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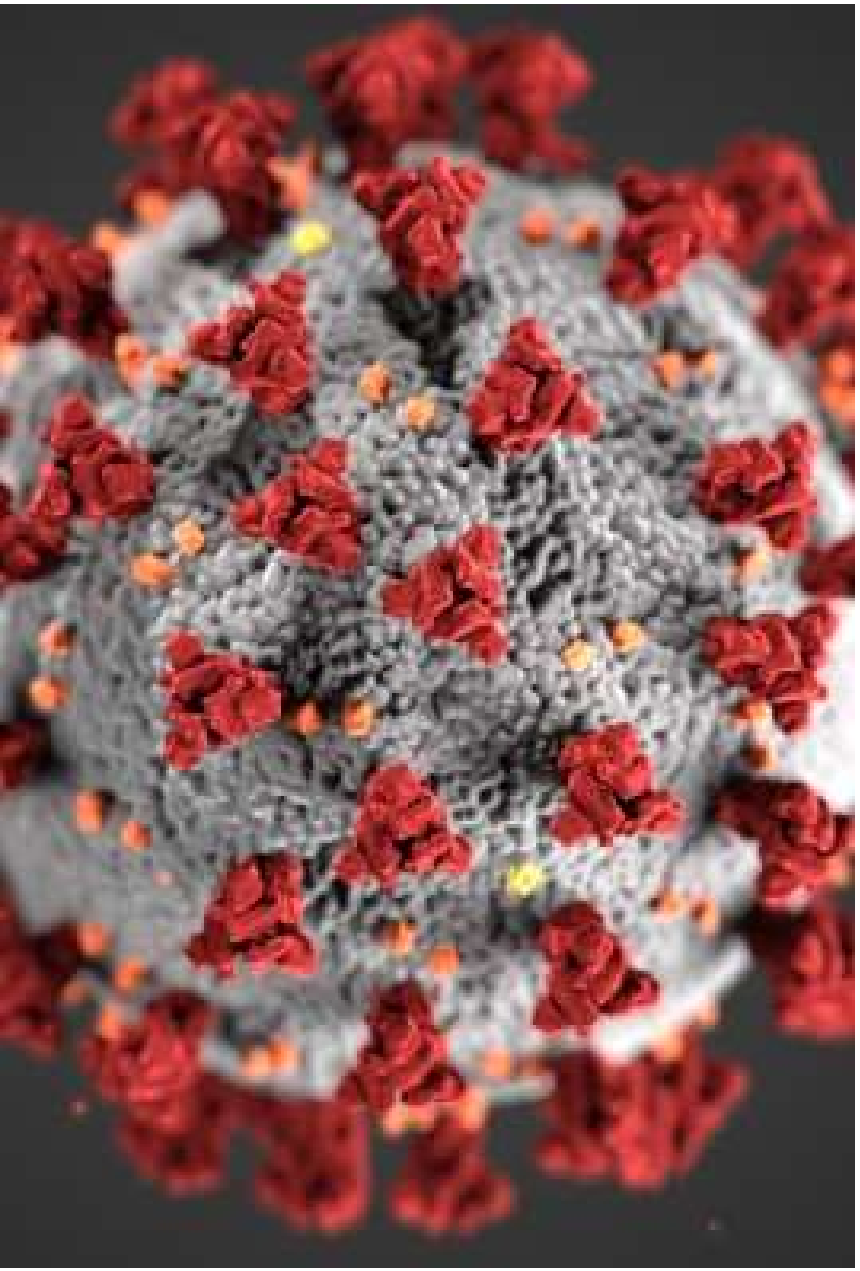
BARCELONA
Hospital Universitari

Àmbit d´Atenció Especialitzada / Àmbit hospitalari

Gema M. Lledó, metgessa, internista del Servei de Malalties Autoimmunes i Sistèmiques. Unitat Post COVID de l'Hospital Clínic



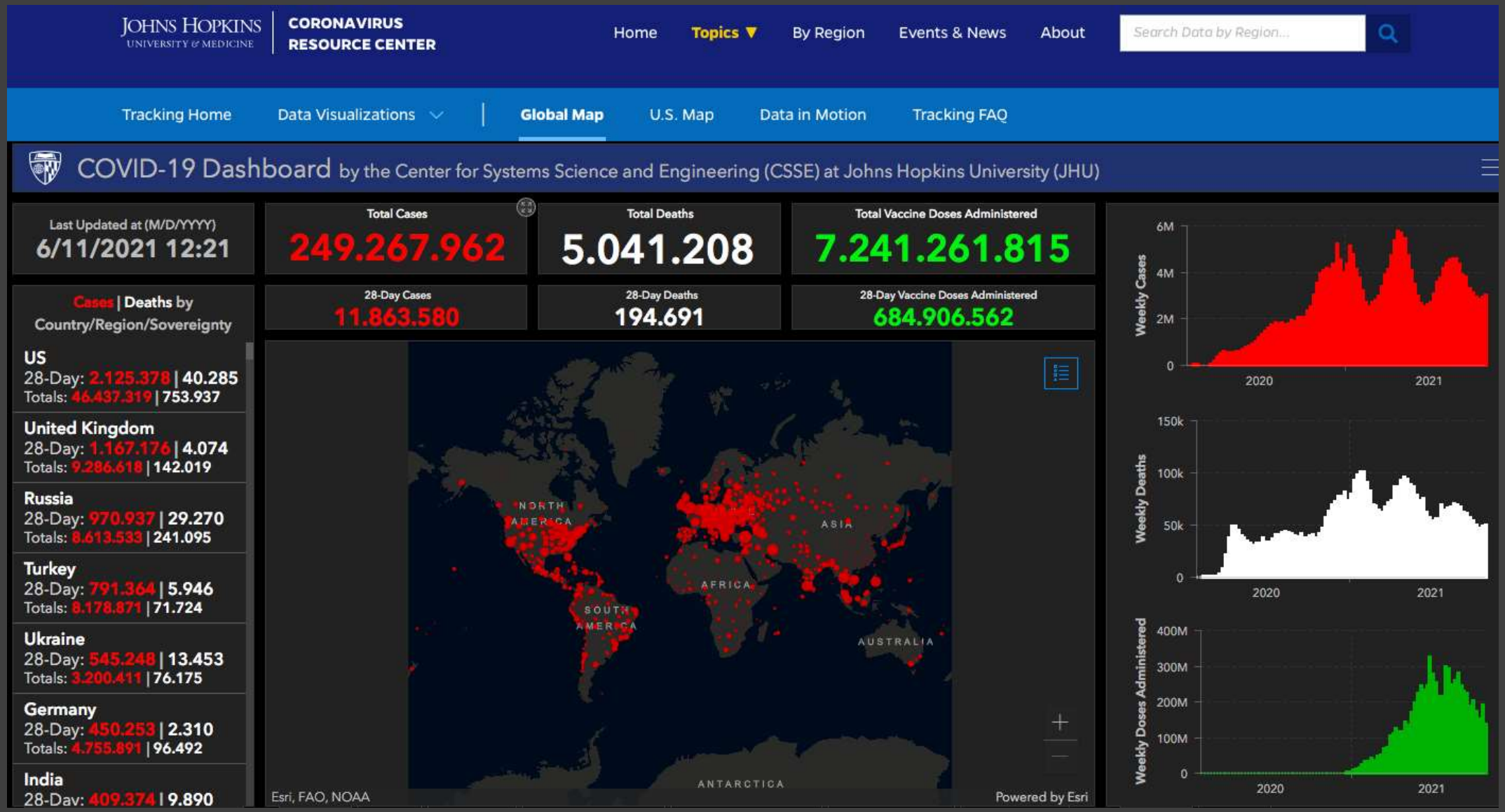
Agenda

COVID19. Prevalencia e impacto

Post-Acute COVID Syndrome

- Prevalencia y Definición
- Modelos extracomunitarios
- Nuestro equipo (HCB)
- Cómo abordarlo. Protocolos
- Qué hemos ido haciendo

