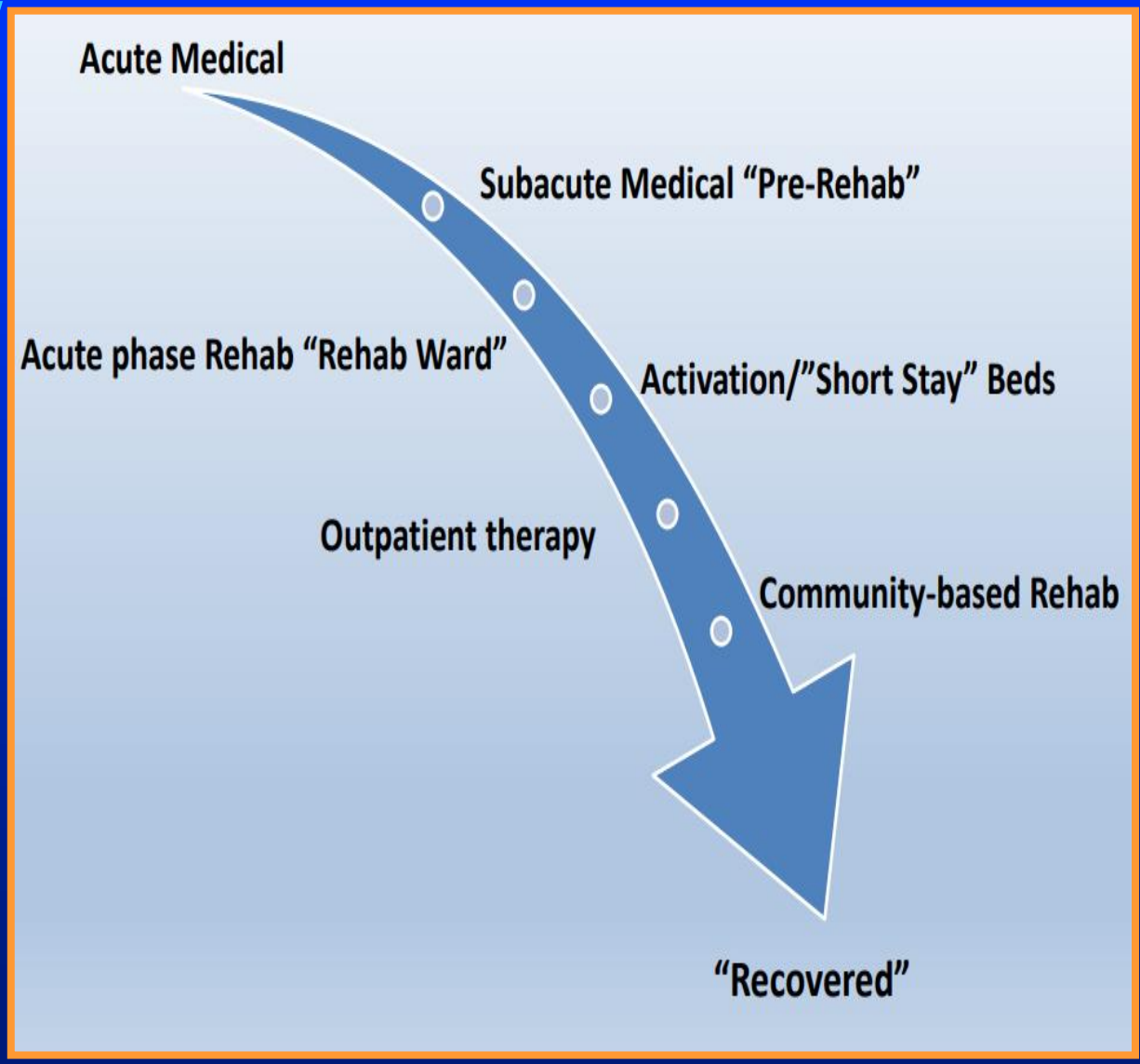
Multisystemic manifestations of COVID-19



Nature Medicine volume 26, pages1017–1032(2020)

Evolution of SARS-COV-2

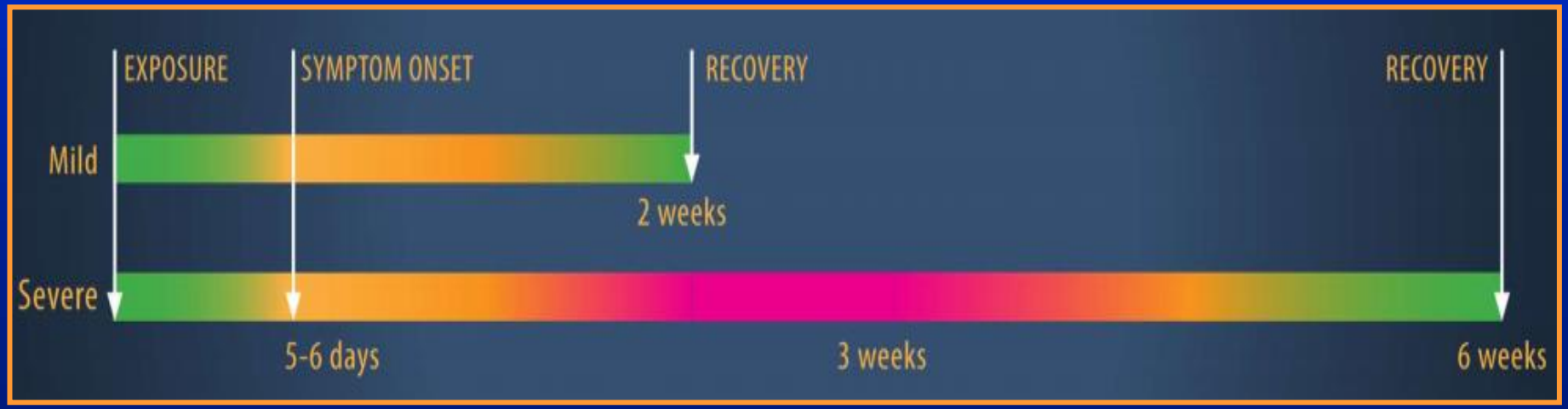




Carfi A, et al. Persistent symptoms in patients after acute COVID-19. JAMA. 2020; doi:10.1001/jama.2020.12603.

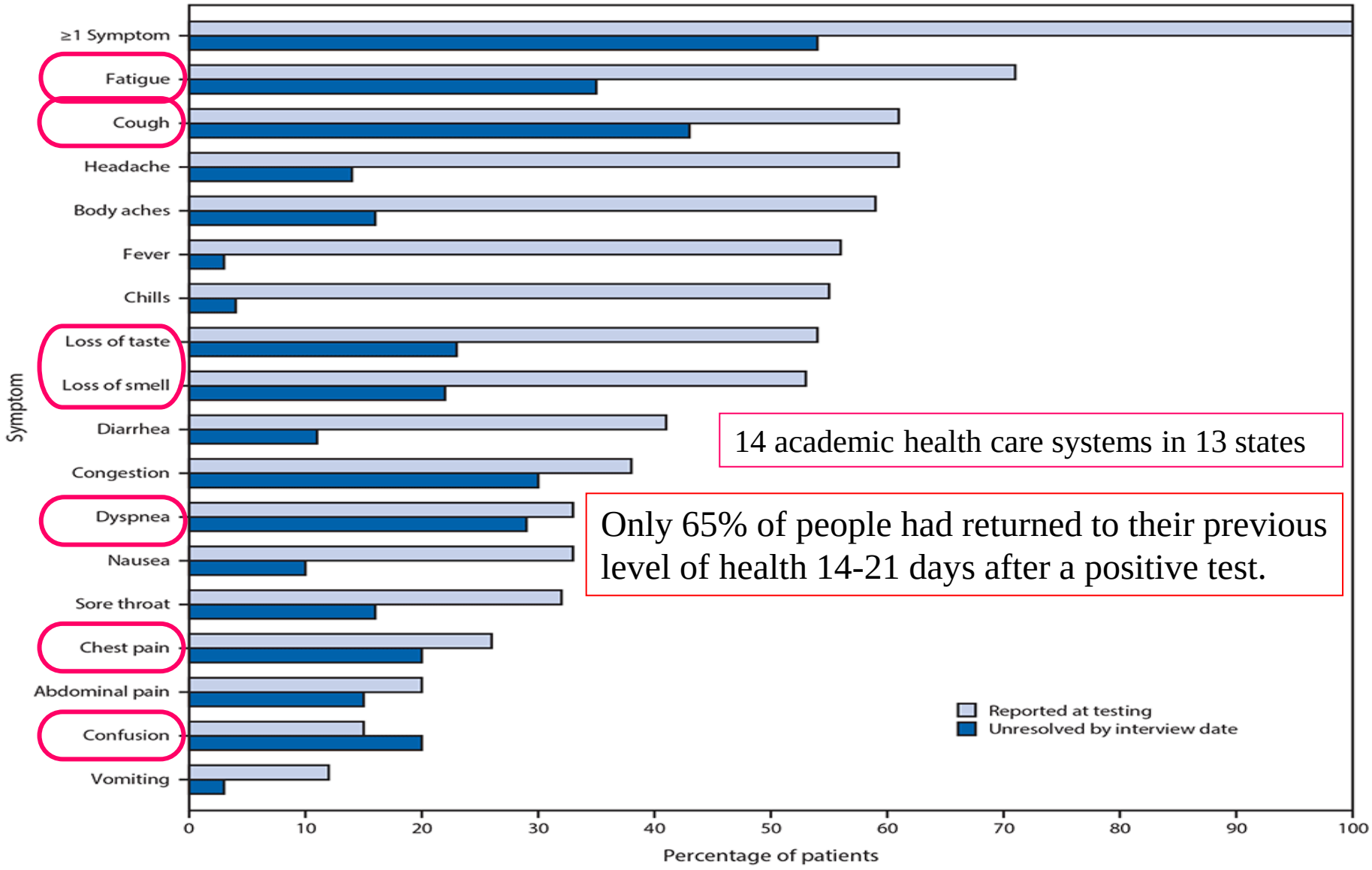
COVID-19 disease severity and lingering symptoms

- Most people with COVID-19 experience mild symptoms or moderate illness.
- 10-15% of cases progress to severe disease, and about 5% become critically ill.
- Typically people recover from COVID-19 after 2 to 6 weeks.
- For some people, some symptoms may linger or recur for weeks or months following initial recovery.
- People are not infectious to others during this time.
- This can also happen in people with mild disease.
- Some patients develop medical complications that may have lasting health effects.



Page last reviewed: July 30, 2020, 01:00 PM
MMWR / July 31, 2020 / Vol. 69 / No. 30
US Department of Health and Human Services/Centers for Disease Control and Prevention

Self-reported symptoms at the time of positive SARS-CoV-2 testing results and unresolved symptoms 14–21 days later among outpatients (N = 274)



doi: 10.15585/mmwr.mm6930e1 pmid: 32730238 , United States, March–June 2020

Definition

Difinition

- Long Covid :
  1. Post-acute covid-19 as extending beyond 3weeks?/8? weeks from the onset of first symptoms
  2. Chronic covid-19 as extending beyond 12 weeks
- It seems to be a multisystem disease and need multidisciplinary teams
- It may take weeks or months to return to one’s pre-infection baseline
- The post-Covid syndrome in 5 questions
  1. What are the symptoms?
  2. How many people suffer from it?
  3. How can we diagnosed this syndrome?
  4. What is the reason for this persistence?
  5. How can these persistent symptoms be treated?

BMJ 2020;370:m3026 http://dx.doi.org/10.1136/bmj.m3026 Published: 11 August 2020
Goërtz YMJ, Van Herck M, Delbressine JM, et al. Persistent symptoms 3 months after a SARS-CoV-2 infection: the post-COVID-19 syndrome?. ERJ Open Res 2020; 6: 00542-2020 [https://doi.org/10.1183/23120541.00542-2020].

Definition

- The precise definition of these long-term complications remains to be defined
- The duration of chronic symptoms after initial presentation.

