COVID-19: updates on follow-up & long-term effects

13th May 2021

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**guidance/new publications**

**Title:** **EXPANDING OUR UNDERSTANDING OF POST COVID-19 CONDITION: REPORT OF A WHO WEBINAR - 9 FEBRUARY 2021**

**Source:** WH0, 24th April 2021

On 9 February 2021, a first webinar entitled “Expanding our understanding of Post COVID-19 condition” was held under the auspices of WHO and in consultation with the International Severe Acute Respiratory and Emerging Infection Consortium (ISARIC), Global Research Collaboration for Infectious Disease Preparedness (GloPID-R), National Institutes of Health/National Institute of Allergy and Infectious Diseases (NIH/NIAID), LongCovidSOS and patient representatives. The meeting took place over a 5-hour period divided into the following three sessions: Session 1: Post COVID-19 condition: scene setting and lessons learned; Session 2: Observations on Post COVID-19 condition: what we know; Session 3: Working groups to develop clinical case definition and research gaps/methods.

<https://www.who.int/publications/i/item/9789240025035>

**Title:** **PREVALENCE OF ONGOING SYMPTOMS FOLLOWING CORONAVIRUS (COVID-19) INFECTION IN THE UK: 1 APRIL 2021**

**Source:** ONS, 1st April 2021

**Estimates of the prevalence of self-reported "long COVID", and the duration of ongoing symptoms following confirmed coronavirus infection, using UK Coronavirus (COVID-19) Infection Survey data to 6 March 2021. Over the four-week period ending 6 March 2021, an estimated 1.1 million people in private households in the UK reported experiencing long COVID (symptoms persisting more than four weeks after the first suspected coronavirus (COVID-19) episode that are not explained by something else).** [Full report.](https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/prevalenceofongoingsymptomsfollowingcoronaviruscovid19infectionintheuk/1april2021)

**research papers**

 **GENERAL LONG-TERM EFFECTS:**

**Title:** **AN INTEGRATED UNDERSTANDING OF LONG-TERM SEQUELAE AFTER ACUTE COVID-19**

The Lancet Respiratory Medicine | 5th May 2021

The recognition of so-called long COVID has been a great emotional relief for the many who are struggling with the aftereffects of COVID-19. This Comment piece states we now need to dissect this highly heterogenous syndrome; better delineate clusters of symptoms; differentiate it from other conditions and consequences of infections and hospitalisation; understand the pathophysiology, predisposing conditions, and risk factors; and indeed, learn how to better look after people with long-term complications after acute COVID-19. Dealing with such complexity requires a multidisciplinary approach and patients' involvement.
Full detail: [An integrated understanding of long-term sequelae after acute COVID-19](https://www.thelancet.com/action/showPdf?pii=S2213-2600%2821%2900206-X)

**Title:** **POST-COVID SYNDROME IN INDIVIDUALS ADMITTED TO HOSPITAL WITH COVID-19: RETROSPECTIVE COHORT STUDY**

**Source:** BMJ 2021; 372 (31 March 2021)

Objective To quantify rates of organ specific dysfunction in individuals with covid-19 after discharge from hospital compared with a matched control group from the general population. Design Retrospective cohort study. Setting NHS hospitals in England. Participants 47 780 individuals (mean age 65, 55% men) in hospital with covid-19 and discharged alive by 31 August 2020, exactly matched to controls from a pool of about 50 million people in England for personal and clinical characteristics from 10 years of electronic health records. Main outcome measures Rates of hospital readmission (or any admission for controls), all cause mortality, and diagnoses of respiratory, cardiovascular, metabolic, kidney, and liver diseases until 30 September 2020. Variations in rate ratios by age, sex, and ethnicity. Results Over a mean follow-up of 140 days, nearly a third of individuals who were discharged from hospital after acute covid-19 were readmitted (14 060 of 47 780) and more than 1 in 10 (5875) died after discharge, with these events occurring at rates four and eight times greater, respectively, than in the matched control group. Rates of respiratory disease (P<0.001), diabetes (P<0.001), and cardiovascular disease (P<0.001) were also significantly raised in patients with covid-19, with 770 (95% confidence interval 758 to 783), 127 (122 to 132), and 126 (121 to 131) diagnoses per 1000 person years, respectively. Rate ratios were greater for individuals aged less than 70 than for those aged 70 or older, and in ethnic minority groups compared with the white population, with the largest differences seen for respiratory disease (10.5 (95% confidence interval 9.7 to 11.4) for age less than 70 years v 4.6 (4.3 to 4.8) for age ≥70, and 11.4 (9.8 to 13.3) for non-white v 5.2 (5.0 to 5.5) for white individuals). Conclusions Individuals discharged from hospital after covid-19 had increased rates of multiorgan dysfunction compared with the expected risk in the general population. The increase in risk was not confined to the elderly and was not uniform across ethnicities. The diagnosis, treatment, and prevention of post-covid syndrome requires integrated rather than organ or disease specific approaches, and urgent research is needed to establish the risk factors.
<https://www.bmj.com/content/372/bmj.n693>