Conclusiones


JOHNS HOPKINS UNIVERSITY & MEDICINE
CORONAVIRUS RESOURCE CENTER
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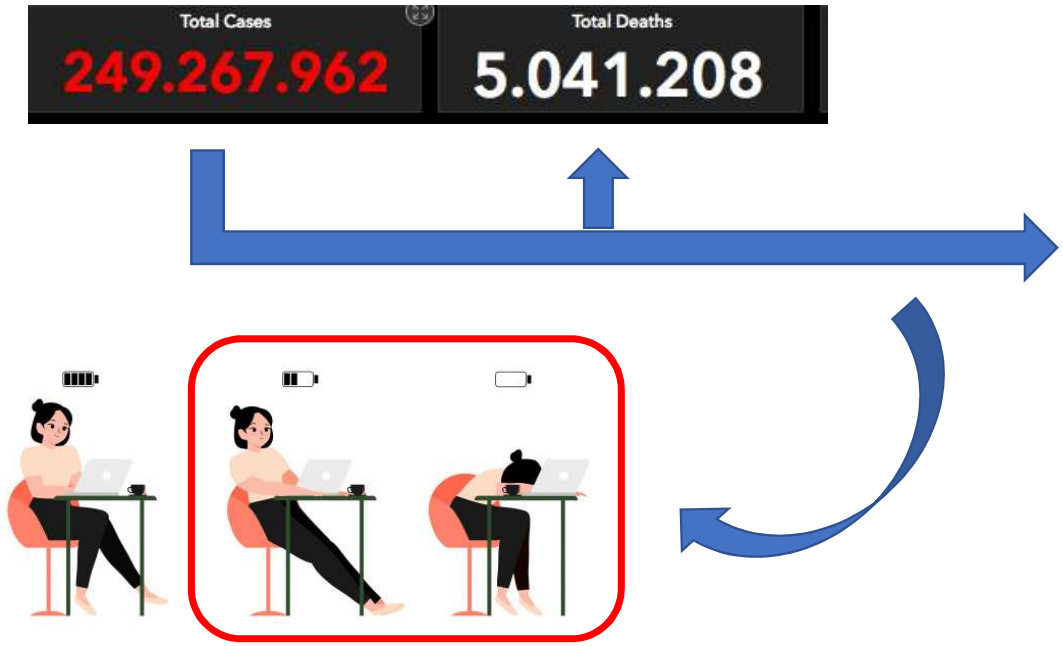
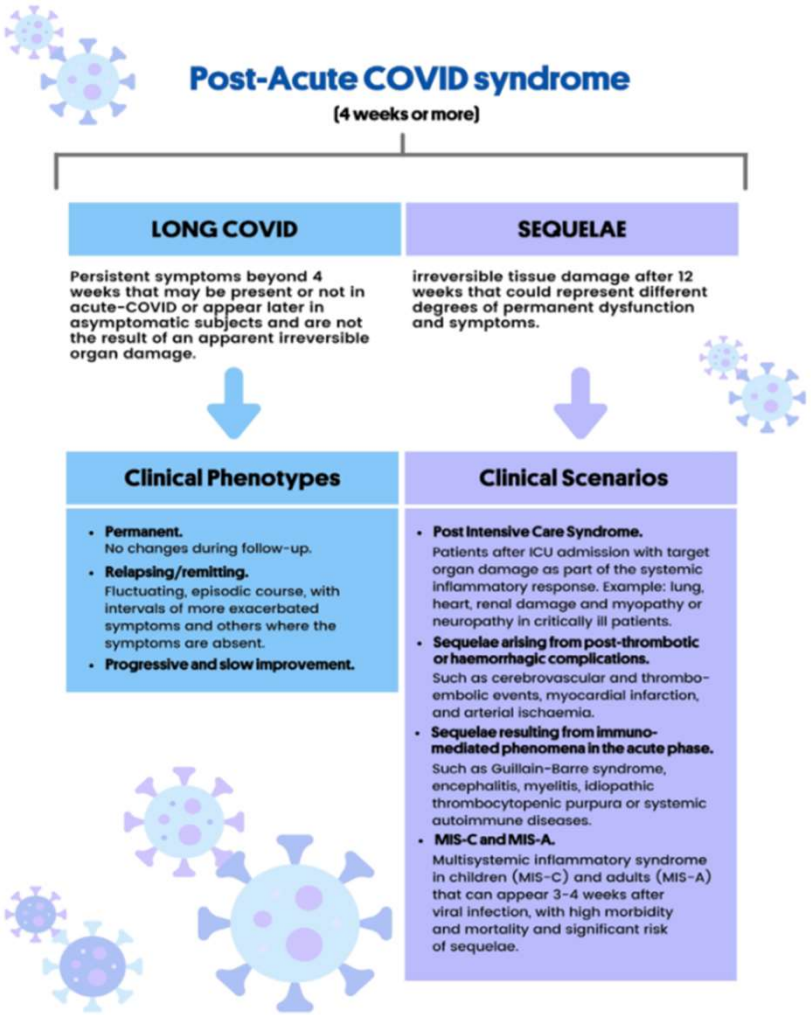
COVID-19 Dashboard by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU)
Last Updated at (M/D/YYYY)
6/11/2021 12:21
Total Cases
249.267.962
Total Deaths
5.041.208
Total Vaccine Doses Administered
7.241.261.815
28-Day Cases
11.863.580
28-Day Deaths
194.691
28-Day Vaccine Doses Administered
684.906.562
Cases | Deaths by Country/Region/Sovereignty
US
28-Day: 2.125.378 | 40.285
Totals: 46.437.319 | 753.937
United Kingdom
28-Day: 1.167.176 | 4.074
Totals: 9.286.618 | 142.019
Russia
28-Day: 970.937 | 29.270
Totals: 8.613.533 | 241.095
Turkey
28-Day: 791.364 | 5.946
Totals: 8.178.871 | 71.724
Ukraine
28-Day: 545.248 | 13.453
Totals: 3.200.411 | 76.175
Germany
28-Day: 450.253 | 2.310
Totals: 4.755.891 | 96.492
India
28-Dav: 409.374 | 9.890
NORTH AMERICA
SOUTH AMERICA
AFRICA
ASIA
AUSTRALIA
ANTARCTICA
Esri, FAO, NOAA
Powered by Esri
Weekly Cases
6M
4M
2M
0
2020
2021
Weekly Deaths
150k
100k
50k
0
2020
2021
Weekly Doses Administered
400M
300M
200M
100M
0
2020
2021

Tras el Tsunami COVID19... llega el mar de fondo del PACS

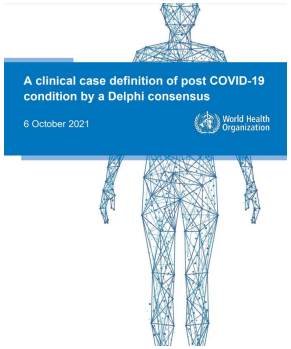


Heterogeneidad

- Prevalencia
- Definición
- Síntomas
- Grupos de edad
- Gravedad COVID19
- *Follow-up*
- Formas de evaluación clínica y recogida de datos



Junio 2021



Post COVID-19 condition occurs in individuals with **a history of probable or confirmed SARS-CoV-2** infection, **usually 3 months from the onset of COVID-19 with symptoms that last for at least 2 months and cannot be explained by an alternative diagnosis.** Common symptoms include **fatigue, shortness of breath, cognitive dysfunction** but also others* and generally have an **impact on everyday functioning.** Symptoms may be **new onset** following initial recovery from an acute COVID-19 episode or **persist** from the initial illness. Symptoms may also **fluctuate** or **relapse** over time.