1. The term “post-acute COVID-19 syndrome” was proposed to define
   - symptoms and abnormalities persisting or present
   - beyond 12 weeks of the onset of acute COVID-19
   - not attributable to alternative diagnoses

2. The term “long COVID”
   - unclear and worrying wording
   - suggest the presence of a chronic SARS-CoV-2 infection

,Montani D, Savale L, Beurnier A, et al. Multidisciplinary approach for post-acute COVID-19 syndrome: time to break down the walls. Eur Respir J 2021; in press (https://doi.org/10.1183/13993003.01090-2021).
,doi:10.1038/s41591-021-01283-z.
,doi:10.1136/bmj.n405

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- It seems to be a multisystem disease and need multidisciplinary teams
- It may take weeks or months to return to one's pre-infection baseline
- It may affect patients of any age
- The post-Covid syndrome in 5 questions
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  3. How can we diagnosed this syndrome?
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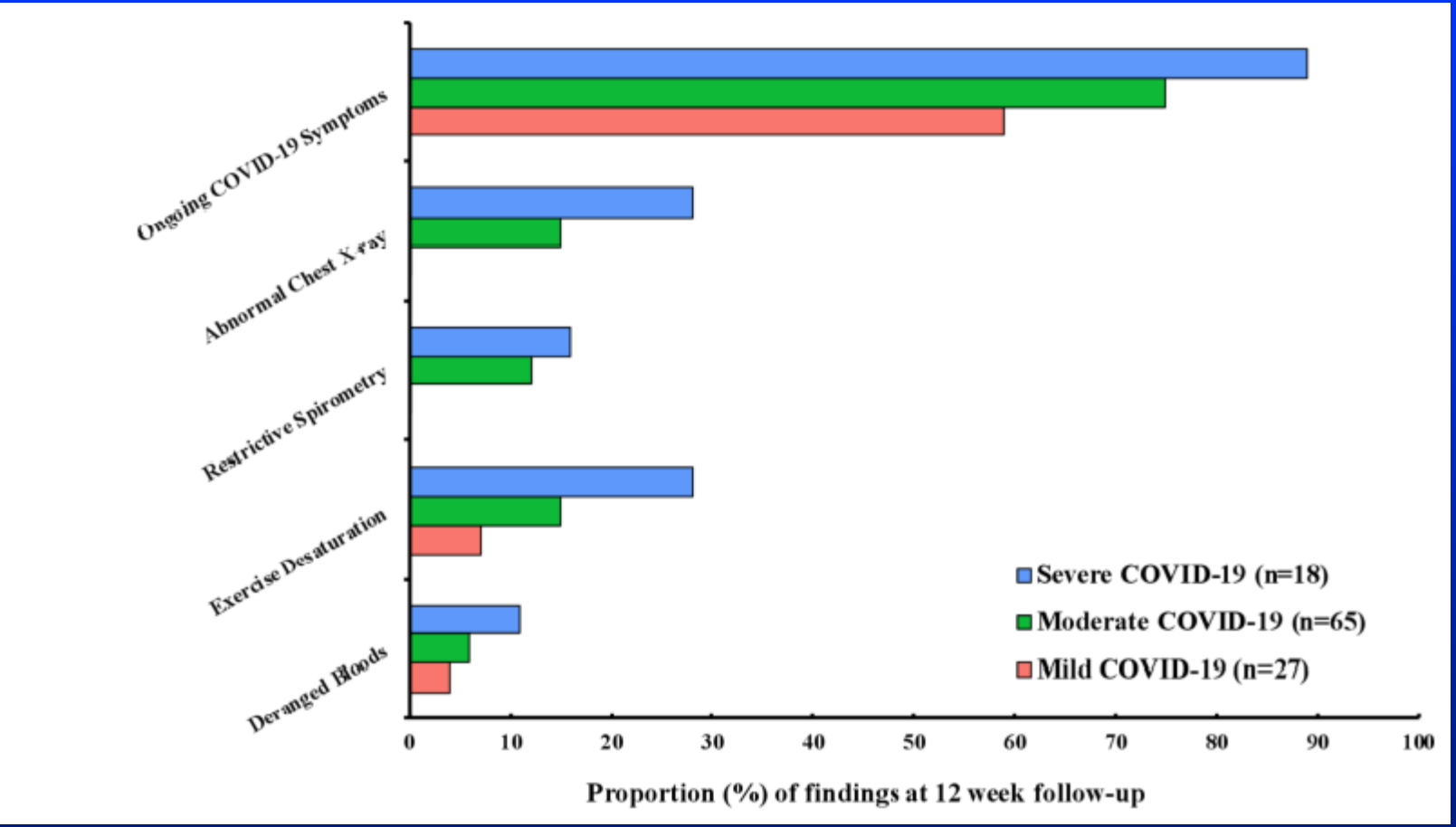
What is post COVID 19 Syndrome?

- People continue to suffer.
- The return to their former health trajectory is slow and painful.
- Paul Garner, a professor of epidemiology at Liverpool School of Tropical Medicine,UK, wrote on the 95th day after the onset of symptoms that
  - I am unable to be out of bed for more than three hours at a stretch,
  - my arms and legs are permanently fizzing as if injected with Szechuan peppercorns,
  - I have ringing in the ears, intermittent brain fog, palpitations,
  - and dramatic mood swings.
- These patients are
  - not only those recovering from the severe of the acute disease
  - but also those who had mild and moderate disease

www.thelancet.com/infection Vol 20 October 2020

Summary of symptomatology and clinical results by disease severity



Arnold DT, et al. Thorax 2020;0:1–4. doi:10.1136/thoraxjnl-2020-216086

Cause of Post COVID syndrome

Persisent Symptoms

Psychosomatic manifestations ?

Complications

Inflammatory Immune Reaction or consequences?

disturbance of the nervous system

Side-effects of immunomodulatory treatment

Sequelae?

New or Relapse infection?

Whay are some people affected ?

This would prevent patients
even young ones
from returning to a normal life.

www.thelancet.com/infection Vol 20 October 2020

What tests and consultations are required?

Beyond 8 weeks	9-11 weeks	Beyond 12 weeks
First evaluation	Other evaluation	Deeply investigations
Cs Family Doctor	Other Specialists	Post COVID center
• Biological tests • Echocardiography • Chest CT Scan • ,,,,,,,,,,,,	• Pneumologist • Neurologist • ,,,,,,,,,,, • Rule out other diagnosis	• Work hand in hand with specialists • Understanding the physiopathologie of this entity • Adequate treatment

B. Davido et al. / Clinical Microbiology and Infection 26 (2020) 1448e1449

Symptoms
and
clinical manifestations

Multisystemic manifestations of long COVID

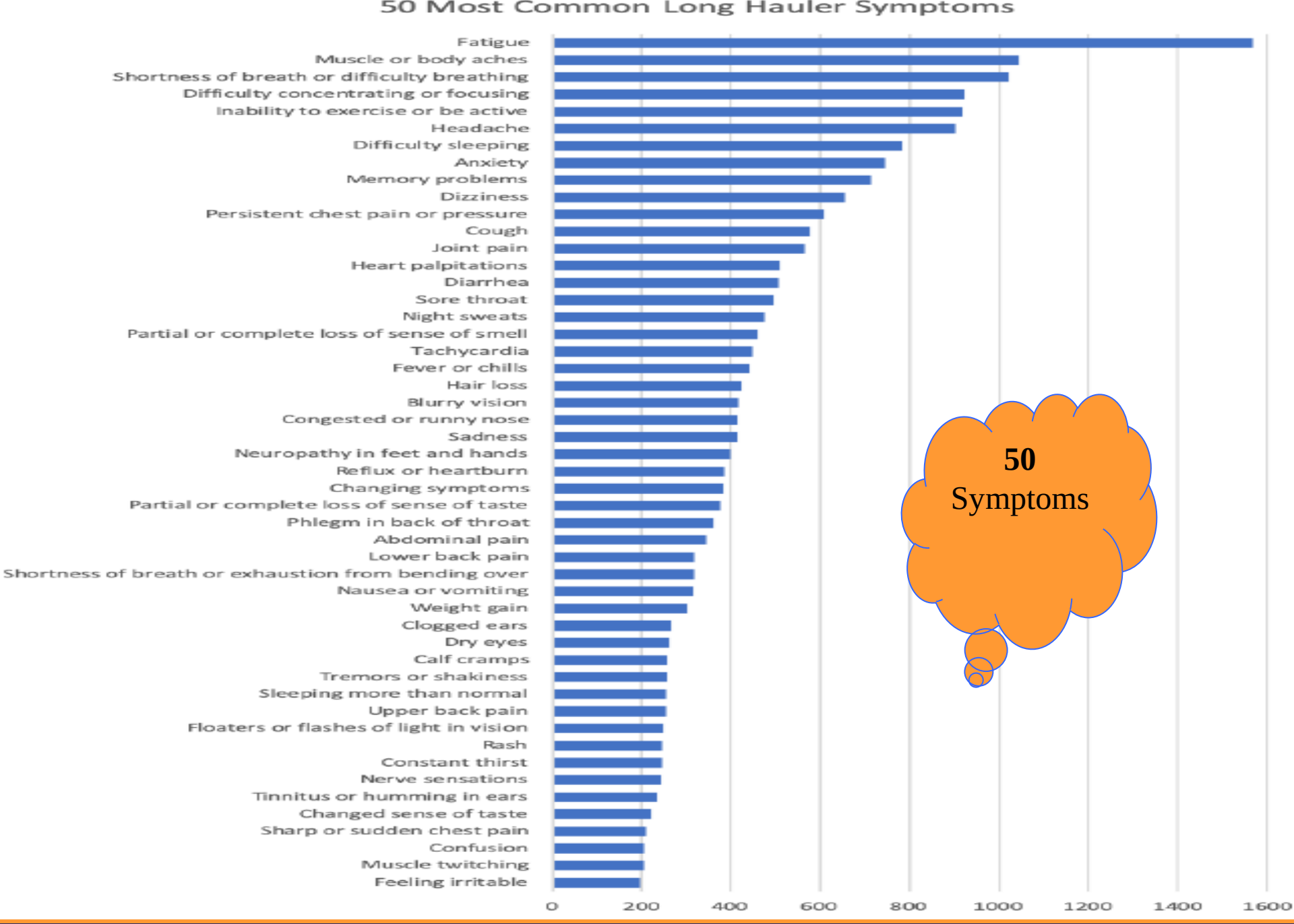
World Health Organization

Body systems and organs that can be affected

1) Heart
   - Damage to heart muscle
   - Heart failure
2) Lungs
   - Damage to lung tissue and
   - Restrictive lung failure
   - Dyspnea
3) Brain and the nervous system
   - Loss of sense of smell (anosmia)
   - Consequences of heart attack, stroke
   - Cognitive impairment : memory, concentration, ,,,,
4) Mental health
   - Anxiety
   - Depression,
   - Post-traumatic stress disorder
   - Sleep disturbance
5) Musculoskeletal and others
   - Pain in join and muscles
   - Fatigue

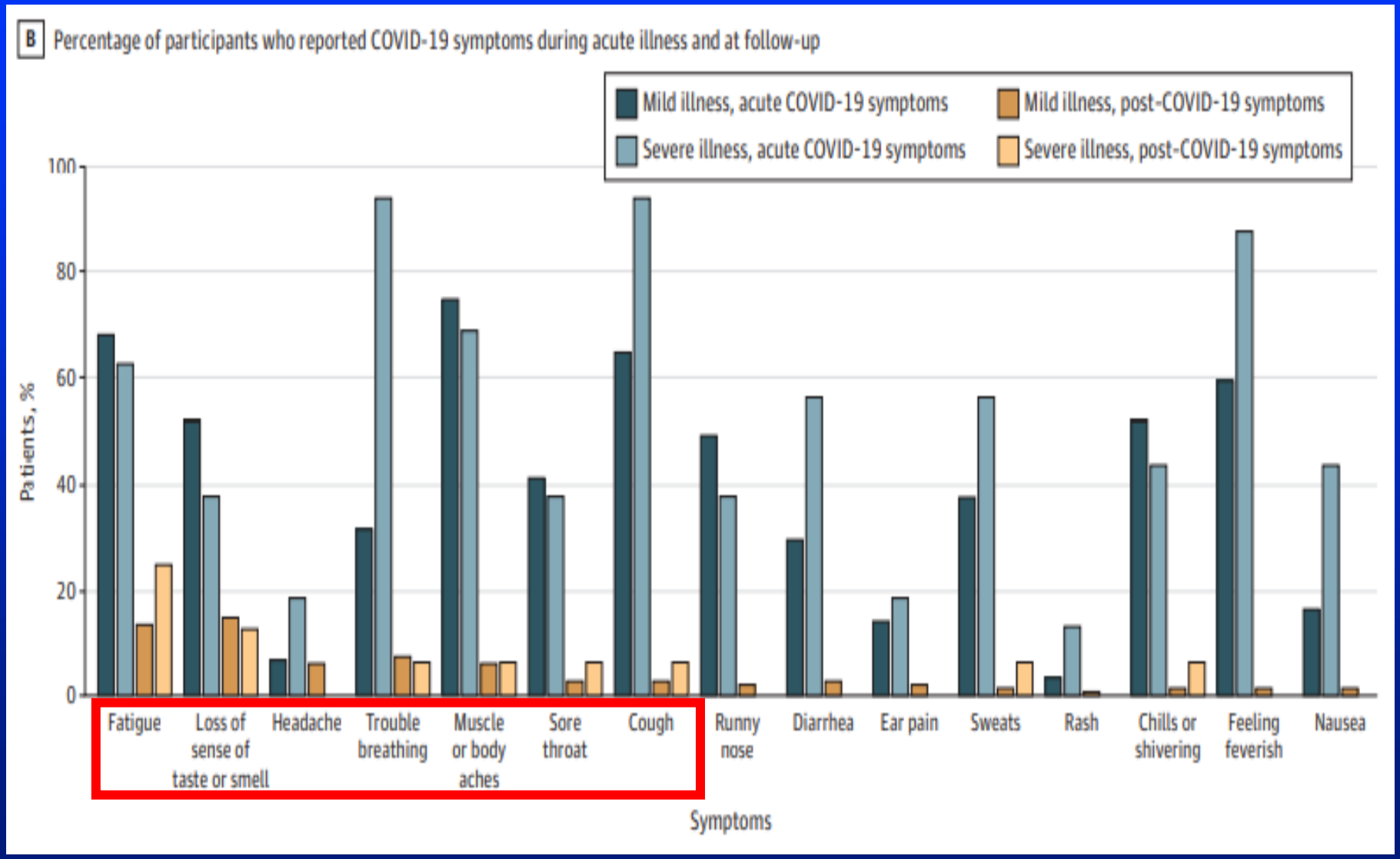
Extreme fatigue
Muscle weakness
Low grade fever
Inability to concentrate
Memory lapses
Changes in mood
Sleep difficulties
Headaches
Needle pains in arms and legs
Diarrhea and bouts of vomiting
Loss of taste and smell
Sore throat and difficulties to swallow
New onset of diabetes and hypertension
Skin rash
Shortness of breath
Chest pains
Palpitations

Lancet Infect Dis 2020; published online September 1. https://doi.org/10.1016/S1473-3099(20)30701-5