**Title:** **Post-acute effects of SARS-CoV-2 infection in individuals not requiring hospital admission: a Danish population-based cohort study**

**Source:** The Lancet Infectious Diseases | 10th May 2021

Individuals admitted to hospital for COVID-19 might have persisting symptoms (so-called long COVID) and delayed complications after discharge. However, little is known regarding the risk for those not admitted to hospital. The authors of this study therefore examined prescription drug and health-care use after SARS-CoV-2 infection not requiring hospital admission. The study concludes that the absolute risk of severe post-acute complications after SARS-CoV-2 infection not requiring hospital admission is low. However, increases in visits to general practitioners and outpatient hospital visits could indicate COVID-19 sequelae.
Full paper: [Post-acute effects of SARS-CoV-2 infection in individuals not requiring hospital admission: a Danish population-based cohort study](https://www.thelancet.com/action/showPdf?pii=S1473-3099%2821%2900211-5)

**Title:** **TOWARD UNDERSTANDING COVID-19 RECOVERY: NATIONAL INSTITUTES OF HEALTH WORKSHOP ON POSTACUTE COVID-19**

**Source:** Annals of Internal Medicine; Mar 2021

**Abstract:** Over the past year, the SARS-CoV-2 pandemic has swept the globe, resulting in an enormous worldwide burden of infection and mortality. However, the additional toll resulting from long-term consequences of the pandemic has yet to be tallied. Heterogeneous disease manifestations and syndromes are now recognized among some persons after their initial recovery from SARS-CoV-2 infection, representing in the broadest sense a failure to return to a baseline state of health after acute SARS-CoV-2 infection. On 3 to 4 December 2020, the National Institute of Allergy and Infectious Diseases, in collaboration with other Institutes and Centers of the National Institutes of Health, convened a virtual workshop to summarize existing knowledge on postacute COVID-19 and to identify key knowledge gaps regarding this condition.
<https://www.acpjournals.org/doi/10.7326/M21-1043>

**Title:** **PERSISTENT POST-COVID SYMPTOMS IN HEALTHCARE WORKERS**

**Source:** Occupational Medicine (Oxford, England); Apr 2021

…Our data suggest that about a third of HCW who responded to the survey were still struggling to cope with the symptoms of what is now known as long covid several months after the acute COVID-19 infections. The overwhelming majority of this group seem to be reluctant to neither seek medical advice nor take sick leave.

<https://academic.oup.com/occmed/advance-article/doi/10.1093/occmed/kqab043/6217385?login=true>

**Title:** **PERSISTENT SYMPTOMS UP TO FOUR MONTHS AFTER COMMUNITY AND HOSPITAL-MANAGED SARS-COV-2 INFECTION**

**Source:** The Medical Journal of Australia; Apr 2021; vol. 214 (no. 6); p. 279-280

The spectrum of recovery for people infected with severe acute respiratory syndrome coronavirus 2 (SARS‐CoV‐2) remains uncertain. The ADAPT study is a prospective cohort study that follows up all adults diagnosed with coronavirus disease 2019 (COVID‐19) at St Vincent’s Hospital, Sydney. Our goal is to characterise the effects of infection during the 12 months after diagnosis, by initial severity of COVID‐19. Our specific aims were to determine the prevalence and nature of persistent symptoms; to evaluate lung function, health‐related quality of life, neurocognitive and olfactory abnormalities during the recovery period; and to characterise the longitudinal immune response to infection.
<https://onlinelibrary.wiley.com/doi/10.5694/mja2.50963>