A separate definition may be applicable for children.

Notes:
There is no minimal number of symptoms required for the diagnosis; though symptoms involving different organs systems and clusters have been described.
*A full list of described symptoms included in the surveys can be found in Annexes 2 .

Definitions:
Fluctuate – a change from time to time in quantity or quality.
Relapse – return of disease manifestations after period of improvement.
Cluster – two or more symptoms that are related to each other and that occur together. They are composed of stable groups of symptoms, are relatively independent of other clusters, and may reveal specific underlying dimensions of symptoms *(32)*.

Octubre 2021

https://www.isglobal.org/documents/10179/6022921/3+GCMSC+report+post-acute+covid+syndrome.pdf

Diagnóstico- Seguimiento, ¿cómo proceder?

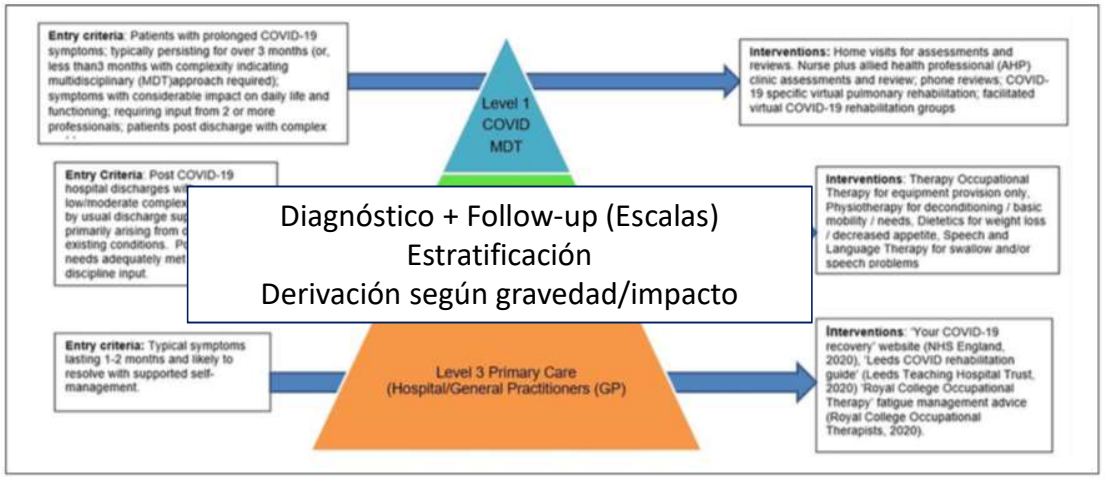


Table 3. Core set of Outcome Measures.

Symptom	Outcome measure
Fatigue	• COVID-19 Yorkshire Rehabilitation Scale (C19-YRS) • Modified Impact Fatigue Scale (MIFS) • EuroQol-5D-5L (EQ5D-5L)
Breathlessness	• C19-YRS • Medical Research Council Breathlessness Scale) (MRC) • 30 second sit-stand test • The Borg Rating of Perceived Exertion (Borg RPE)
Deconditioning	• C19-YRS • 30 second sit-stand test • EQ5D-5L
Cognition	• C19-YRS • Addenbrooke's Cognitive Examination (ACE-3)
Anxiety and depression	• C19-YRS • EQ5D-5L • Generalized Anxiety Disorder Assessment (GAD7) • Depression Severity (PHQ9)
Pain	• C19-YRS

A Multidisciplinary NHS COVID-19 Service to Manage Post-COVID-19 Syndrome in the Community. Journal of Primary Care & Community Health Volume 12: 1–9

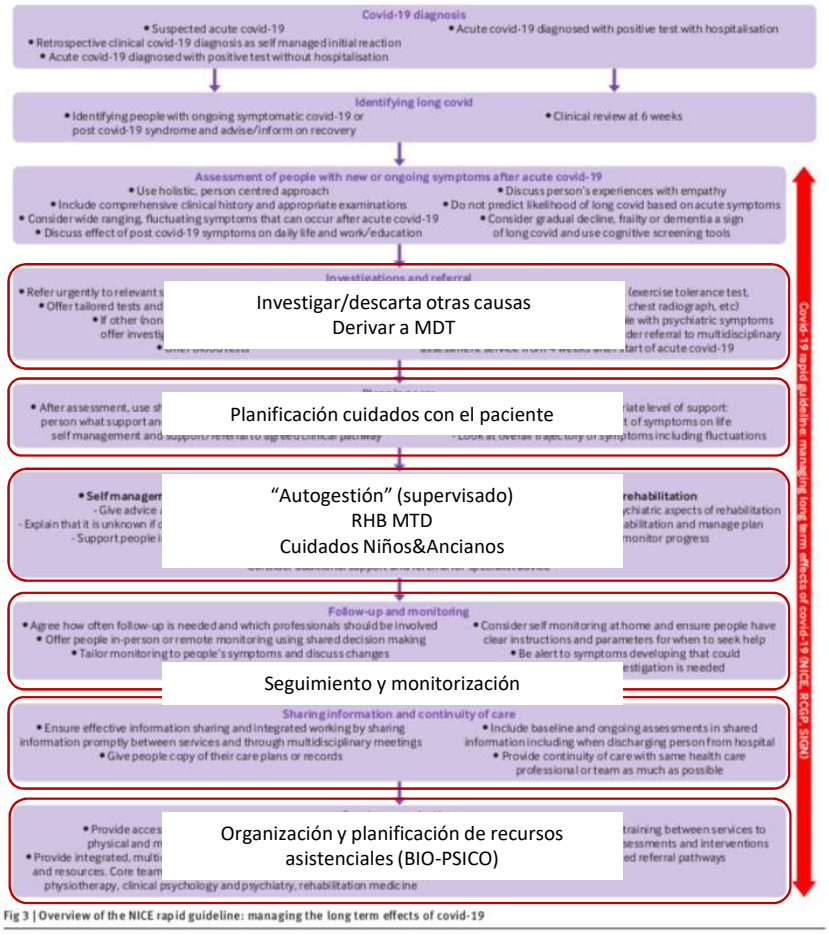
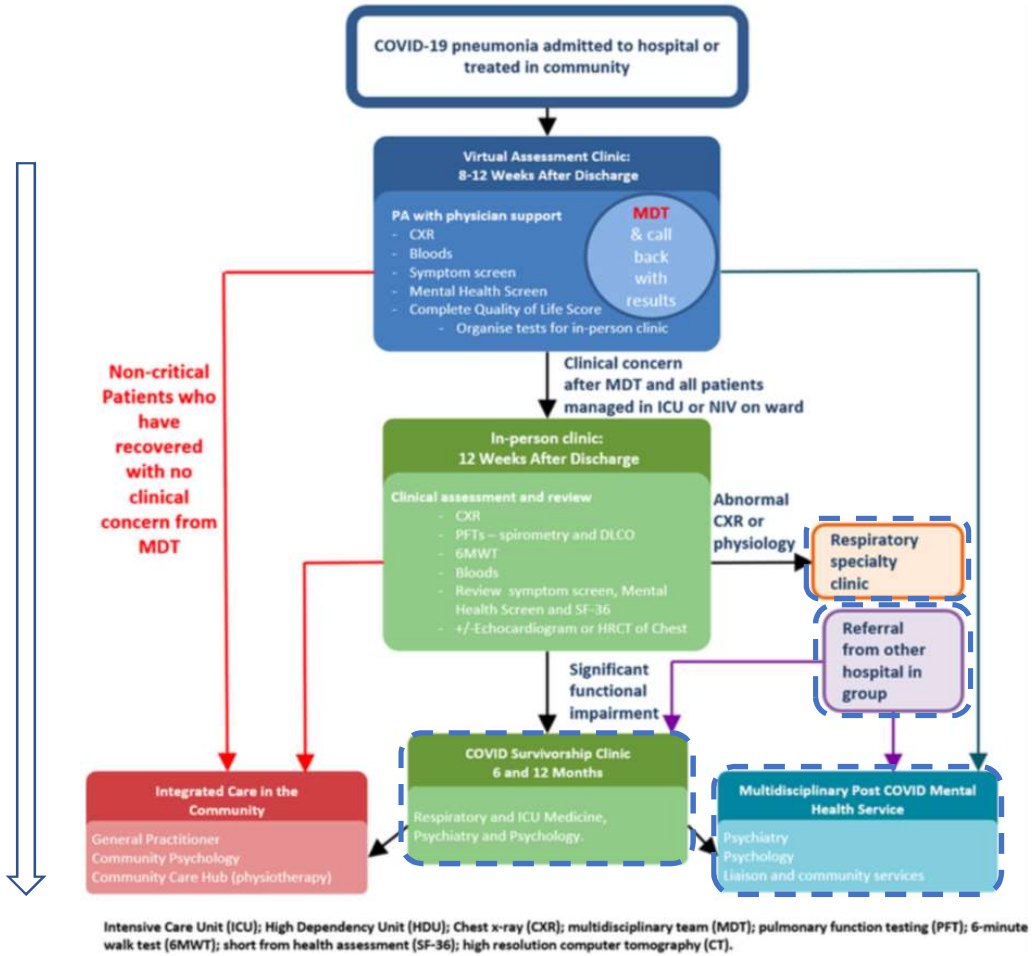