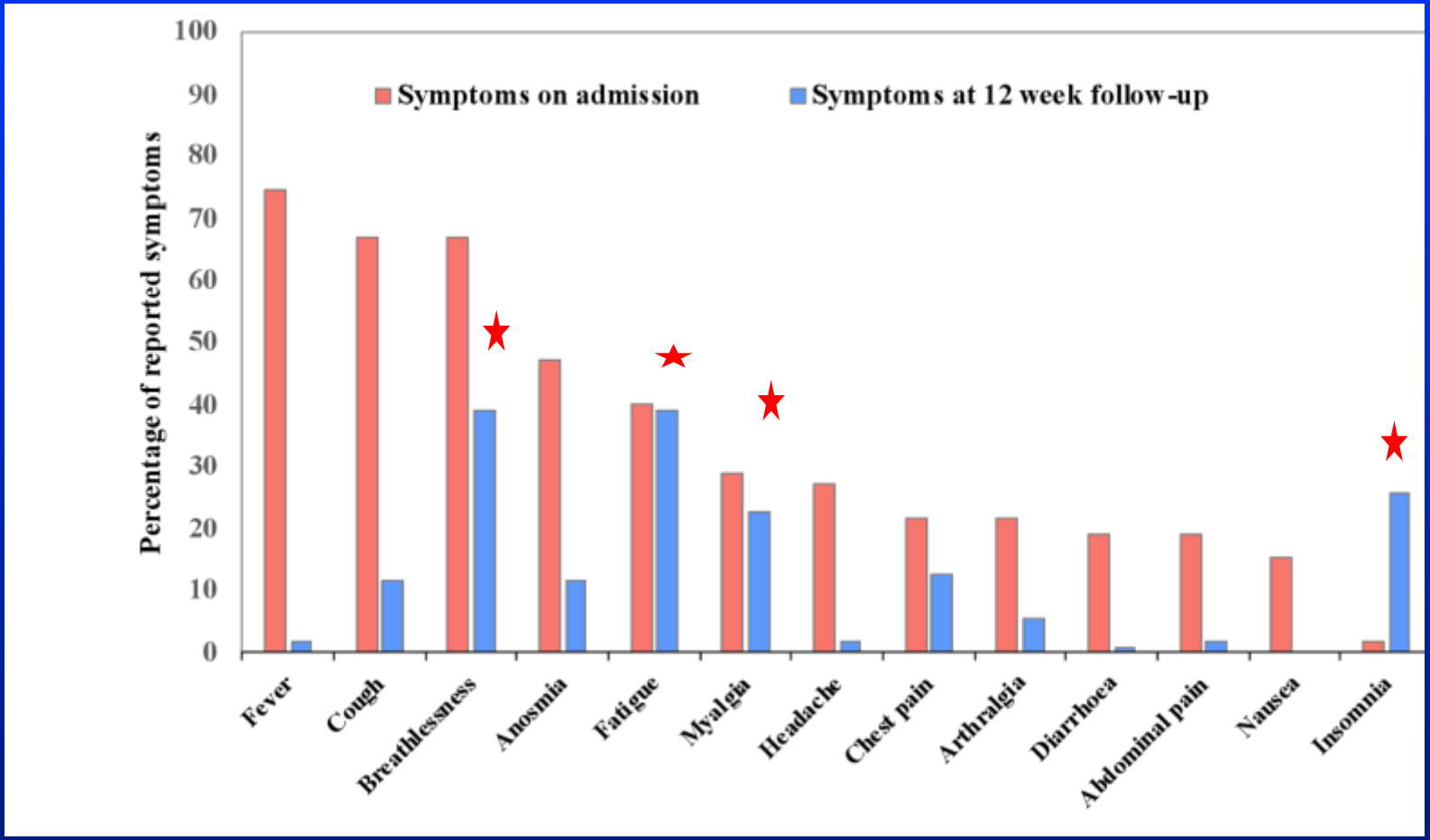
Lambert, N. J. & Survivor Corps. COVID-19 “Long Hauler” Symptoms Survey Report. Indiana University School of Medicine; 2020.

The most common persistent symptoms



JAMA Network Open. 2021;4(2):e210830. doi:10.1001/jamanetworkopen.2021.0830

Frequency of symptoms reported at a 12-week follow-up compared with hospital admission



Arnold DT, et al. Thorax 2020;0:1–4. doi:10.1136/thoraxjnl-2020-216086

Covid-19. In China, 3 of 4 patients are reported to remain symptomatic after hospitalisation

6-month consequences of COVID-19 in patients discharged from hospital

	Total (n=1733)	Seven-category scale		
		Scale 3: not requiring supplemental oxygen (n=439)	Scale 4: requiring supplemental oxygen (n=1172)	Scale 5–6: requiring HFNC, NIV, or IMV (n=122)
Symptoms				
Any one of the following	1265/1655 (76%)	344/424 (81%)	820/1114 (74%)	101/117 (86%)
Fatigue or muscle weakness	1038/1655 (63%)	281/424 (66%)	662/1114 (59%)	
Sleep difficulties	437/1655 (26%)	116/424 (27%)	290/1114 (26%)	
Hair loss	359/1655 (22%)	93/424 (22%)	238/1114 (21%)	
Smell disorder	176/1655 (11%)	55/424 (13%)	107/1114 (10%)	
Palpitations	154/1655 (9%)	45/424 (11%)	96/1114 (9%)	
Joint pain	154/1655 (9%)	51/424 (12%)	86/1114 (8%)	
Decreased appetite	138/1655 (8%)	42/424 (10%)	85/1114 (8%)	
Taste disorder	120/1655 (7%)	37/424 (9%)	75/1114 (7%)	
Dizziness	101/1655 (6%)	32/424 (8%)	60/1114 (5%)	
Diarrhoea or vomiting	80/1655 (5%)	27/424 (6%)	48/1114 (4%)	
Chest pain	75/1655 (5%)	19/424 (4%)	46/1114 (4%)	
Sore throat or difficult to swallow	69/1655 (4%)	20/424 (5%)	44/1114 (4%)	
Skin rash	47/1655 (3%)	16/424 (4%)	27/1114 (2%)	
Myalgia	39/1655 (2%)	11/424 (3%)	24/1114 (2%)	
Headache	33/1655 (2%)	10/424 (2%)	20/1114 (2%)	
Low grade fever	2/1655 (<1%)	1/424 (<1%)	1/1114 (<1%)	

www.thelancet.com Vol 397 January 16, 2021

Multidisciplinary approach for post-acute COVID-19 syndrome: time to break down the walls

30%

EUROPEAN RESPIRATORY *journal*

FLAGSHIP SCIENTIFIC JOURNAL OF ERS

Organ systems	Post-acute COVID-19 symptoms
General assessment	Asthenia Muscle weakness Diffuse pain Myalgia, joint pain Weight loss Deterioration of quality of life
Respiratory	Dyspnoea Cough Radiologic sequelae Functional impairment Dysfunctional breathing Chronic oxygen dependence
Psychiatric and neurological	Post- traumatic stress Depression Anxiety Insomnia Headache Cognitive impairment (brain fog) Dysautonomia
Cardiovascular	Chest pain Palpitations Autonomic dysfunction Myocardial fibrosis Venous thromboembolic disease
Renal	Persistent impaired renal function
Ear-nose-throat	Persistent anosmia or parosmia Persistent ageusia
Endocrine	Thyroiditis Onset or worsening of diabetes
Dermatological	Hair loss Skin rash
Gastrointestinal	Diarrhoea

Montani D, Savale L, Beurnier A, et al. Multidisciplinary approach for post-acute COVID-19 syndrome: time to break down the walls. Eur Respir J 2021; in press (https://doi.org/10.1183/13993003.01090-2021).

Type,Proportion, and Duration of Persistent COVI-19 Symptoms

Persistent symptom ¶	Proportion of patients affected by symptom	Time to symptom resolution Δ
Common physical symptoms		
Fatigue	15 to 87%	3 months
Dyspnea	10 to 71%	2 to 3 months
Chest discomfort	12 to 44%	2 to 3 months
Cough	17 to 26%	2 to 3 months
Anosmia	13%	1 month
Less common physical symptoms		
Joint pain, headache, sicca syndrome, rhinitis, dysgeusia, poor appetite, dizziness, vertigo, myalgias, insomnia, alopecia, sweating, and diarrhea	<10%	Unknown (likely weeks)
Psychologic and neurocognitive		
Post-traumatic stress disorder	24%	6 weeks to 3 months
Impaired memory	18%	
Poor concentration	16%	
Anxiety/depression	22%	
Reduction in quality of life	>50%	Unknown (likely weeks)

UpToDate®

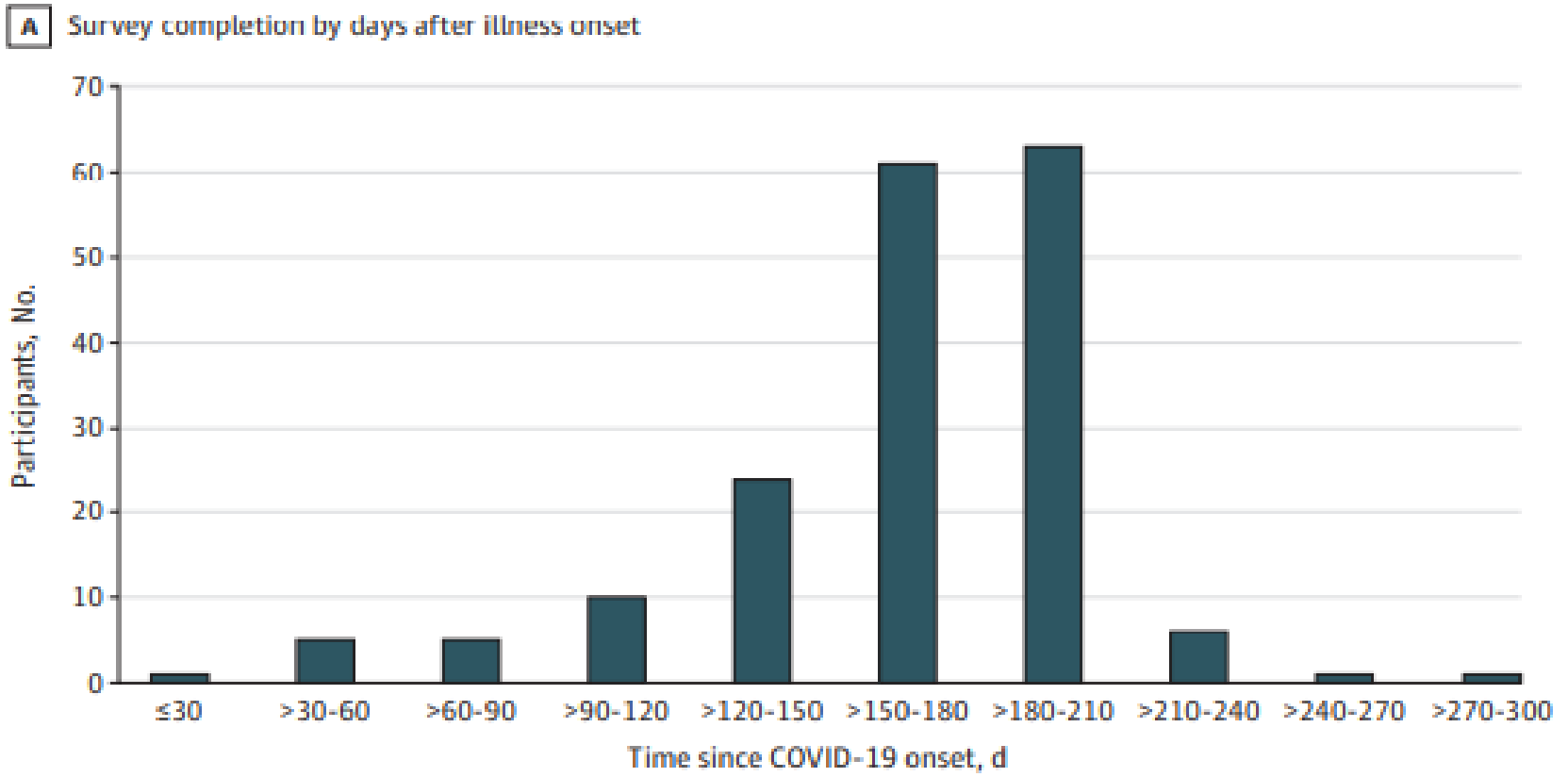
Carfì A, Bernabei R, Landi F, et al. Persistent Symptoms in Patients After Acute COVID-19. JAMA 2020; 324:603. 2.
Xiong Q, Xu M, Li J, et al. Clinical sequelae of COVID-19 survivors in Wuhan, China: a single-centre longitudinal study. Clin Microbiol Infect 2020

Longer-term sequelae in outpatients

177 of 234 participants

Characteristic	No. (%) Total recovered individuals (n = 177)	Inpatients (n = 16)	Outpatients (n = 150)	Asymptomatic individuals (n = 11)

. Time of Survey Completion and Coronavirus Disease 2019 (COVID-19) Symptoms



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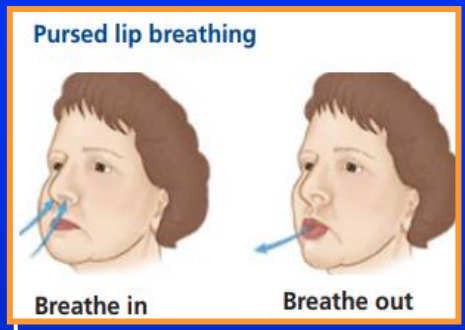
Management of Post COVID 19 Syndrom