**Title:** **PERSISTENT SARS-2 INFECTIONS CONTRIBUTE TO LONG COVID-19**

**Source:** Medical Hypotheses; Apr 2021; vol. 149; p. 110538

COVID-19 is a serious disease that has infected more than 40 million people. Beside significant mortality, the SARS-CoV-2 infection causes considerable and sustained morbidity, dubbed long COVID. This paper argues that some of this morbidity may be due to a persistent systemic infection. Persistent infection is indicated by continued virus RNA shedding. The virus' superantigen could overstimulate anti-virus immune responses, and thereby induce negative feedback loops, that paradoxically allow the virus to persist. The superantigen would induce strong immune response to any residual infection. This hypothesis suggests that clearing the virus infection completely would be an appropriate intervention against long COVID.
<https://pubmed.ncbi.nlm.nih.gov/33621843/>

**Title:** **POST-ACUTE CONDITIONS OF PATIENTS WITH COVID-19 NOT REQUIRING HOSPITAL ADMISSION**

**Source:** The Lancet Infectious Diseases, 10th May 2021

As of early April, 2021, more than 2·8 million individuals have died globally from COVID-19. However, tens of millions of patients have survived COVID-19 and returned to everyday life. Increasing evidence has shown that a considerable proportion of patients did not recover fully and had lasting sequelae, described by various terms without consensus, including long COVID, post-COVID condition or syndrome, postacute (or late) sequelae of COVID-19, and post-acute COVID syndrome.  Studies have mainly focused on patients with COVID-19 after hospital admission. One study with a small sample size and without a control group of people without COVID-19 described the long-term outcomes of patients with COVID-19 who did not require hospital admission [paper goes on to summarise current research and understanding]…
[https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(21)00225-5/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099%2821%2900225-5/fulltext)

**Title:** **PREVALENCE AND CHARACTERISTICS OF PERSISTENT SYMPTOMS AFTER NON-SEVERE COVID-19: A PROSPECTIVE COHORT STUDY**

**Source:** European Journal of Clinical Microbiology & Infectious Diseases: official publication of the European Society of Clinical Microbiology; Apr 2021

**Abstract:** We performed a prospective cohort study of 311 outpatients with non-severe COVID-19 (187 women, median age 39 years). Of the 214 (68.8%) who completed the 6-week follow-up questionnaire, 115 (53.7%) had recovered. Others mostly reported dyspnea (n = 86, 40.2%), weight loss (n = 83, 38.8%), sleep disorders (n = 68, 31.8%), and anxiety (n = 56, 26.2%). Of those who developed ageusia and anosmia, these symptoms were still present at week 6 in, respectively, 11/111 (9.9%) and 19/114 (16.7%). Chest CT scan and lung function tests found no explanation in the most disabled patients (n = 23). This study confirms the high prevalence of persistent symptoms after non-severe COVID-19.
<https://pubmed.ncbi.nlm.nih.gov/33893570/>

**Title:** **COVID-19: MIDDLE AGED WOMEN FACE GREATER RISK OF DEBILITATING LONG TERM SYMPTOMS**

**Source**: BMJ (Clinical research ed.); Mar 2021; vol. 372; p. n829

Middle aged women have a higher risk of experiencing a range of debilitating ongoing symptoms, such as fatigue, breathlessness, muscle pain, anxiety, depression, and “brain fog” after hospital treatment for covid-19, suggest the findings of two unpublished studies available as preprints.
<https://www.bmj.com/content/372/bmj.n829.long>

**Title:** **'LONG COVID': PERSISTENT COVID-19 SYMPTOMS IN SURVIVORS MANAGED IN LAGOS STATE, NIGERIA**

**Source:** BMC Infectious Diseases; Mar 2021; vol. 21 (no. 1); p. 304

Findings from this study suggests that patients who recovered from COVID-19 disease may still experience COVID-19 like symptoms, particularly fatigue and headaches. Therefore, careful monitoring should be in place after discharge to help mitigate the effects of these symptoms and improve the quality of life of COVID-19 survivors.
<https://bmcinfectdis.biomedcentral.com/articles/10.1186/s12879-020-05716-x>