Fig 3 | Overview of the NICE rapid guideline: managing the long term effects of covid-19

Crook H, et al. BMJ. 2021 Jul 26;374 n1648

An integrated multidisciplinary model of COVID-19 recovery care



Intensive Care Unit (ICU); High Dependency Unit (HDU); Chest x-ray (CXR); multidisciplinary team (MDT); pulmonary function testing (PFT); 6-minute walk test (6MWT); short from health assessment (SF-36); high resolution computer tomography (CT).

<u>Virtual</u> clinic review & <u>in-person</u> clinic follow-up (MDT)

Irish Journal of Medical Science. https://doi.org/10.1007/s11845-020-02354-9

The Johns Hopkins Post-Acute COVID-19 Team (PACT): A Multidisciplinary, Collaborative, Ambulatory Framework Supporting COVID-19 Survivors

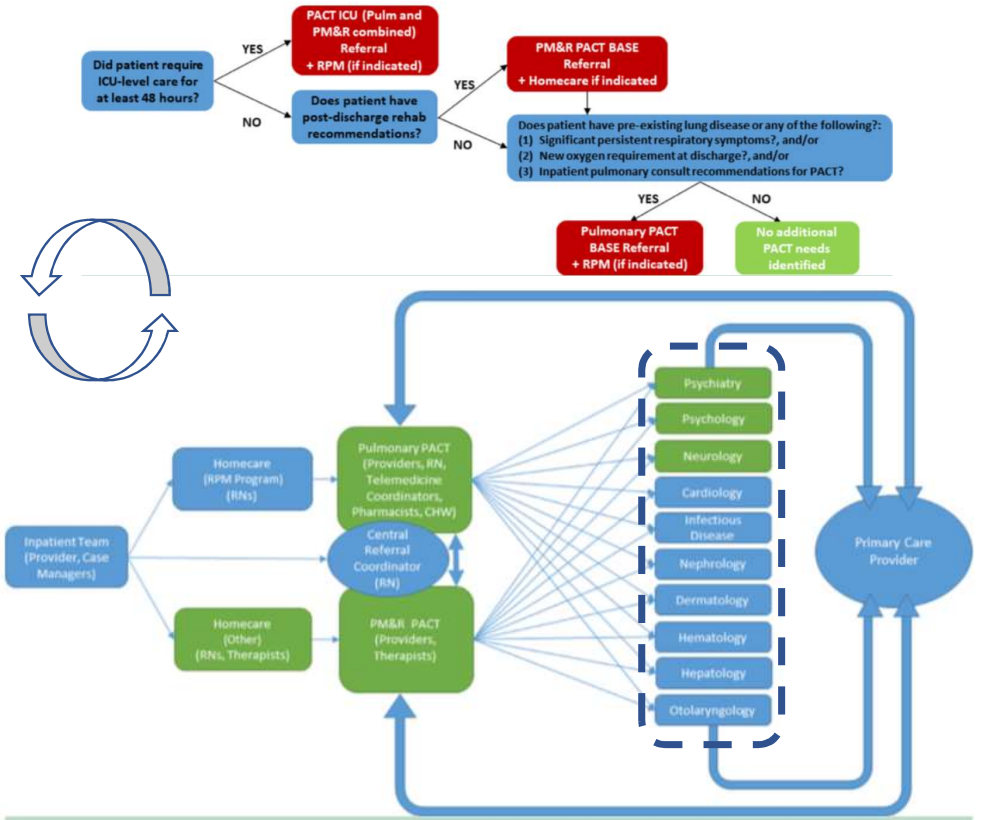


Figure 3 Key services and staff of the Johns Hopkins Post-Acute COVID-19 Team (JH PACT) clinic. Patient flow and contributing staff members represented above. Green indicates participation in weekly multidisciplinary clinic meetings. Primary care is featured prominently as an essential collaboration and line of communication. Psychology consisted of partners in both neuropsychology and rehabilitation psychology. CHW = community health worker; PMR = Physical Medicine and Rehabilitation; RN = registered nurse.

Brigham et al The Johns Hopkins Post-Acute COVID-19 Clinic Framework https://doi.org/10.1016/j.amjmed.2020.12.009.

Why do some Covid-19 patients have symptoms long after the virus goes away? NIH aims to find out.

The National Institutes of Health has allocated the first funds of a billion-dollar initiative to figure out why some people aren't recovering from Covid-19.

Full coverage of the coronavirus outbreak

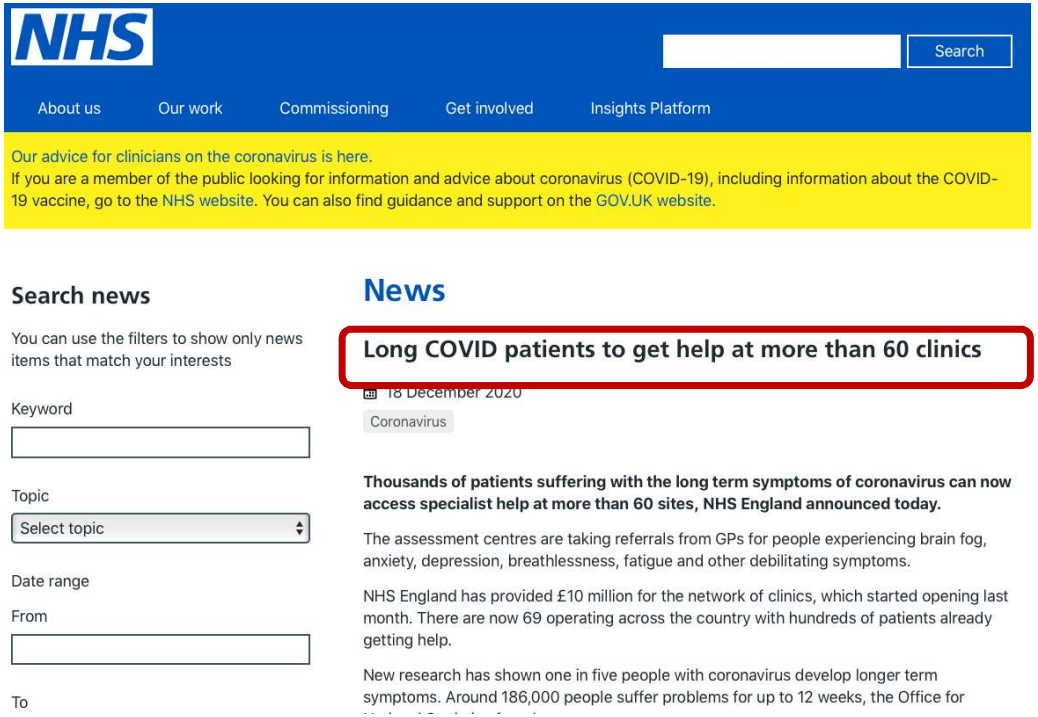
The NIH research aims to learn how SARS-CoV-2, the virus that causes Covid-19, could possibly lead to lasting symptoms, such as profound fatigue, brain fog, headaches, fevers and shortness of breath.