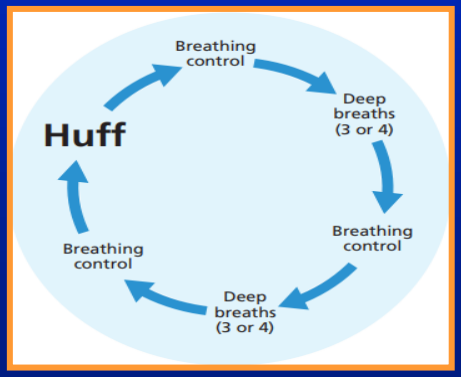
1- Fluctuating Fever, for example, may be treated symptomatically with paracetamol

2- Respiratory symptoms :

Pathophysiological mechanisms
1- viral infiltration
2- inflammation
3- infection
4- pleural inflammation



- Cough :
  - Beyond eight weeks.
  - Managed with 1-Breathing control exercises
    2-Proton pump inhibitors if reflux is suspected
    3-Drink honey and warm lemon can help to soothe the throat
    4-Inhaled Corticosteroids
    5-Toplexil ?
    6- Keep well hydrated



- Breathlessness :
  - Common after acute covid-19
  - Investigations to eliminate all causes of dyspnea
  - Improve with 1-Breathing exercises
    2-Pulmonary rehabilitation
    3-Breathing control while walking ;
    Breathe in – 1 step
    Breathe out – 1 or 2 steps

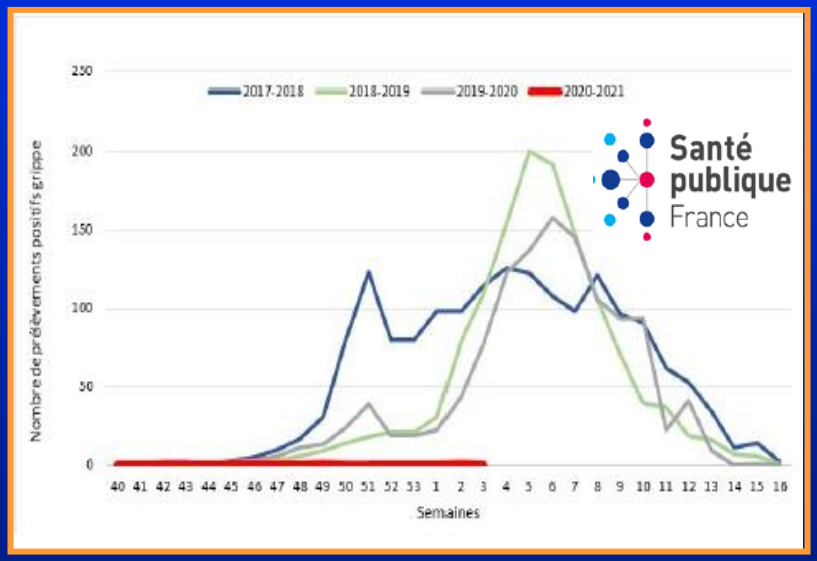
BMJ 2020;370:m3026 | doi: 10.1136/bmj.m3026

Persistent or recurrent fever

Clinical characteristics of COVID-19 and its comparison with influenza pneumonia

Characteristics	COVID-19 (n = 246)	Influenza pneumonia (n = 120)	P value
Age (mean±SD)-year	53.63 ± 15.27	55.41 ± 24.7	>0.05
Age group -no. (%)			
<18 yr	2 (0.81)	14 (11.67)	<0.01
18–65 yr	186 (75.61)	84 (70.00)	>0.05
>65 yr	58 (23.58)	22 (18.33)	>0.05
Sex-no. (%)			
Male	115 (46.75)	68 (56.67)	>0.05
Female	131 (53.25)	52 (43.33)	
Cluster cases-no. (%)	160 (65.04)	12 (10.00)	<0.01
Fever			
Patients-no. (%)	193 (78.46)	107 (89.17)	<0.05
Persistent fever-no. (%)	124 (50.41)	89(74.17)	<0.01
Initial stage fever-no. (%)	69 (28.05)	28(23.33)	>0.05
WBC count abnormal			
Decreased-no. (%)	60(24.39)	13(10.83)	<0.01
Increased- no. (%)	27(10.98)	49(40.83)	<0.01
Lymphocyte count abnormal			
Decreased-no. (%)	60(24.39)	39(32.50)	>0.05
Increased- no. (%)	0(0)	6 (5.00)	<0.01
Urine routine abnormal	79(32.11)	26(21.67)	<0.05
Urine protein(+)	40(16.26)	10(8.33)	<0.05
Urine RBC (+)	27(10.98)	7(5.83)	>0.05
Urine RBC & protein (+)	12(4.88)	9(7.50)	>0.05
Urea nitrogen increased-no. (%)	47(19.11)	33(27.50)	>0.05
Serum creatinine increased-no. (%)	37(15.04)	26(21.67)	>0.05
ALT increased-no. (%)	58(23.58)	19(15.83)	>0.05
Albumin decreased-no. (%)	98 (39.84)	60 (50.00)	>0.05
ESR increased-no. (%)	163 (66.26)	79 (65.83)	>0.05
CRP increased-no. (%)	118 (47.97)	69 (57.50)	>0.05
LDH increased-no. (%)	35 (14.23)	19(15.83)	>0.05
PCT increased-no. (%)	66 (26.83)	90 (75.00)	<0.01

- Rule out another diagnosis
- Eliminate other causes of persistent or recurrent fever
  1) Pulmonary infection ,,,,,,,,,,,,,,,
  2) urinary tract infection
  3) Phlebitis



Jiajia Qu , Lap Kam Chang , Xinghua Tang , Yiming Du , Xi Yang , Xiangjiao Liu , Ping Han & Yuwen Xue (2020) Clinical characteristics of COVID-19 and its comparison with influenza pneumonia, Acta Clinica Belgica, 75:5, 348-356, DOI: 10.1080/17843286.2020.1798668

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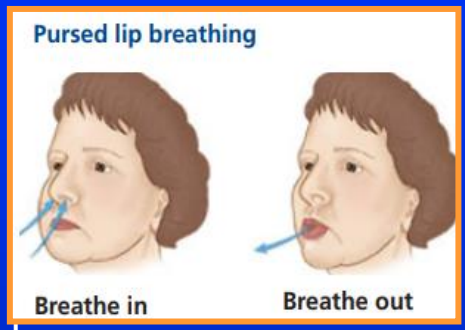

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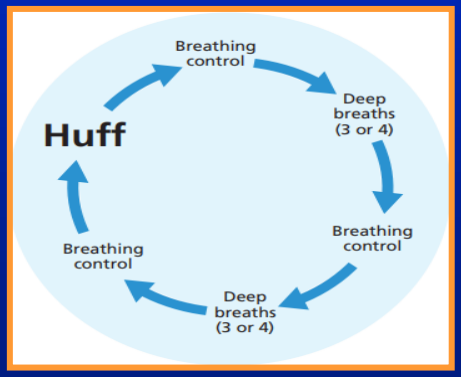

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BMJ 2020;370:m3026 | doi: 10.1136/bmj.m3026

Dyspnoea /Breathlessness

- Dyspnoea may be :
  1. Direct consequence of lung infection with SARS-CoV2
  2. Pulmonary sequelae
  3. Other causes of respiratory symptoms may be observed, such as dysfunctional breathing or muscle weakness.
- Detected by:
  1. Chest imaging (ground glass opacities, fibrotic lesions, sequelae of acute pulmonary embolism)
  2. Functional testing (restrictive pattern, low diffusing capacity of lung for carbon monoxide, persistent hypoxemia).

Montani D, Savale L, Beurnier A, et al. Multidisciplinary approach for post-acute COVID-19 syndrome: time to break down the walls. Eur Respir J 2021; in press (https://doi.org/10.1183/13993003.01090-2021).

3- Cardiopulmonary complications or symptoms

- May present several weeks after acute covid-19
- They are commoner in patients :
  1- with pre-existing cardiovascular disease
  2- in young, previously active patients

- Pathophysiological mechanisms :
  1- viral infiltration
  2- inflammation
  3- microthrombi
  4- down-regulation of ACE-2receptor

Hamid and all, PE in COVID 19 /CPLF 2021
https://www.escardio.org/Education/COVID-19-and-Cardiology/ ESC-COVID-19-Guidance

Allo DR

- Dyspnea/Breathlessness → Specific treatment / rehabilitation
- Chest pain:
  - Common in post-acute covid-19.
  - Priority is to separate :

    1- musculoskeletal → Symptomatic treatment

    2- non-specific chest pain as “lung burn” → Symptomatic treatment

    3- serious cardiovascular conditions → Specific treatment /investigations

- Ventricular dysfunction → Specific treatment /investigations : 1-2 months of rest from cardiovascular training
- Myocarditis, pericarditis, myocardial infarction, and dysrhythmias
- Thromboembolism:
  - Common after acute covid-19
  - Covid-19 is an inflammatory and hypercoagulable state,
  - Angio CT Scann
  - anticoagulation

Hamid and all, PE in COVID 19 /CPLF 2021

https://www.escardio.org/Education/COVID-19-and-Cardiology/ ESC-COVID-19-Guidance

4-Neurological sequelae :

- Common : headaches, dizziness, and cognitive blunting ("brain fog") → Symptomatic treatment /Analgesics
- Rare : ischaemic stroke, seizures, encephalitis, and cranial neuropathies → Referred to a neurologist.
- Neuronal injury , neurodegenerative diseases
- Need some investigations :MRI, EEG

Assaf G, Davis H, McCorkell L, et al. An analysis of the prolonged COVID-19 symptoms survey by Patient-Led Research Team. Patient Led Research, 2020. https://patientresearchcovid19.com/
WHO Mental health and psychosocial considerations during the COVID-19 outbreak. 2020. https://www.who.int/docs/default-source/coronaviruse/mental-health-considerations.

5- Anosomia and Hyposmia

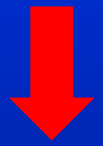
- Early symptoms in COVID 19 patients
- Occurring without nasal congestion
- Symptoms of post COVID syndrom
- No Specific treatment (indication for cortisone per os 10 days)
- ENT Consultation

Fuzhou Wang, Long-Term Respiratory and Neurological Sequelae of COVID-19, doi: 10.12659/MSM.928996

6- Mental health and wellbeing ;

- Conditions related to :
    1. broken routines
    2. loneliness
    3. social isolation
- Individual reactions :
    1. anxiety
    2. stress
    3. low mood
    4. hopelessness
    5. heightened anxiety
    6. difficulty sleeping
    7. depression
- May occur :
    1. especially in healthcare workers
    2. caring responsibilities
    3. all patients

Referral to mental health services



Specific treatment /investigations
Symptomatic treatment
Specific treatment

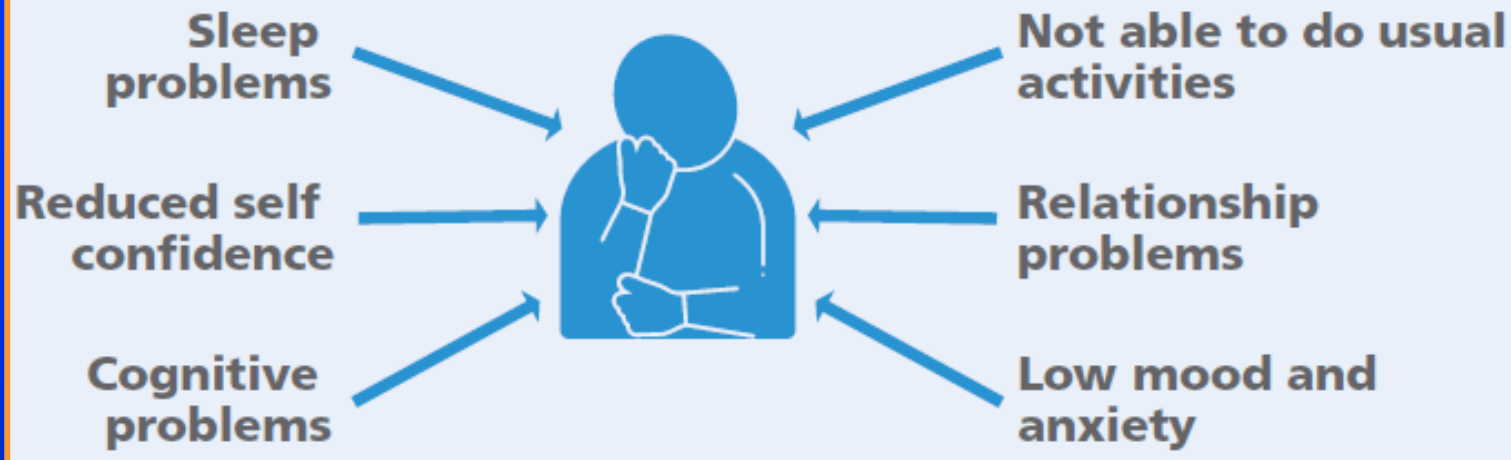
Assaf G, Davis H, McCorkell L, et al. An analysis of the prolonged COVID-19 symptoms survey by Patient-Led Research Team. Patient Led Research, 2020. https://patientresearchcovid19.com/
WHO Mental health and psychosocial considerations during the COVID-19 outbreak. 2020. https://www.who.int/docs/default-source/coronaviruse/mental-health-considerations.