**Title:** **SYMPTOMS AND FUNCTIONAL IMPAIRMENT ASSESSED 8 MONTHS AFTER MILD COVID-19 AMONG HEALTH CARE WORKERS [RESEARCH LETTER]**

**Source**: JAMA, April 7, 2021

Approximately 80% of hospitalized patients with COVID-19 report persistent symptoms several months after infection onset. However, knowledge of long-term outcomes among individuals with mild COVID-19 is scarce, and prevalence data are hampered by selection bias and suboptimal control groups. This cohort study investigated COVID-19–related long-term symptoms in health care professionals.
<https://jamanetwork.com/journals/jama/fullarticle/2778528?utm_source=silverchair&utm_campaign=jama_network&utm_content=covid_weekly_highlights&utm_medium=email>

**Title:** **LATE CONDITIONS DIAGNOSED 1-4 MONTHS FOLLOWING AN INITIAL COVID-19 ENCOUNTER: A MATCHED COHORT STUDY USING INPATIENT AND OUTPATIENT ADMINISTRATIVE DATA - UNITED STATES, MARCH 1-JUNE 30, 2020**

**Source:** Clinical Infectious Diseases: an official publication of the Infectious Diseases Society of America; Apr 2021

Late sequelae of COVID-19 have been reported; however, few studies have investigated the time-course or incidence of late new COVID-19-related health conditions (post-COVID conditions) after COVID-19 diagnosis. Studies distinguishing post-COVID conditions from late conditions caused by other etiologies are lacking. Using data from a large administrative all-payer database, we assessed the type, association, and timing of post-COVID conditions following COVID-19 diagnosis. Methods: Using the Premier Healthcare Database Special COVID-19 Release (PHD-SR) (release date, October 20, 2020) data, during March–June 2020, 27,589 inpatients and 46,857 outpatients diagnosed with COVID-19 (case-patients) were 1:1 matched with patients without COVID-19 through the 4-month follow-up period (control-patients) by using propensity score matching. In this matched-cohort study, adjusted odds ratios were calculated to assess for late conditions that were more common in case-patients compared with control-patients. Incidence proportion was calculated for conditions that were more common in case-patients than control-patients during 31–120 days following a COVID-19 encounter. Results: During 31–120 days after an initial COVID-19 inpatient hospitalization, 7.0% of adults experienced at least one of five post-COVID conditions. Among adult outpatients with COVID-19, 7.7% experienced at least one of ten post-COVID conditions. During 31–60 days after an initial outpatient encounter, adults with COVID-19 were 2.8 times as likely to experience acute pulmonary embolism as outpatient control-patients and were also more likely to experience a range of conditions affecting multiple body systems (e.g. nonspecific chest pain, fatigue, headache, and respiratory, nervous, circulatory, and gastrointestinal system symptoms) than outpatient control-patients. Children with COVID-19 were not more likely to experience late conditions than children without COVID-19. Conclusions: These findings add to the evidence of late health conditions possibly related to COVID-19 in adults following COVID-19 diagnosis and can inform health care practice and resource planning for follow-up COVID-19 care.
<https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciab338/6257082>

**Title:** **HALF-YEAR FOLLOW-UP OF PATIENTS RECOVERING FROM SEVERE COVID-19: ANALYSIS OF SYMPTOMS AND THEIR RISK FACTORS**

**Source:** Journal of internal Medicine; Apr 2021

To understand the sequelae of COVID‐19. Methods: We followed up 1174 patients with severe coronavirus disease 2019 (COVID‐19) who were recovered and discharged for 6 months. Results: There were 175 cases with clear IgG results 6 months after discharge, of which 82 (46.9%) were IgG (+) and 16 (9.1%) were IgG (dim+). Four hundred and forty‐one participants (55.4%) had some kind of sequelae. The most common symptoms were fatigue (25.3%), sleep disorder (23.2%) and shortness of breath (20.4%). In those who had sequelae, 262 (59.4%) had more than one symptom. Critical cases were more likely to have cough (20.5% vs 11.6%, p = 0.023) and hypomnesis (15.1% vs 8.0%, p = 0.041) than severe cases. Furthermore, univariate and multivariate logistic regression analyses revealed that women are more likely to have multiple symptoms (p = 0.002), fatigue (p = 0.009) and sleep disorder (p = 0.008), whereas critical illness was found as independent risk factor for hypomnesis (p = 0.045). Conclusion: Our study demonstrated the duration of antibody and sequelae of COVID‐19 and compared the differences amongst different populations.