The symptoms "can range from mildly annoying to actually quite incapacitating," Dr. Anthony Fauci, director of the NIH's National Institute of Allergy and Infectious Diseases, said during a White House Covid-19 briefing Wednesday.

"We believe that the insight we gain from this research will also enhance our knowledge of the basic biology of how humans recover from infection, and improve our understanding of other chronic post-viral syndromes and autoimmune diseases," NIH Director Dr. Francis Collins said in a statement Tuesday.

Congress previously allocated $1.15 billion to the NIH to study long-haulers. That money will be spent over four years. The research announced this week is the first in a series of such projects.

***Identificar** una necesidad supone **reconocer** un problema y **entender** que es necesario dotar de **recursos** para **dar solución** o al menos dar **soporte** (tratamiento, seguimiento e investigación)*



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MAS. PACS.
Dra Lledó
MDI. SSC.
Dr Fdez-Solà

- **Cardiología.** *Dra M Roque*
- **Neumología**
  - **COVID19 grave. SDRA.** *Dr Sibila. Dra Albacar*
  - **Neumonitis persistente (NO).** *Dr Sellares. Dra Albacar*
  - **TE.** *Dr Moisés*
- **ORL.** *Dr Alobid, Dr Mullol, Dra MJ Rojas, Dr N Glez*
- **Oftalmología.** *Dra Pelegrín*
- **Dermatología.** *Dr Mascaró, Dra Giavedoni, Dra A Català*
- **Neurología**
  - **Disfunción neurocognitiva.** *Dra Sánchez. Dra Guillén*
  - **Cefalea.** *Dr Obach*
  - **Disautonomía.** *Dra Navarro*
- **Nefrología.** *Dr Xipell*
- **Hematología.** *Dr Correa*
- **Gastro/Hepato.** *Dra E Ricard*
- **RHB.** *Dra Laxe*
- **Psicología/Psiquiatría.** *Dr JM Peri, Dra MM Sánchez*

- **INMUNOLOGIA.** *Dra Ruiz. Dra Viñas. Dr Pérez*
- **RADIOLOGIA/MN.** *Dr Sanchez. Dra Benegas. Dra Auxi*
- **AP.** *Dra PC Castillo*
- **MICROBIOLOGIA.** *Dra MA Marcos, Dra MJ Fdez, Dr Hurtado*

Table 4. Pulmonary algorithms.

Respiratory symptoms

DYSPNEA (33%)
DEFINITION: Persistence of lack of breath > 4 weeks after COVID19 infection
ANAMNESIS AND PHYSICAL EXPLORATION • Vital signs AND auscultation: crackles, SaO2 • Characteristics of dyspnea • Associated Symp: chest pain, fatigue, cough
INITIAL TESTS • Blood test: CRP, electrolytes, renal function, Haemogram. Coagulation • Chest X-ray • Forced Espirometry
CONSIDER: - Complete pulmonary function tests - Thoracic HRCT scan and/or angio-CT scan - Exercise test - Ecocardiography

WHEN to refer for HOSPITAL assessment

- Respiratory failure defined as SaO2 < 93%
- Restrictive pattern
- Interstitial Lung disease
- Persistence of dyspnea with unclear origin

Emergency
Respiratory Medicine
Internal Medicine

Table 5. Extra-pulmonary algorithms

Fatigue

FATIGUE 51.6%
DEFINITION: Prolonged tiredness or exhaustion for no justifiable reason
ANAMNESIS AND PHYSICAL EXPLORATION • Vital signs (blood pressure, heart-rate, T°) and oxygen saturation • Weight and appetite • Adenopathies, visceromegaly and other data suggestive of tumoural etiology • Chest pain, dyspnoea • Neurologic symptoms • PCFS: Post-COVID19 Functional Status Scale
BLOOD TESTS • CRP, ERD • Biochemistry: electrolytes, renal function, liver profile, TSH/T4, cortisol, Vit D • Nutritional and muscle profile: Prot, Alb, CPK, LDH, Aldolasa, proteinogram, folic, B12, iron metabolism • Haemogram
RULE OUT chronic fatigue syndrome (CFS) and fibromyalgia (FM) and, cardio-pulmonary or neurologic etiology

WHEN to refer for HOSPITAL assessment

- CFS +/- FM diagnosis
- Fatigue + **RED FLAGS:** ***hyporexia, weight loss, fever, adenopathies+/- visceromegaly, chest pain, dyspnoea, focal neurologic déficits, swealling of joints*** !

Internal Medicine
CFS/FM Unit
Chronic Pain Unit
Rehabilitation

Musculo-skeletal symptoms

ARTHRALGIAS AND ARTHRITIS 33.2%
DEFINITION: Pain (arthralgia) or swelling (arthritis) that may affect one or more joints, leading to functional limitation
ANAMNESIS AND PHYSICAL EXPLORATION • Number of joints: mono, oligo, polyarthralgias • Which joints, symmetry • Inflammatory signs: edema, joint pain or heat
BLOOD TESTS • CRP, ERD • Biochemistry: electrolytes, renal function, liver profile, uric, TSH/T4 • Haemogram. Coagulation • Immunological P: ANA (IFI Hep2), RF/CCP, dsDNA-Ab/C • Urinary sediment. Prot/Creat
RADIOLOGICAL STUDIES • Rx hands, feet, and other depends on symptoms • Ultrasonography
RULE OUT chronic fatigue syndrome (CFS), fibromyalgia (FM) or possible autoimmune systemic disease

MYALGIAS 40.5%
DEFINITION: Muscle pain that may be associated with a feeling of weakness
ANAMNESIS AND PHYSICAL EXPLORATION • Distribution: proximal and/or distal • Muscular strength • ICU previous (severe COVID19) • Physical deconditioning
BLOOD TESTS • CRP, ERD • Biochemistry: electrolytes, renal function, liver profile, TSH/T4 • Nutritional and muscle profile: Prot, Alb, CPK, LDH, Aldolasa, proteinogram, folic, B12, iron metabolism • Haemogram. Coagulation • Immunological P: ANA (IFI Hep2) • Urinary sediment. Prot/Creat
EMG: In case of weakness and/or increase of CPK/Ald
RULE OUT CFS/FM, drugs (statins, antibiotics, etc), physical deconditioning or probably myopathy of the critically ill patient

WHEN to refer for HOSPITAL assessment

- CFS and FM Diagnosis
- Recurrent swealling joints
- Myalgia + weakness + CPK/Ald high
- Gout
- ANAs: 80, FR/CCP positive

Internal Medicine (Systemic Autoimmune Diseases (SAD) Unit)
Rheumatology
Chronic Pain Unit
Rehabilitation Unit

ANA: antinuclear antibodies, RF: rheumatoid factor, CCP: anti-cyclic citrullinated peptide, dsDNA-Ab: Anti-DNA antibody, C: Complement