7-Fatigue

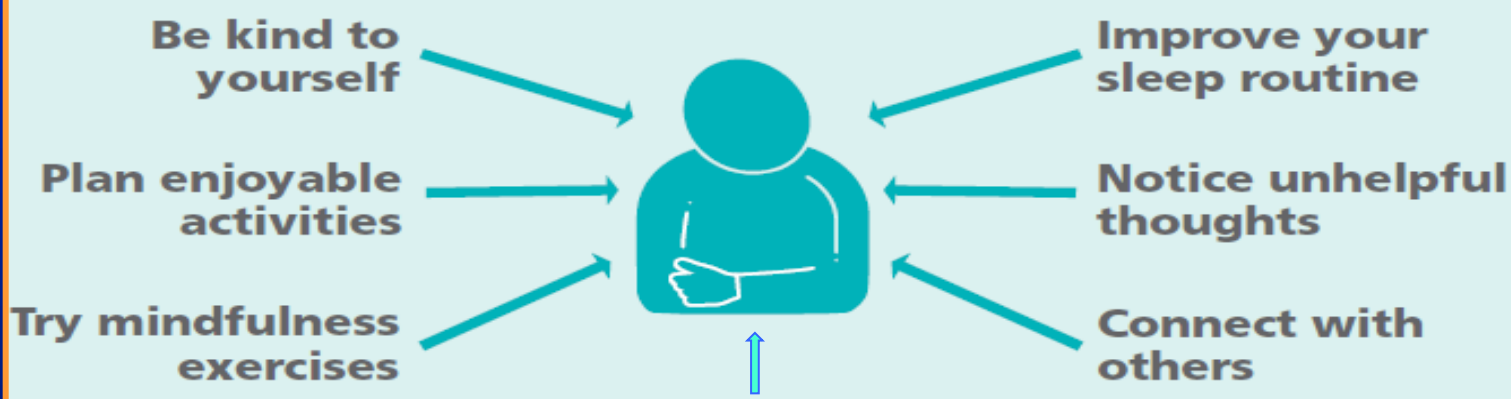
- Is recognised as one of the most common presenting complaints in individuals infected with SARS-CoV-2
- Independent of severity of initial infection and markers of peripheral immune activation and circulating pro-inflammatory cytokines.
- Pathophysiological :Metabolic diseases and malnutrition and loss of muscle mass?
- Make a medical check-up ? discovery of unknown diseases ?
- Female gender and those with a pre-existing diagnosis of depression/anxiety were over-represented in those with fatigue
- In 52 % a median of 10 weeks after their initial illness
- Shares features with chronic fatigue syndrome described after other serious infections (SARS, MERS, and community acquired pneumonia)
- No pharmacological or non-pharmacological interventions efficacy !!!
- Management : guidance for clinicians on return to exercise and graded return to performance for athletes (currently all based on indirect evidence)

Royal College of Occupational Therapists. How to conserve your energy: Practical advice for people during and after having COVID-19. 2020. https://www.rcot.co.uk/conserving-energy.
Elliott N, Martin R, Heron N, Elliott J, Grimstead D, Biswas A. Infographic. Graduated return to play guidance following COVID-19 infection. Br J Sports Med 2020; .doi: 10.1136/bjsports-2020-102637 pmid: 32571796
doi: https://doi.org/10.1101/2020.07.29.20164293

Impact of fatigue



Tips for managing fatigue



Post-COVID-19
Care Center

8) Myalgic Encephalomyelitis / Chronic Fatigue Syndrome

- Patients have described symptoms of exhaustion, post-exertional malaise, lethargy and difficulties with memory and concentration lasting for weeks following COVID-19 illness
- The 2015 IOM diagnostic criteria for ME/CFS

1) 3 required symptoms :
   - Reduction in the ability to engage in pre-illness levels of activity (occupational, educational, social or personal life)
   - Post-exertional malaise : worsening of symptoms after physical, mental or emotional exertion
   - Unrefreshing sleep : patients may not feel better or less tired even after a full night of sleep despite the absence of specific objective sleep alterations.

2) 1 of 2 additional manifestations :
   - Cognitive impairment : problems with thinking, memory, executive function, and information processing, attention deficit and impaired psychomotor functions.
   - Orthostatic intolerance : patients develop a worsening of symptoms upon assuming and maintaining upright posture as measured by objective heart rate and blood pressure abnormalities during standing, bedside orthostatic vital signs,

doi: https://doi.org/10.1101/2020.07.29.20164293

3) Other Common Symptoms of ME/CFS

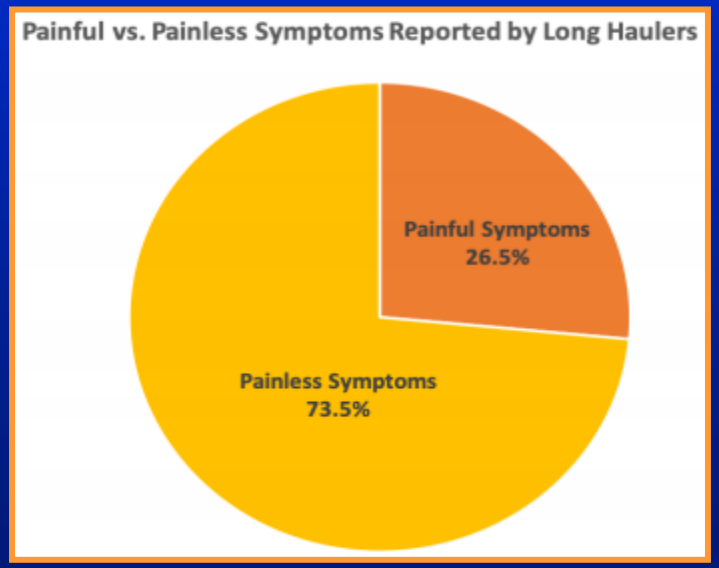
- Muscle pain
- Pain in the joints without swelling or redness
- Headaches of a new type, pattern, or severity
- A sore throat that is frequent or recurring
- Chills and night sweats
- Visual disturbances
- Sensitivity to light and sound
- Nausea
- Allergies or sensitivities to foods, odors, chemicals, or medications

- Clinical Management :
  1) The Food and Drug Administration has not approved drugs to treat ME/CFS
  2) Focus care on alleviating symptoms, beginning with the most bothersome
  3) Rule out alternate causes.
  4) Physical and psychological therapy, good nutrition,
  5) Symptomatic treatment /Analgesics
  6) Consider referral to rehabilitation physicians or specialists in ME/CFS
  7) Consider referral to a neurologist or other appropriate specialist to rule out previously undiagnosed chronic disease

doi: https://doi.org/10.1101/2020.07.29.20164293

9- Joint and Muscle Pain

- Common persisting symptom;
  1) Muscle and body aches
  2) “sharp” or “burning” pain in the lower back, neck, joints and extremities
- Myalgia and arthralgia are common long-term sequelae of viral infections, likely caused by persisting low levels of inflammation or residual effects of a cytokine surge
- Clinical Management : if necessary, use analgesics to reduce pain.



Lambert, N. J. & Survivor Corps. COVID-19 “Long Hauler” Symptoms Survey Report. Indiana University School of Medicine; 2020.

10) Sleep Disorders

A rise in sleep disorders associated with COVID-19,
Including :

1) hypersomnia,
2) insomnia
3) misuse of sleep medication

These may be related to

1) anxiety related to one's finances or long-term health
2) depression caused by social isolation, reduced exposure to sunlight while spending more time indoors,
3) disruptions to normal daily routines

Clinical Management :

Screen for and treat anxiety and depression.

Counsel patients to practice good sleep hygiene:

1) Avoid lying down or taking naps during daytime hours.
2) Establish a consistent nighttime routine.
3) Avoid caffeine and alcohol before bedtime.
4) Remove smartphones, televisions, computers and other electronic devices from the bedroom.

Jing Qi, Jing Xu, Bo-Zhi Li, et al. The evaluation of sleep disturbances for Chinese frontline medical workers under the outbreak of COVID-19 https://www.medrxiv.org/content/10.1101/2020.03.06.20031278v2. *Sleep Med* 2020;72:1–4.

Considerations

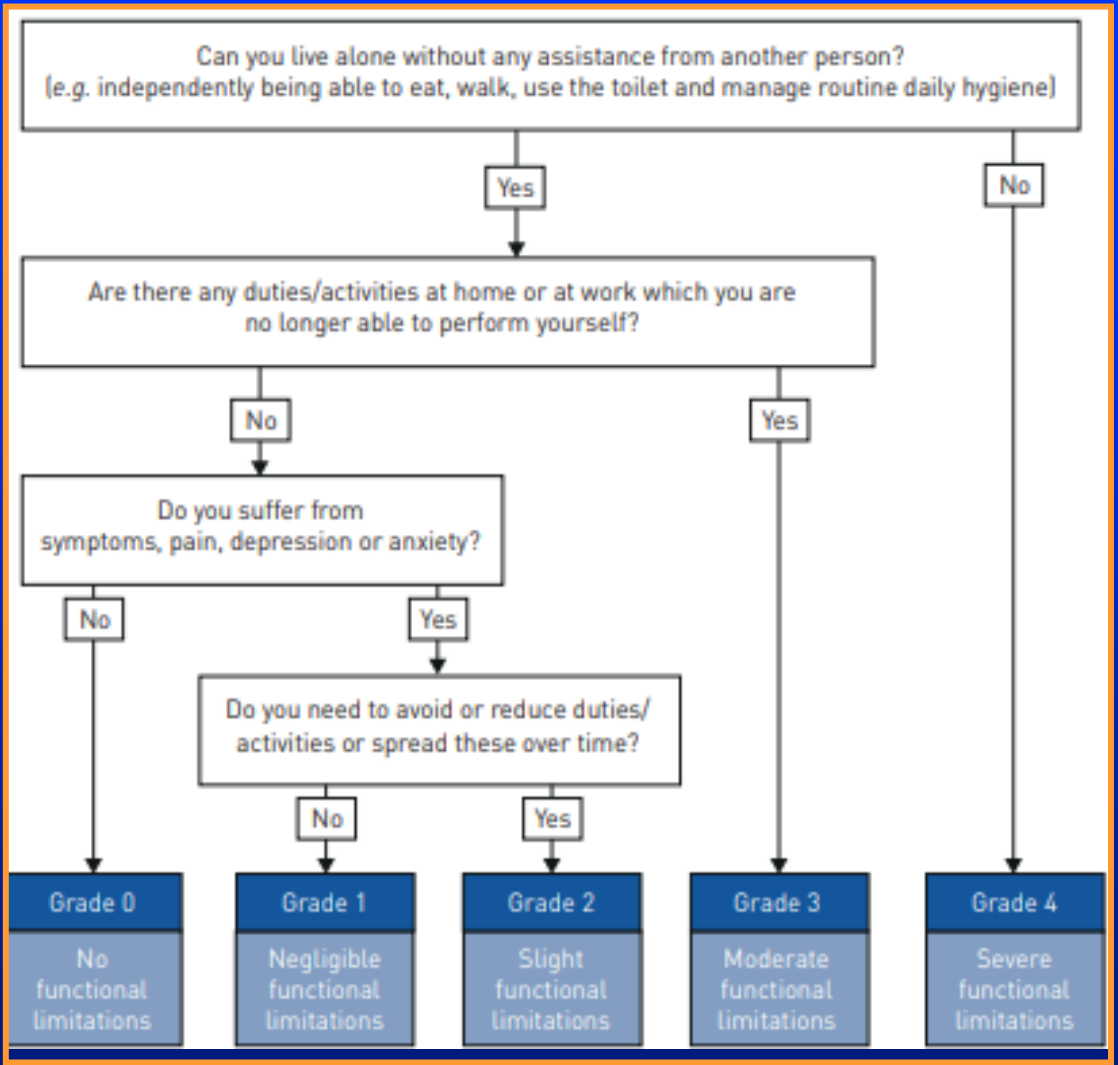
1) The older patient
   - Covid-19 tends to affect older patients more severely.
   - Those who survive are at high risk of , malnutrition, depression, and delirium.,,,,,,,,
   - Post-covid-19 chronic pain may affect patients of any age but seems to be commoner in elderly patients.

2) Social , medicl and cultural considerations
   - worse prognosis in the acute phase in people who are poor, elderly, and from certain minority ethnic groups
   - Patients are from diverse social and cultural
   - Comorbidities including diabetes, hypertension, kidney disease, or ischaemic heart disease.
   - Family history of : job losses and consequent financial stress and food poverty
   - Advice from specialist social care, lay care, and faith organisations
   - Management of post-acute covid-19 must occur in conjunction with management of pre-existing or new comorbidities
   - Some patients need accommodations !!!

Public Health England. Disparities in the risk and outcomes of COVID-19. 2020.
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/890258/disparities_review.pdf

Functional Status scale
and assessment
How to deal with patient?
How to classify patient?

The Post-COVID-19 Functional Status scale



How much are you currently affected in your everyday life by COVID-19? (Please indicate which one of the following statements applies to you most)	Corresponding PCFS scale grade
I have no limitations in my everyday life and no symptoms, pain, depression or anxiety related to the infection.	0
I have negligible limitations in my everyday life as I can perform all usual duties/ activities, although I still have persistent symptoms, pain, depression or anxiety.	1
I suffer from limitations in my everyday life as I occasionally need to avoid or reduce usual duties/activities or need to spread these over time due to symptoms, pain, depression or anxiety. I am, however, able to perform all activities without any assistance.	2
I suffer from limitations in my everyday life as I am not able to perform all usual duties/ activities due to symptoms, pain, depression or anxiety. I am, however, able to take care of myself without any assistance.	3
I suffer from severe limitations in my everyday life: I am not able to take care of myself and therefore I am dependent on nursing care and/or assistance from another person due to symptoms, pain, depression or anxiety.	4

Klok FA, Boon GJAM, Barco S, et al. The Post-COVID-19 Functional Status scale: a tool to measure functional status over time after COVID-19. Eur Respir J 2020; 56: 2001494

Physical activity advice - how hard should it be?