<https://onlinelibrary.wiley.com/doi/10.1111/joim.13284>

**Title: POST-COVID-19 FUNCTIONAL STATUS SIX-MONTHS AFTER HOSPITALIZATION**

**Source:** The Journal of Infection; Apr 2021; vol. 82 (no. 4); p. e31

Long outcomes of a large sample of hospitalized CPVID-19 patients were analyzed. A large proportion of hospitalized COVID-19 patients had a reduced functional status six months after hospitalization. ICU patients referred a large decrease of their functional status compared with not ICU patients six months after hospitalization. Female sex, age, length of hospital stay, mechanical ventilation, and ICU admission were associated with limitations in everyday life. [https://linkinghub.elsevier.com/retrieve/pii/S0163-4453(20)30784-2](https://linkinghub.elsevier.com/retrieve/pii/S0163-4453%2820%2930784-2)

**Title:** **MEDIUM-TERM OUTCOME OF SEVERE TO CRITICALLY ILL PATIENTS WITH SARS-COV-2 INFECTION**

**Source:** Clinical Infectious Diseases: an official publication of the Infectious Diseases Society of America; Apr 2021

The medium and long-term effects of severe SARS-CoV-2 infection on survivors are unknown. Here we studied the medium term effects of COVID-19 on survivors of severe disease. Methods: This is a retrospective, case series of 200 patients hospitalised across three large Birmingham hospitals with severe-to-critical COVID-19 infection 4-7 months from disease-onset. Patients underwent comprehensive clinical, laboratory, imaging, lung function test, quality of life and cognitive assessments. Results: At 4-7 months from disease-onset, 63.2% of patients experienced persistent breathlessness, 53.5% complained of significant fatigue, 37.5% reduced mobility and 36.8% pain. Serum markers of inflammation and organ injuries that persisted at hospital discharge had normalised on follow-up indicating no sustained immune response causing chronic maladaptive inflammation. Chest radiographs showed a complete resolution in 82.8%; and significantly improved or no change in 17.2%. Lung function test (LFT) revealed gas transfer abnormalities in 80.0% and spirometry in 37.6% patients. Patients with breathlessness had significantly high incidence of comorbidities, abnormal residual chest X-ray and LFT (p<0.01 to all). In all parameters assessed and persisting symptoms there was no statically significant difference between patients managed on hospital wards and on ITU groups. All patients reported a significantly reduced quality of life in all domains of the EQ-5D-5L quality of life measures. Conclusions and Relevance: A significant proportion of COVID-19 with severe illness experience ongoing symptoms of breathlessness, fatigue, pain, reduced mobility, depression and reduced quality of life at 4-7 months from disease-onset. Symptomatic patients tend to have more residual CXR and LFT abnormalities.
<https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciab341/6248543>

**Title:** **LONG-TERM OUTCOMES OF PATIENTS FOLLOWING HOSPITALIZATION FOR COVID-19: A PROSPECTIVE OBSERVATIONAL STUDY**

**Source:** Clinical Microbiology and Infection: the official publication of the European Society of Clinical Microbiology and Infectious Diseases; Apr 2021

**Abstract:** OBJECTIVES Few data regarding follow-up of patients after COVID-19 discharge are available. We aim to describe the long-term outcomes of survivors of hospitalization for COVID-19 followed up first at an outpatient facility and subsequently by telephone. METHODS Observational prospective study conducted at a tertiary general hospital. Clinical and radiological progression was assessed and data recorded on a standardized reporting form. Patients were divided into three groups according to PaO2/FiO2 at hospitalization: PaO2/FiO2 > 300, PaO2/FiO2 300-200 and PaO2/FiO2 < 200. A logistic multivariate regression model was performed to identify factors associated with persistence of symptoms. RESULTS Facility follow-up: 302 patients were enrolled. Median follow-up was 45 days after discharge; 78% (228/294) of patients had COVID-19-related symptoms (53% asthenia, 56% respiratory symptoms) and 40% (122/302) had residual pulmonary radiographic lesions. PaO2/FiO2 <200 was an independent predictor of persistent dyspnea; OR = 1.87 (1.38 to 2.52), (p 300 was associated with resolution of chest radiographic lesions; OR = 0.56 (0.42 to 0.74), (p <0.0001). Fifty per cent of patients required specific medical follow-up after the first consultation and were transferred to another physician. Telephone follow-up: 294 patients were contacted after a median time follow-up of 7 months. Fifty per cent of patients (147/294) still presented symptoms and 49% (145/294) psychological disorders. Asthenia was identified in 27% (78/294) and dyspnea in 10% (28/294) of patients independently of PaO2/FiO2.CONCLUSIONSCOVID-19 patients require long term follow-up due to persistence of symptoms; patients with low PaO2/FiO2 during the acute illness require special attention.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8062910/>