Skin & Mucosa Lesions, Hair Loss

SKIN & MUCOSA LESIONS 7.1%
DEFINITION: Some patients may present skin lesions after acute COVID19 such as rashes (erythema, urticaria, purpura, etc.) as well as oral mucosal lesions (aphthae)
ANAMNESIS AND PHYSICAL EXPLORATION • Skin and mucosal exploration. Associated adenopathies • Sicca syndrome: xerostomia, xerophthalmia, xeroderma • Pruritus • When?: before, during and/or after COVID19 (recurrent aphthous stomatitis)
BLOOD TESTS • CRP, ERD • Biochemistry: electrolytes, renal function, liver profile, TSH/T4 • Nutritional profile: Prot, Alb, folic, B12, iron metabolism • Haemogram • Immunological P: ANA (IFI Hep2), dsDNA/C, RF, anti-tissue transglutaminase antibodies • Serology: HIV, syphilis, HBV, HCV, HSV, CMV, EBV, Parvovirus-B19
RULE OUT vitamin deficiency, other infection, immune-mediated conditions, drugs

HAIR LOSS 23.5%
DEFINITION: Many people have a hair loss as part of the stress of the infectious event, so-called telogenic effluvium.
PHYSICAL EXPLORATION • Distribution: diffuse, localized • Other symptoms: pruritus, dermatitis
BLOOD TESTS • Biochemistry: electrolytes, renal function, liver profile, TSH/T4 • Nutritional profile: Prot, Alb, folic, B12, iron • Haemogram
RULE OUT hormonal disorder.

WHEN to refer for HOSPITAL assessment

- Recurrent/persistent skin lesions or aphthous stomatitis
- Hair loss that not improve
- Infectious or probably AI disease

Dermatology
Internal Medicine
***Infectious diseases unit (HIV, Lues)**
***SAD unit (sicca, aphtous, rash, etc)**

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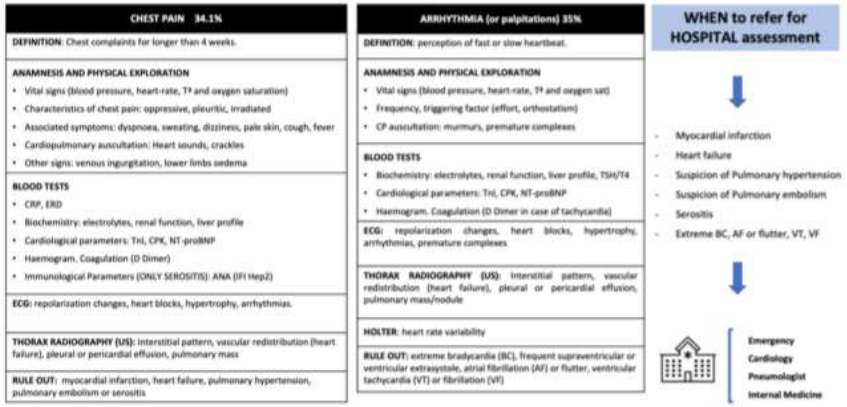
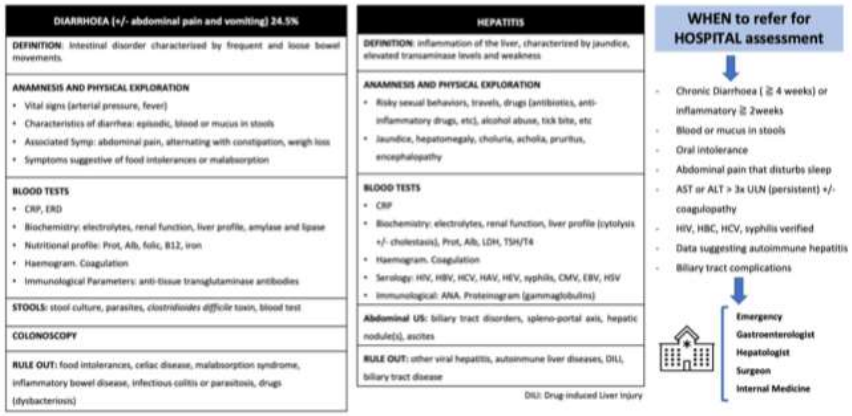
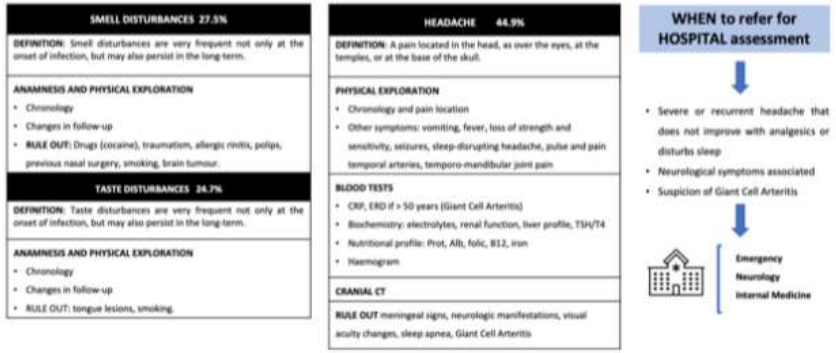
Cardiovascular Signs & Symptoms



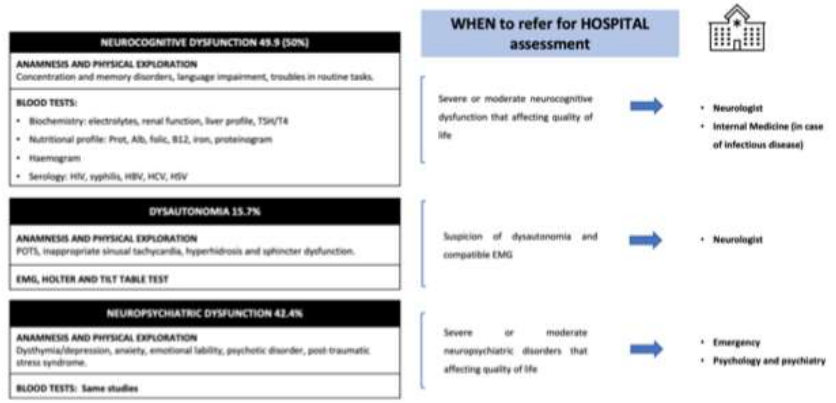
Gastroenterological and Hepatic symptoms



Smell and Taste Loss, Headache



Neurocognitive, dysautonomia and Neuropsychiatric dysfunction



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Sequelae

POST SEVERE COVID Patients after hospital admission with target organ damage as part of the systemic inflammatory response.	• Persistent interstitial lung disease, bronchiectasis • Myocarditis • Chronic Renal Disease • Myopathy & Neuropathy (critically ill patient)	• **Pneumologist** • **Cardiologist** • **Nephrologist** • **Rehabilitation**
THROMBOTIC OR HAEMORRHAGIC COMPLICATIONS Sequelae arising from post-thrombotic or haemorrhagic complications occurring within the acute phase or at least within 4 weeks.	• Stroke • Myocardial infarction • Arterial ischaemia • Thromboembolic events	• **Neurologist** • **Cardiologist** • **Haematologist (thrombophilia)** • **Internal Medicine** • **Pneumologist** • **Rehabilitation**
IMMUNE-MEDIATED PHENOMENA Sequelae resulting from immune-mediated phenomena during the acute or post-acute phase.	• Acute polyradiculoneuritis (Guillain-Barre) • Encephalitis • Myelitis • Systemic autoimmune diseases	• **Neurologist** • **Rehabilitation** • **SAD unit** • **Rheumatologist**
MIS-C and MIS-A Multisystemic inflammatory syndrome in children (MIS-C) and adults (MIS-A) characterised by hyperinflammation that can appear 3-4 weeks after viral infection, with high morbidity and mortality and significant risk of subsequent sequelae.	• Fever, increase acute inflammatory parameters • Skin rash, mucocutaneous lesions • Coronary disease • Neurological symptoms • Gastroenteric disease	• **Emergency** • **Paediatrician** • **Rheumatologist** • **Internal Medicine (SAD unit)**