Breathlessness scale

When you are doing physical activity, it is ok to feel moderately breathless →

0	Not at all
0.5	Very, very slight (just noticeable)
1	Very slight
2	Slight
3	Moderate
4	Somewhat
5	Severe
6	
7	Very severe
8	
9	Very, very severe (almost maximal)
10	Maximal

MAYO CLINIC

Psychometric Validation of the Posttraumatic Stress Disorder Checklistfor DSM-5 (PCL-5)

PCL-5 Item
1. Disturbing memories of experience
2. Disturbing dreams of experience
3. Suddenly feeling or acting as if the stressful experience were actually happening again
4. Upset when reminded of stressful experience
5. Physical reactions to reminders of the experience
6. Avoiding memories, thoughts or feelings related to experience
7. Avoiding external reminders of the stressful experience
8. Trouble remembering experience
9. Negative beliefs of self, other people and the world
10. Blaming self or others for experience
11. Having strong negative feelings such as fear, horror, anger, guilt, or shame?
12. Loss of interest in activities
13. Feeling distant or cut-off from other people
14. Trouble experiencing positive feelings
15. Irritability, angry outbursts, or acting aggressively
16. Taking too many risks or doing things that could cause you harm
17. Being "superalert" or watchful or on guard
18. Feeling jumpy or easily startled
19. Having difficulty concentrating
20. Trouble falling or staying asleep

0/1/2/3/4

>33 Anxiety Syndrom
38 >Posttraumatic Stress

Ashbaugh AR, Houle-Johnson S, Herbert C, El-Hage W, Brunet A (2016) Psychometric Validation of the English and French Versions of the Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5). PLoS ONE 11(10): e0161645. doi:10.1371/journal.pone.0161645

Nijmegen Questionnaire

Symptoms	Not at all 0	Rare 1	Sometimes 2	Often 3	Very often 4
Chest pain					
Feeling tense					
Blurred vision					
Dizzy spells					
Feeling confused					
Faster or deeper breathing					
Short of breath					
Tight feelings in chest					
Bloated feeling in stomach					
Tingling fingers					
Unable to breathe deeply					
Stiff fingers or arms					
Tight feelings around mouth					
Cold hands or feet					
Palpitations					
Feelings of anxiety					
					Total:

hyperventilation syndrome score ranges from 0-64. Positive >26

van Dixhoorn J et al Efficacy of Nijmegen Questionnaire in recognition of the hyperventilation syndrome. J Psychom Res 1985; 29: 199.

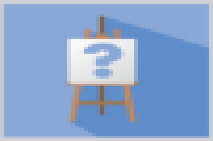
"Long covid" in primary care

thebmj Visual summary

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 presesents 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

Clinical assessment

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

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

Managing comorbidities

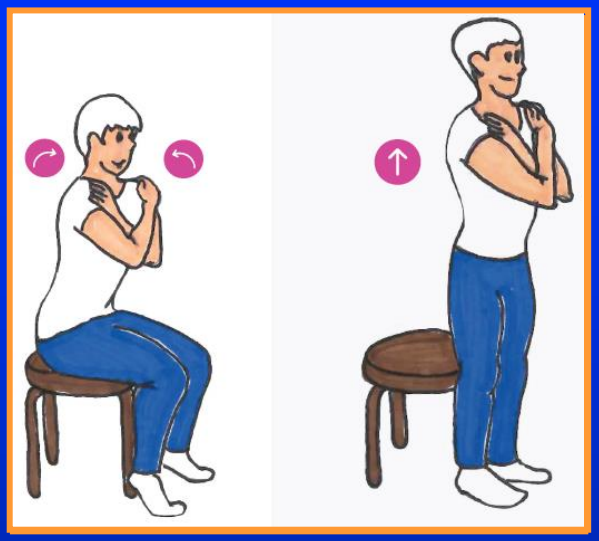
Many patients have comorbidities including diabete hypertension, kidney disease or ischaemic heart disease. These need to be managed in conjuntion with covid-19 treatment. Refer to condition specific guidance, available in the associated article by Greenhalgh and colleagues

Social, financial, and cultural support

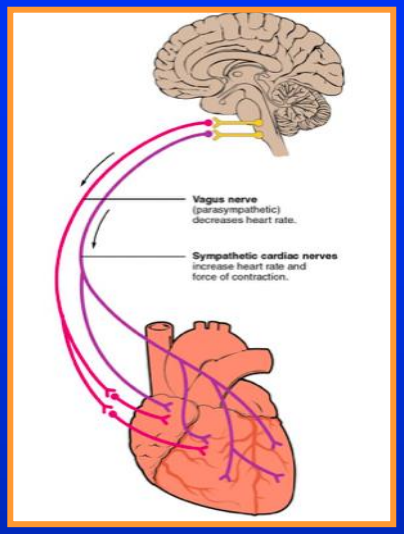
Prolonged covid-19 may limit the ability to engage in work and family activities. Patients may have experienced family bereavements as well as job losses and consequent financial stress and food poverty. See the associated article by Greenhalgh and colleagues for a list of external resources to help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

Tests in Consultation

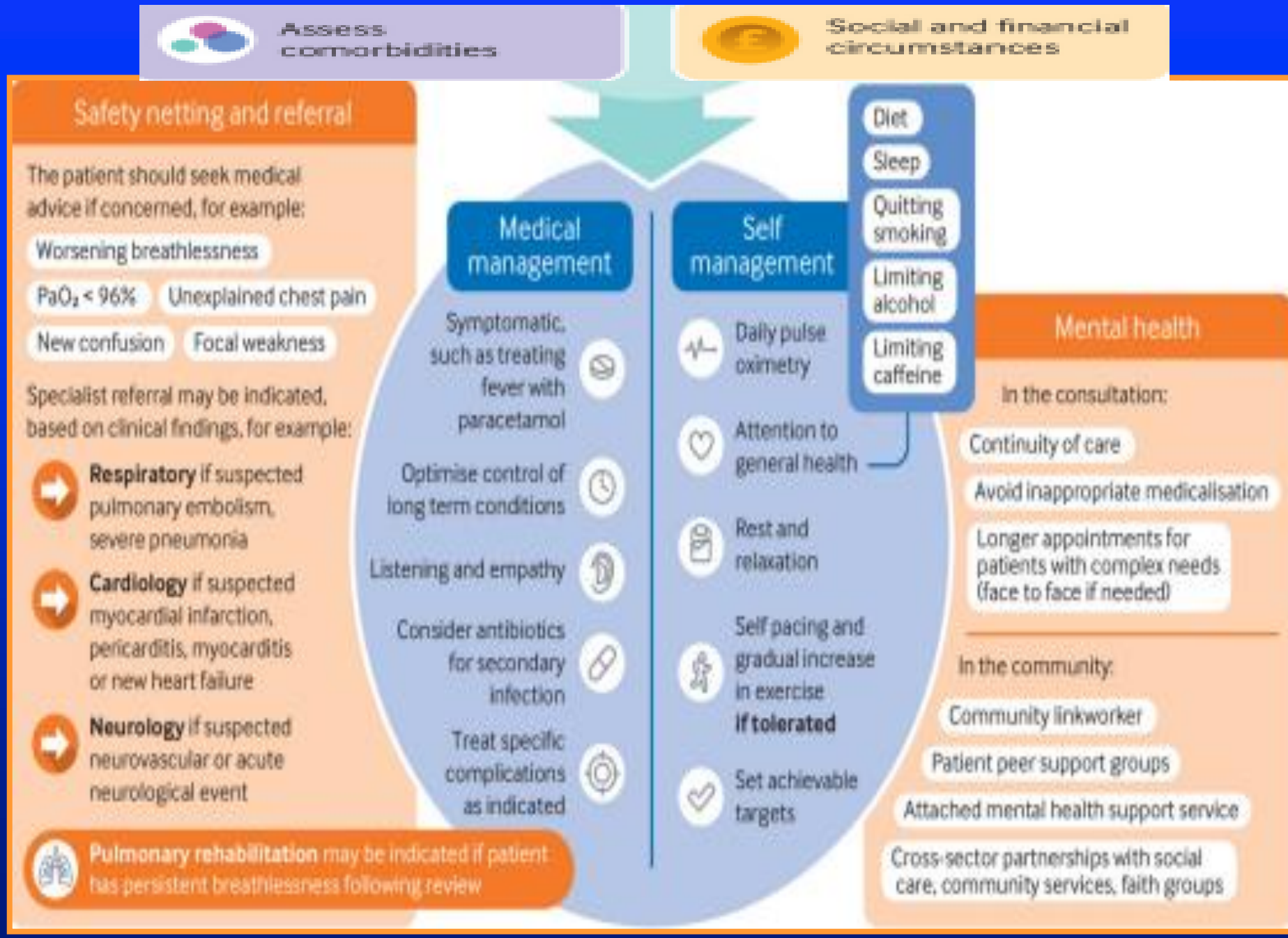
Walk test



Sitting upright test



Standing and lying heart rate variability test



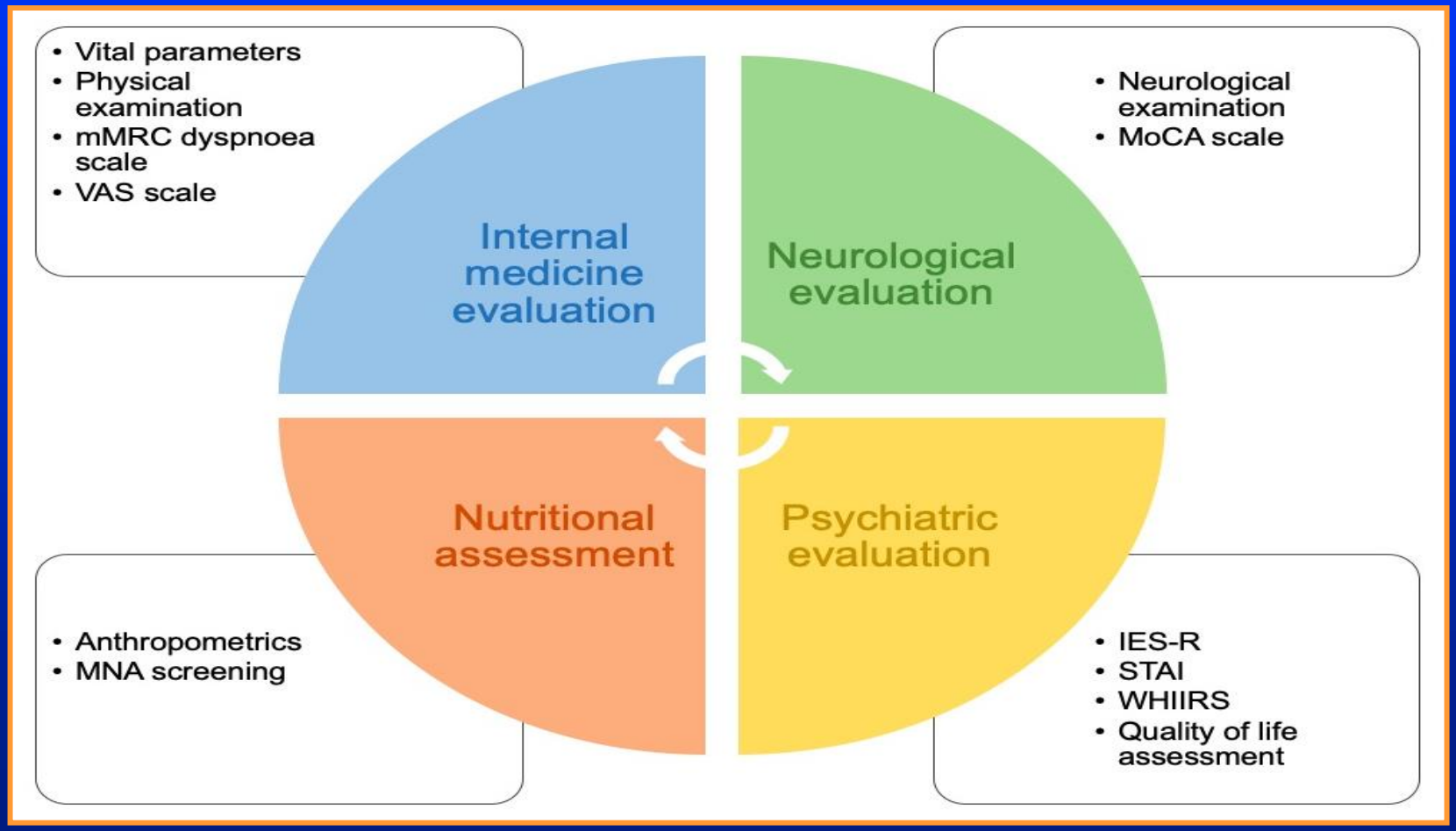
: BMJ 2020;370:m3026 http://dx.doi.org/10.1136/bmj.m3026 Published: 11 August 2020

Organisation of Post COVID center

How is long COVID 19 treated in the world?