**Title:** **MULTIORGAN IMPAIRMENT IN LOW-RISK INDIVIDUALS WITH POST-COVID-19 SYNDROME: A PROSPECTIVE, COMMUNITY-BASED STUDY**

**Source:** BMJ Open, 30th March 2021

In individuals at low risk of COVID-19 mortality with ongoing symptoms, 70% have impairment in one or more organs 4 months after initial COVID-19 symptoms, with implications for healthcare and public health, which have assumed low risk in young people with no comorbidities. [This is an ongoing, prospective, longitudinal COVID-19 recovery study with biochemical and imaging characterisation of organ function, starting in April 2020 before recognition of ‘long-COVID’, proper testing availability and prospective COVID-19-related research - Coverscan]
<https://bmjopen.bmj.com/content/11/3/e048391>

**Title:** **'LONG COVID' SYNDROME**

**Source:** BMJ case reports; Apr 2021; vol. 14 (no. 4)

**Abstract:** SARS-CoV-2 has resulted in a global pandemic and an unprecedented public health crisis. Recent literature suggests the emergence of a novel syndrome known as 'long COVID', a term used to describe a diverse set of symptoms that persist after a minimum of 4 weeks from the onset of a diagnosed COVID-19 infection. Common symptoms include persistent breathlessness, fatigue and cough. Other symptoms reported include chest pain, palpitations, neurological and cognitive deficits, rashes, and gastrointestinal dysfunction. We present a complex case of a previously well 28-year-old woman who was diagnosed with COVID-19. After resolution of her acute symptoms, she continued to experience retrosternal discomfort, shortness of breath, poor memory and severe myalgia. Investigations yielded no significant findings. Given no alternative diagnosis, she was diagnosed with 'long COVID'.
<https://casereports.bmj.com/content/bmjcr/14/4/e241485.full.pdf>

**Title:** **FRESH EVIDENCE OF THE SCALE AND SCOPE OF LONG COVID**

**Source:** BMJ (Clinical research ed.); Apr 2021; vol. 373; p. n853

…As our understanding of the scale and scope of long covid improves, it is clear that populations and the NHS will face a substantial burden of additional morbidity and long term conditions as a result of covid-19. The term long covid embraces a wide spectrum of organ involvement, with no clear evidence yet to help inform efficient diagnostic pathways or specific treatments or to indicate probable prognosis. … As the NHS manages the proposed transition to integrated care systems, long covid is an urgent example of how new service delivery approaches must be designed to manage multimorbidity. Pathways must focus on capturing patients’ multisystem symptoms and rehabilitation needs and provide individualised management programmes that aim for medical management and a return to normal functioning, including work. Although a place might exist for trials of specific treatments for some potential symptom clusters (eg, dysautonomia or mast cell disorder), the most pressing need is for rapid learning to understand what represents good multidisciplinary care, informed by real world outcome data and patient experience.
<https://www.bmj.com/content/373/bmj.n853>

**Title:** **FUNCTIONAL STATUS OF MECHANICALLY VENTILATED COVID-19 SURVIVORS AT ICU AND HOSPITAL DISCHARGE**

**Source:** Journal of Intensive Care volume 9, Article number: 31, 31st March 2021

The majority of IMV COVID-19 survivors were not functionally independent at discharge and required significant follow-up medical care. The COVID-19 circumstance has placed constraints on access to in-hospital rehabilitation. These findings underscore the need for prospective studies to ascertain the short- and long-term sequela in COVID-19 survivors.
<https://jintensivecare.biomedcentral.com/articles/10.1186/s40560-021-00542-y>