Miscellany

	WHEN to refer for HOSPITAL assessment	
EYE SYMPTOMS AND VISION 10-18.2% **Red eye, photopsias, myodesopsias, loss of visual acuity, metamorphopsia**	• Severe or acute visual loss • Metamorphopsia • Acute and recurrent photopsias	• **Emergency (amaurosis)** • **Ophthalmologist**
HEARING LOSS AND VESTIBULAR SYMPTOMS 5-26.1% **Hypoacusia, tinnitus, dizziness, nistagmus** **Odynophagia, dysphagia, dysphonia, dyspnea**	• Severe or acute hearing loss • Severe or recurrent dizziness • Dysphagia, Dysphonia, dyspnea	• **Emergency** • **ENT specialist**
HAEMATOLOGICAL/THROMBOSIS 7.3/2.5 **Cytopenias: anaemia, leukopenia, thrombopenia** **Deep vein thrombosis, pulmonary embolism, arterial ischemia**	• ANAI, Leuko <3.000, Plat <100.000 • Venous thromboembolism • Acute arterial ischemia	• **Emergency** • **Haematologist** • **Internal Medicine/Pneumologist**
ENDOCRINOLOGICAL DISORDERS **Diabetes mellitus, thyroiditis, menstrual cycle disorders, erectile dysfunctions, bone demineralization**	• Thyrotoxic storm • Menstrual cycle disorders • Erectile dysfunctions • Bone demineralization	• **Emergency** • **Gynaecologist** • **Urologist** • **Rheumatologist**

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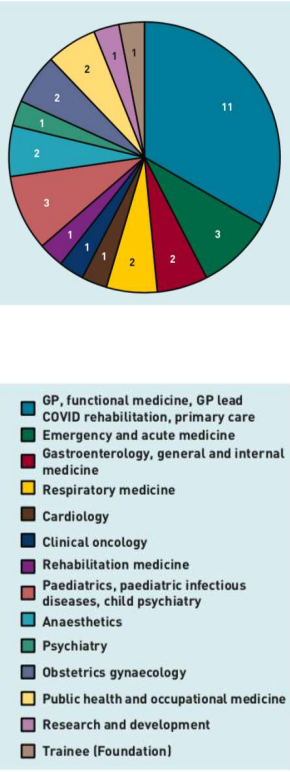
Tratamiento

- **NO TRATAMIENTO ESPECÍFICO**, sí por **síntomas**.
  - "***Recomendaciones"*** TTO **(FLCCC Alliance) Jun/21**
  - ***Clinical Trials:***
    - **Vacuna (***Arnold et al; ComPaRe Coh Lancet 2021***)**
    - **Leronlimab (Ac monoclonal frente CCR5).** Varios
    - Montelukast (Esperanza[NCT04695704])
- **DESCARTAR** otras causas
- **INDIVIDUALIZAR**
- **REHABILITACION** (3Ps)→***3P*** ➔ ***P*lanificación y el *Control del ritmo ("Pacing")***
- Soporte **PSICOLOGICO (grupos de terapia)**
- **EQUIPO MULTI-INTERDISCIPLINAR**

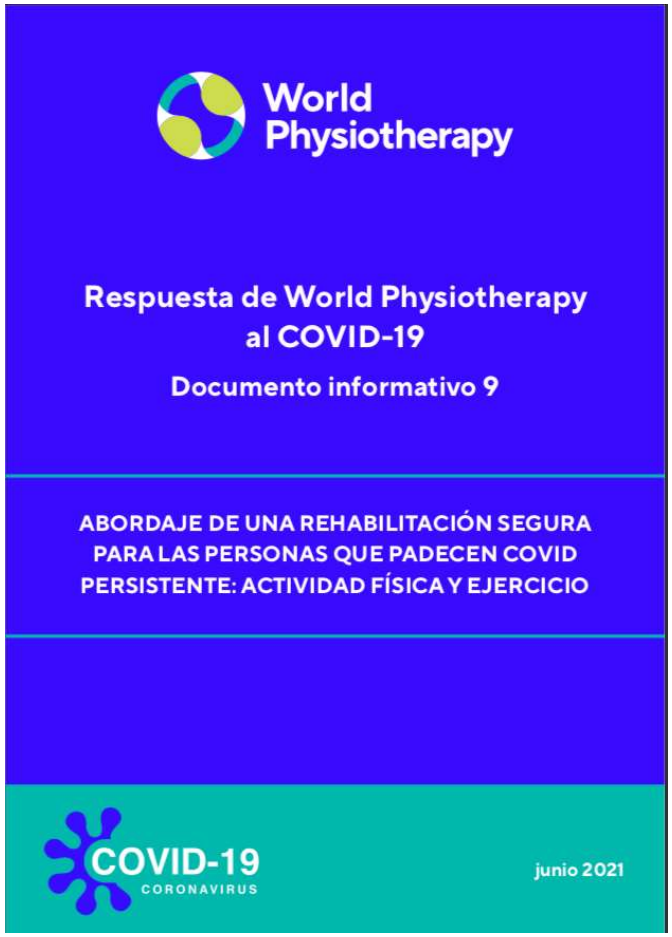
Recommendations for the recognition, diagnosis, and management of long COVID:

a Delphi study

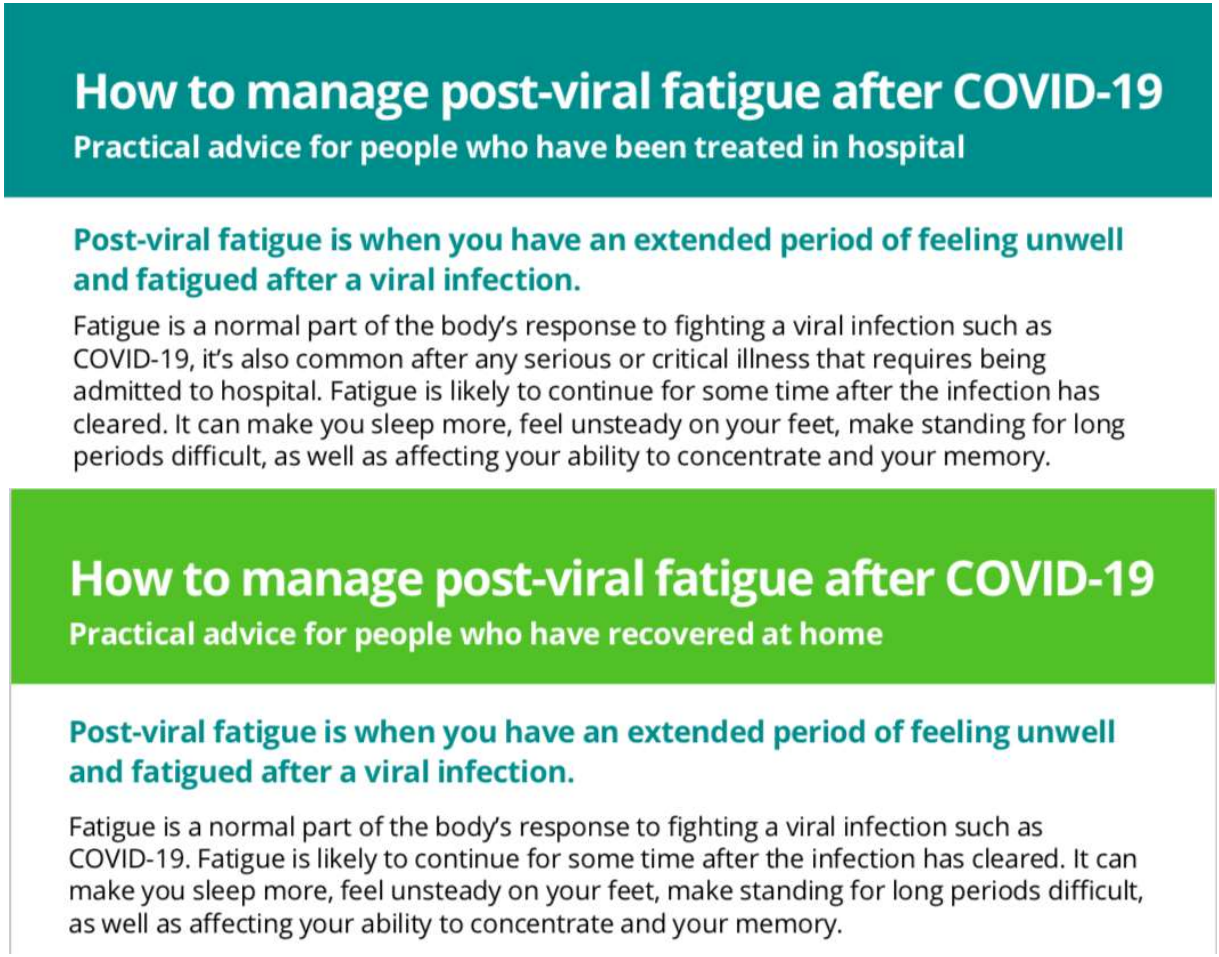
- **14 especialidades** que VEN y TRATAN pacientes (**EXPERIENCIA**)
  "Robust consensus method from a unique group of 'lived-experience' professionals and front-line clinicians in the field."
- **35 recomendaciones**
  - 6 → Organización clínica (Box 2)
  - 13 → Diagnóstico (Box 3)
  - 16 → Manejo (Boxes 4-5)
- Advierten del **riesgo de ciertas medicaciones** ofrecidas como "tratamientos" **CAUTELA**
- Advierten de la **exacerbación de síntomas** (**PREVENCIÓN**)
  "*Physical or cognitive workload beyond the patient's 'energy envelope' may cause an exacerbation of symptoms including fatigue, fever, myalgia, and breathlessness. Exacerbations may manifest immediately or after a delay of 24–48 hours and may last days or months".*
- **Manejo holístico** (**MDT**)



Phillips M. British Society of Rehabilitation Medicine, 2020.
Greenhalghet et al. BMU 2020;370:m3026|doi:10.1136/bmj.m3026
Schmidt C. COVID-19 long haulers. Nat Biotechnol. 2021 Aug;39(8):908-913
Jimeno Almazan A, et al. Int J Environ Res Public Health. 2021 May 17;18(10): 5329
Br J Gen Pract 2021; DOI: https://doi.org/10.3399/BJGP.2021.0265



3P ➔ ***P*riorización, *P*lanificación y el *Control del ritmo (“Pacing”)***



How to manage post-viral fatigue after COVID-19

Practical advice for people who have been treated in hospital

Post-viral fatigue is when you have an extended period of feeling unwell and fatigued after a viral infection.

Fatigue is a normal part of the body's response to fighting a viral infection such as COVID-19, it's also common after any serious or critical illness that requires being admitted to hospital. Fatigue is likely to continue for some time after the infection has cleared. It can make you sleep more, feel unsteady on your feet, make standing for long periods difficult, as well as affecting your ability to concentrate and your memory.

How to manage post-viral fatigue after COVID-19

Practical advice for people who have recovered at home

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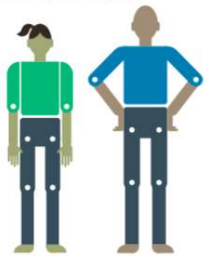
World Health Organization
REGIONAL OFFICE FOR Europe

Support for rehabilitation: self-management after COVID-19-related illness

second edition



Reach your right arm up to the ceiling and then lean over to the left slightly; you should feel a stretch along the right side of your body. Repeat on the other side.

Put your arm out in front of you. Keeping your arm straight, bring it across your body at shoulder height, using your other hand to squeeze your arm to your chest so you feel a stretch around your shoulder. Repeat on the opposite side.

Sit on the edge of a chair with your leg out straight in front of you with your heel resting on the ground. Place your hands on your other thigh as support. Sitting as tall as you can, bend slightly forward at your hips until you can feel a slight stretch down the back of the leg that is stretched out. Repeat on the opposite side.

Stand with your feet apart, lean forward onto a wall and step one leg behind you. Bend your front knee, keeping your back leg straight and your heel on the floor. You should feel a stretch in the back of your lower leg. Repeat on the opposite side.

Borg CR-10		Phases				
Score	Level of exertion	1	2	3	4	5
0	Rest/no exertion at all					
1	Really easy/extremely light					
2	Easy/very light					
3	Moderate/light					
4	Somewhat hard					
5	Hard (heavy)					
6						
7	Very hard					
8						
9	Extremely hard					
10	Maximal exertion					

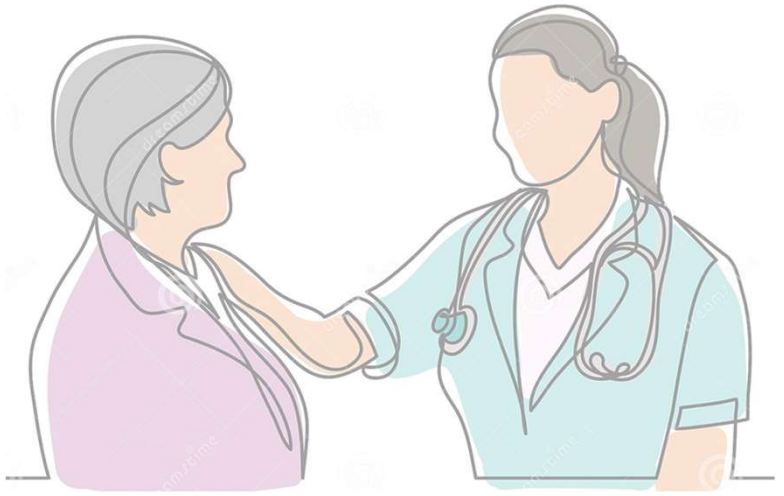
Managing problems with attention, memory, and thinking clearly

Returning to work

Developing services for long COVID: lessons from a study of wounded healers

Authors: Emma Ladds,[A] Alex Rushforth,[B] Sietse Wieringa,[C] Sharon Taylor,[D] Clare Rayner,[E] Laiba Husain[F] and Trisha Greenhalgh[G]

*"I think if someone can acknowledge uncertainty then I think that really helps because I think we all know that nobody knows what to do with us but I think where it can become frightening is if they're kind of claiming unwarranted certainty. So, I think actually just saying, '**Well actually, we don't really know what's going on but yes stick with us we'll try and work it out**."*



ABCDEF of long COVID clinical quality standards

A: Access
B: Burden of illness
C: Clinical responsibility and continuity of care
D: MultiDisciplinary rehabilitation services
E: Evidence-based standards
F: Further development of the knowledge base and clinical services

Conclusiones

- **RECONOCER Y DIAGNOSTICAR**
- **CARACTERIZAR. CLUSTERs**
- **TRATAMIENTO & RHB … Y PREVENCIÓN!**
- **INVESTIGACIÓN (-OMICs)**
- **MANEJO MULTI-INTERDISCIPLINAR. Relación TRANSVERSAL AP-AH-AI**
- ***ASOCIACIONES DE PACIENTES***

"Tackling a multifaceted condition requires a multi-disciplinary approach."

Muchas gracias