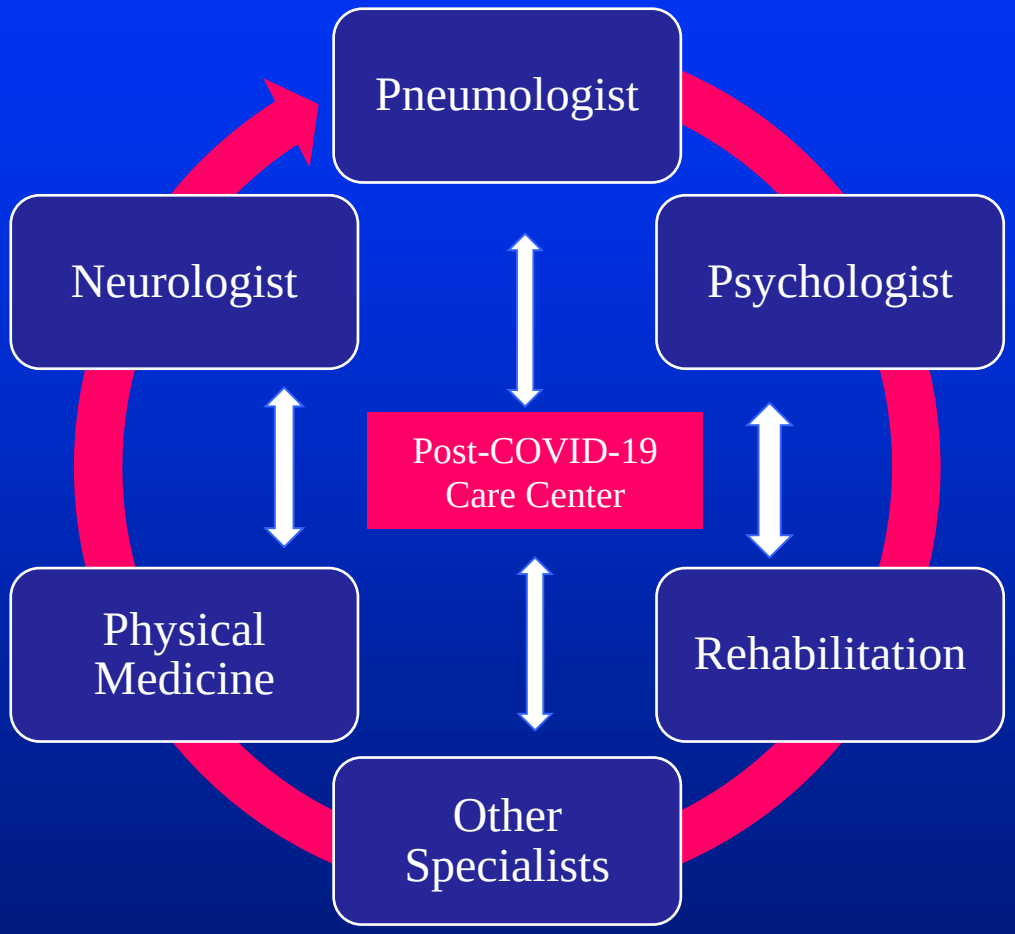
- In New York, the Center for Post-COVID Care at Mount Sinai Hospital
- In Italy, the Genoa Rehabilitation Center
- In Paris, the Hôtel-Dieu Sports Medicine Investigation Center , and Foch center
- In the United Kingdom, the government has launched the online service "Your COVID Recovery"

Multidisciplinary organisation and assessment measures of the COVID-19 Follow



De Lorenzo R, Conte C, Lanzani C, Benedetti F, Roveri L, Mazza MG, et al. (2020)
Residual clinical damage after COVID-19: A retrospective and prospective observational cohort study. PLoS ONE 15(10): e0239570. https://doi. org/10.1371/journal.pone.0239570
Eur Respir J 2021; in press (https://doi.org/10.1183/13993003.01090-2021).

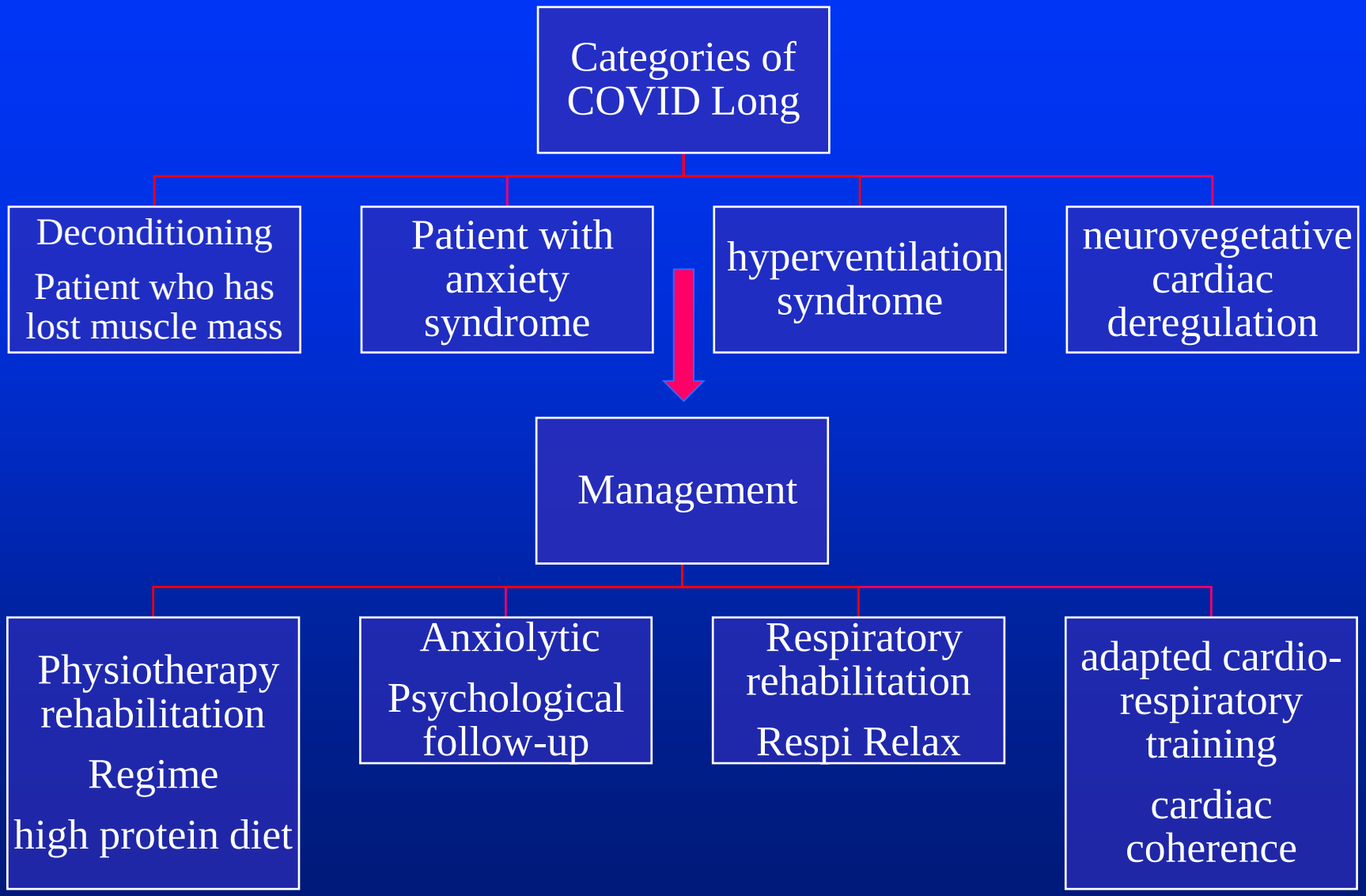
Post-COVID-19 Care Center



HOPITAL FOCH
Pour votre santé, Foch s'engage

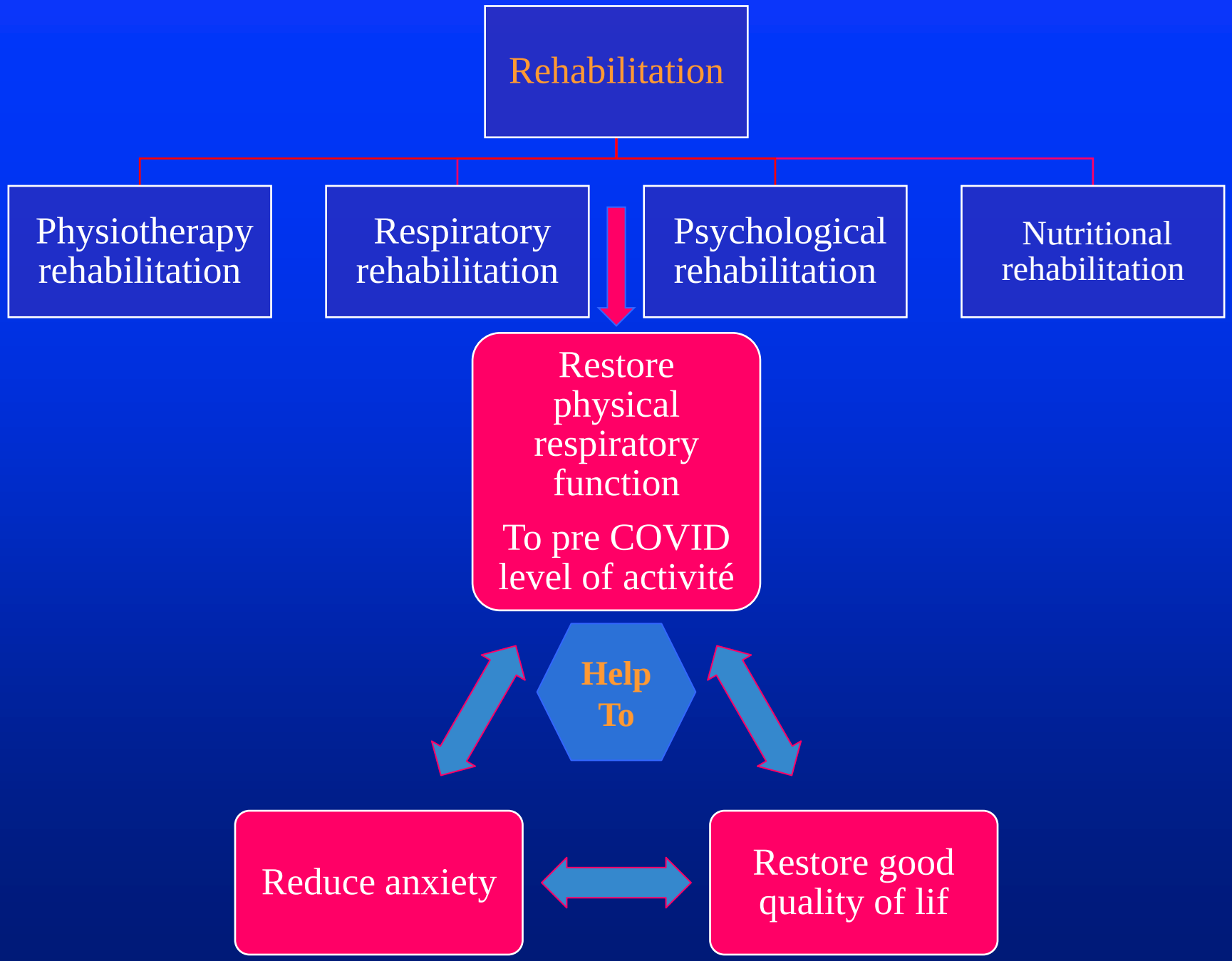
B. Davido et al. / Clinical Microbiology and Infection 26 (2020) 1448e1449

Categories of COVID Long



Foch Hospital HAS/SPLF

Rehabilitation



Journal of International Medical Research 48(8) 1–10 DOI: 10.1177/0300060520948382

The sportsperson returning to exercise

1) After recovery from mild illness: 1 week of low level stretching and strengthening before targeted cardiovascular sessions
2) Very mild symptoms: limit activity to slow walking or equivalent. Increase rest periods if symptoms worsen. Avoid high-intensity training
3) Persistent symptoms (such as fatigue, cough, breathlessness, fever): limit activity to 60% maximum heart rate until 2-3 weeks afte symptom resolve
4) Patients who had lymphopenia or required oxygen need respiratory assessment before resuming exercise
5) Patients who had cardiac involvement need cardiac assessment before resuming

Barker-Davies RM, O'Sullivan O, Senaratne KPP, etal. The Stanford Hall consensus statement for post-COVID-19 rehabilitation. Br J Sports Med 2020;.

Physiotherapy Rehabilitation

- Start SLOWLY to see how your body responds
- Increasing your levels of exercise
- Understanding your energy levels
- Planning includes organising daily routines to allow completion of essential activities when you have the most energy.

WEEK 1:	Walking 10 minutes every other day, 5 minutes stretching x3 per week
WEEK 2:	Walking 10 minutes every other day, 5 minutes stretching x3 per week
WEEK 3:	12 minutes of walking every other day, 6 minutes of stretching x 3 per week
WEEK 4:	12 minutes of walking every other day, 6 minutes of stretching x 3 per week
WEEK 5:	14 minutes of walking every other day, 8 minutes of stretching x 3 per week
WEEK 6:	14 minutes of walking every other day, 8 minutes of stretching x 3 per week

https://doi.org/10.1016/j.rmr.2020.05.001 0761-8425/© 2020 SPLF.

Nutritional Rehabilitation

Aim to have **5*** handfuls of **fruit and vegetable** from this group each day

Getting enough vitamin and minerals:

Eat with the rainbow; different colours provide different **vitamins and minerals.**

Aim to have **3** hand size items from this **Protein** group daily

Beans, pulses, fish, eggs, meat and other proteins.
Eat more beans and pulses, less red and processed meat.

Aim to have **3** thumb size items from this **Dairy*** group daily

***If you want to gain weight choose the full fat and full sugar versions.**

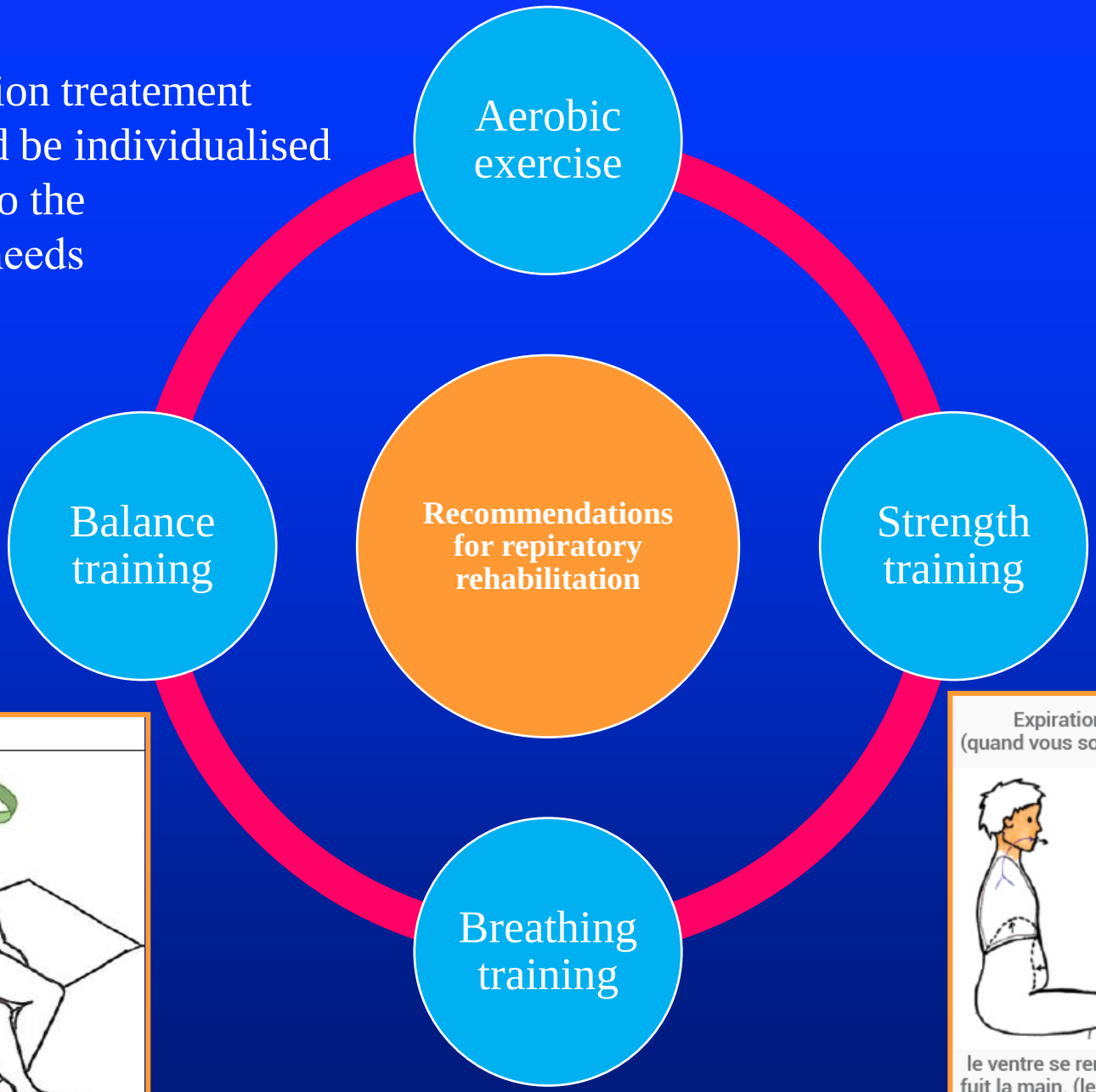
Healthy Homerton
Health and wellbeing for all

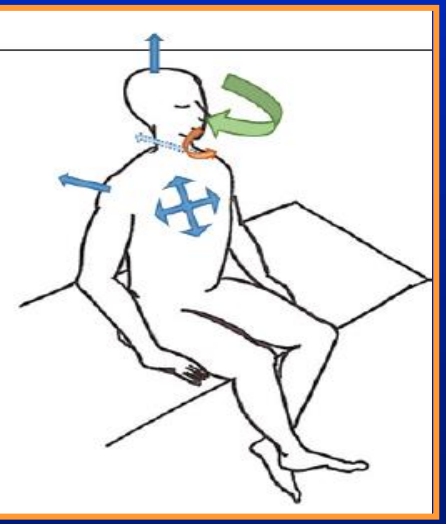
Pulmonary Rehabilitation

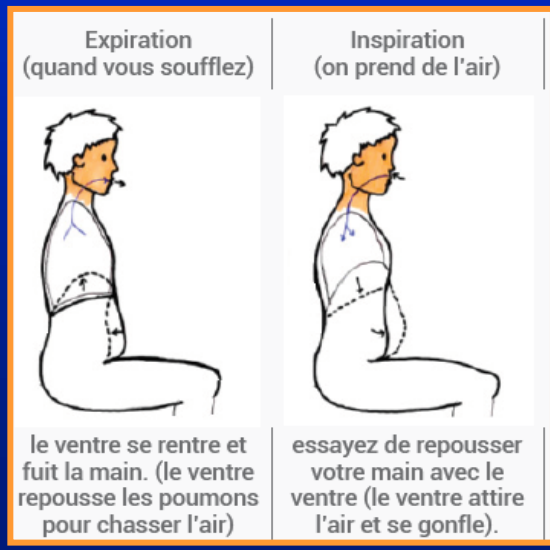
- After 6 weeks ? 2 weeks !
- To help patients recover to their pre-COVID 19 level of activity
- Those who have had significant respiratory illness
- Multidisciplinary intervention based on personalised evaluation and treatment
- Make a medical check-up ????
- Exercise training, education, and behavioural modification designed to improve the physical and psychological conditions
- May be delivered by various virtual models, including video linked classes and home education booklets with additional telephone support
- Rehabilitation services / self management

Barker-Davies RM, O'Sullivan O, Senaratne KPP, etal. The Stanford Hall consensus statement for post-COVID-19 rehabilitation. Br J Sports Med 2020;. doi: 10.1136/bjsports-2020-102596 pmid: 32475821

Rehabilitation treatement plans shoud be individualised according to the pathient's needs







Journal of International Medical Research 48(8) 1–10 DOI: 10.1177/0300060520948382

British Society of Rehabilitation Medicine

Promoting quality through education and standards

Rehabilitation in the wake of Covid-19 - A phoenix from the ashes

case by case

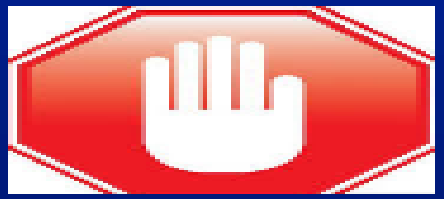
Factors affecting rehabilitation for individuals	Factors affecting the healthcare system

• The range of impairments and disabilities experienced.
• The rate of recovery from these impairments.
• Personal and environmental circumstances including:
• Comorbidities.
• Premorbid functional abilities.
• Psychological background of the person, such as their usual coping mechanisms, self-efficacy and abilities to adapt.
• The home environment or place that the individual will be discharged to.
• Individual social context, such as the social group the person inhabits and their economic circumstances.
• Occupation, whether paid, 'informal' or voluntary work.
• Other activities that the person finds fulfilling.
	• Timing of Rehabilitation Assessment and Prescription
	  ○ To be optimally effective this should be as the person is recovering from the acute infection.
	  ○ Late or no assessment can result in avoidable complications affecting physical and psychological health, socioeconomic circumstances and relationships.
	• Discharge destination following acute infection:
	  ○ Many patients are discharged directly home for review by Primary Care, and without referral to rehabilitation services.
	• The availability of professional and voluntary personnel to assist in rehabilitation.
	• The resources available, both generally and, more specifically, trained rehabilitation personnel.
	• Education of healthcare professionals regarding the consequences

case by case

Smoking and COVID-19

- Smoking tobacco products increase your risk of infection due to the harm caused to your immune system and lungs.
- Smoking is linked with poorer outcomes in COVID-19.
- Its never too late to stop.
- By stopping you can see benefits within some days



SMOKEFREE Hackney

General Considerations for COVID-19 Long

1) Understand that physiologic complaints of COVID-19 long-haulers are real, not “merely” psychological.

2) Rule out other possible etiologies of symptoms, such as flu, asthma exacerbation, etc.

3) Continue to manage the patient’s chronic comorbidities.

4) Coordinate care with specialists when appropriate.

5) Inform COVID-19 patients that prolonged symptoms are common

6) Let patients know that, they are unlikely to be contagious to others more than 10 days after symptom onset, even if their symptoms persist.

7) Social support, mindfulness and self-care.

Take Home message

1) Approximately 10-30% of people experience prolonged illness after covid-19

2) Management of covid-19 after the first 6-12 weeks is currently based on limited evidence

3) Many such patients recover spontaneously (if slowly) with holistic support, rest, symptomatic treatment, and gradual increase in activity

4) Keep Cool

5) Indications for specialist assessment include clinical concern along with respiratory, cardiac, or neurological symptoms that are new, persistent, or progressive

6) Post COVID-19 care Center

Take Home message

1

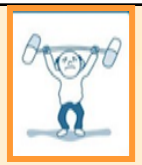
Recovery from COVID-19 can take a long time, even in young adults with no chronic conditions

3

Fatigue /**depression**
Dyspnea
Chest discomfort
Cough
Anosmia

4

Rule out another diagnosis
Symptomatic treatement
Rehabilitatinon



5

To stay well and protect others…

Stay 6 feet away from others not living in your household

Wash hands often

Wear face coverings consistently and correctly in public

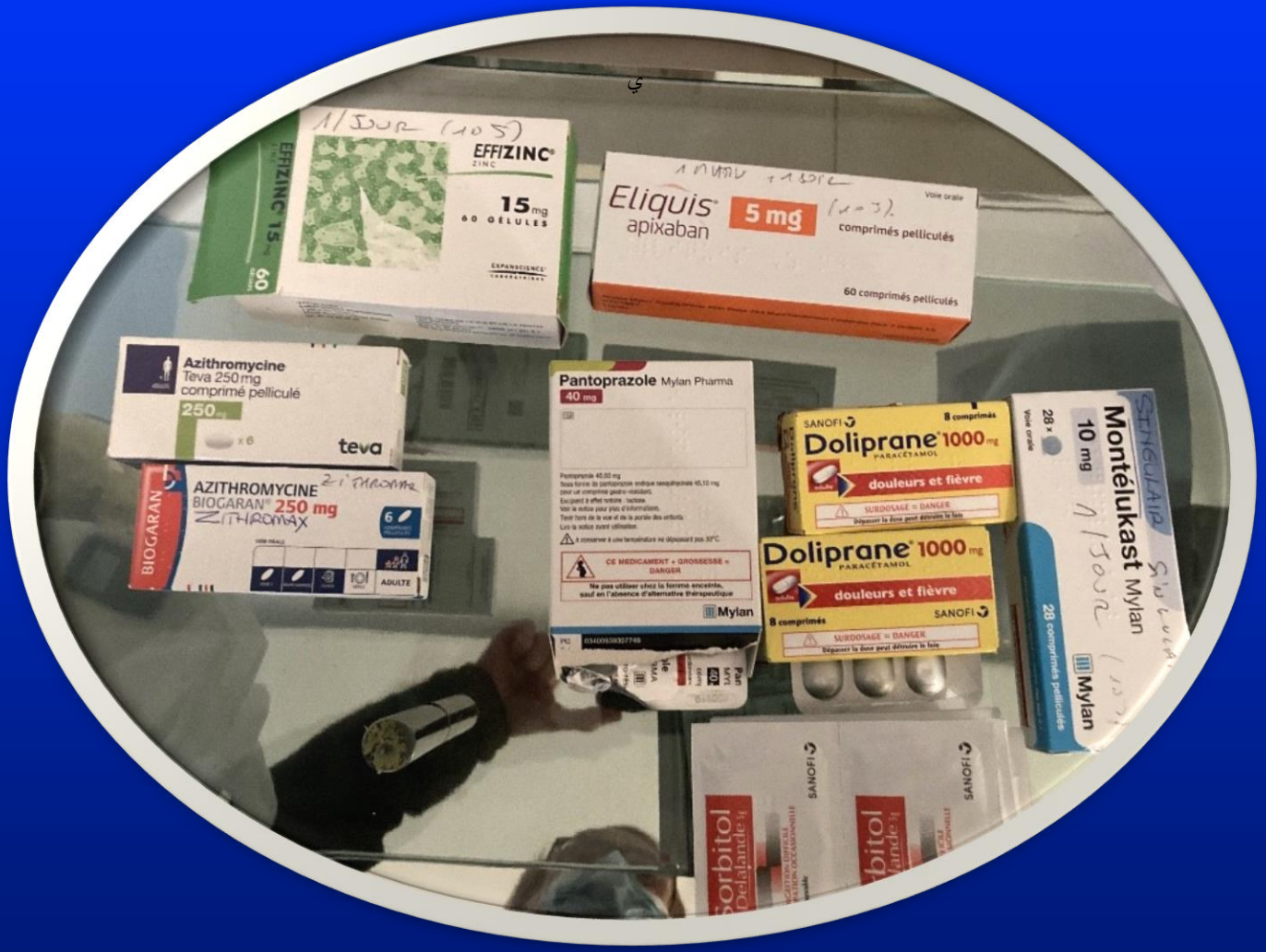
2

6

2in5 previously healthy young adults* weren't back to usual health 14-21 days after testing positive

*ages 18-34

Be careful


EFFIZINC
15 mg
60 GÉLULES
Eliquis
apixaban
5 mg
comprimés pelliculés
60 comprimés pelliculés
Azithromycine
Teva 250 mg
comprimé pelliculé
250
teva
AZITHROMYCINE
BIOGARAN 250 mg
ZITHROMAX
ADULTE
Pantoprazole Mylan Pharma
40 mg
Mylan
Doliprane 1000 mg
PARACÉTAMOL
douleurs et fièvre
8 comprimés
SANOFI
Montélukast Mylan
10 mg
28 comprimés pelliculés
Mylan
Sorbitol
Delalande

MERCI شكرا

السلام عليكم و رحمة الله و بركاته

نتمنى السلامة للجميع

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Secrétariat Pneumologie Foch

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