**Title:** **POST-ACUTE COVID-19 SYNDROME**

**Source:** Nature Medicine. 2021 Apr;27(4):601-615

Here, we provide a comprehensive review of the current literature on post-acute COVID-19, its pathophysiology and its organ-specific sequelae. Finally, we discuss relevant considerations for the multidisciplinary care of COVID-19 survivors and propose a framework for the identification of those at high risk for post-acute COVID-19 and their coordinated management through dedicated COVID-19 clinics.
<https://pubmed.ncbi.nlm.nih.gov/33753937/>

**Title:** **LONG COVID IN ADULTS AT 12 MONTHS AFTER MILD-TO-MODERATE SARS-COV-2 INFECTION**

**Source:** Medrxiv Preprint Server, 13 April 2021

[**This article is a preprint and has not been peer-reviewed [what does this mean?]. It reports new medical research that has yet to be evaluated and so should not be used to guide clinical practice.**](https://www.medrxiv.org/content/what-unrefereed-preprint)

Background In a proportion of patients recovered from the acute COVID-19 phase, a variable range of symptoms has been observed to persist for at least 6-months. Objectives The main aim of this study was to evaluate the prevalence of COVID-related symptoms 12-months after the onset of mild-to-moderate disease. Conclusion More than half of patients with previous mild-to-moderate symptomatic COVID-19 complained the persistence of at least one symptom 12-months after the onset of the illness.
<https://www.medrxiv.org/content/10.1101/2021.04.12.21255343v1>

**Title:** **An Inside Look at a Post–COVID-19 Clinic**

**Source**: JAMA | 5th May 2021

In this Medical News article, Aluko Hope, MD, former co-director of the Montefiore-Einstein Department of Medicine’s COVID-19 Recovery Clinic, discusses how the clinic helps patients with persistent symptoms of the disease.

Full detail: [An inside look at a post–Covid-19 clinic](https://jamanetwork.com/journals/jama/fullarticle/2779851)

**Title:** **GENERAL PRACTICE ATTENDANCES AMONG PATIENTS ATTENDING A POST-COVID-19 CLINIC: A PILOT STUDY**

**Source**: BJGP open; Mar 2021

**Abstract:** BACKGROUND About 10-35% of people with COVID-19 merit medical care within three weeks of infection. However, the prevalence of ongoing care needs among those experiencing severe COVID-19 illness is unclear. AIM This pilot study aimed to address this knowledge gap by examining GP attendance trends among patients attending a post-COVID-19 hospital follow-up clinic, 3-6 months after an initial clinic visit. DESIGN, AND SETTING Data was collected from adult patients attending a post-COVID-19 follow-up clinic at the Mater Misericordiae University Hospital, Dublin, Ireland. METHOD Participants completed questionnaires outlining their demographics, medical histories, emergency hospital admissions/re-admissions where applicable, and where relevant, GP attendances following hospital discharge. Analyses were conducted using descriptive/inferential statistics. RESULTS Participants' (n=153) median age =43.5 (IQR =30.9-52.1 years). There were 105 females (68.6%, 95% CI=61.3%-75.9%). Various medical histories were reported among participants. 67 (43.2%, 95% CI=35.9%-51.6%) received emergency COVID-19 hospital care. Older adults, males, ICU admissions, and re-admissions were common among hospital attendees. Of the hospital attendees, 16 (24%, 95% CI=13.7%-34.2%) and 26 (39%, 95% CI=27.3%-50.7%) attended GPs within seven and 30 days of hospital discharge. Older adults, people with pre-existing medical conditions, and individuals admitted to ICU/readmitted to hospital were common among general practice attendees. CONCLUSION Persistent health issues appear to be common among severe COVID-19 patients, particularly those who are older adults, have pre-existing health problems, and had been in ICU and/or re-admission care. Larger scale studies of ongoing COVID-19 care needs in general practice/primary care are required.
<https://bjgpopen.org/content/early/2021/05/10/BJGPO.2021.0016>

**RESPIRATORY MEDICINE**

**Title: 3-MONTH, 6-MONTH, 9-MONTH, AND 12-MONTH RESPIRATORY OUTCOMES IN PATIENTS FOLLOWING COVID-19-RELATED HOSPITALISATION: A PROSPECTIVE STUDY**

**Source**: The Lancet Respiratory Medicine | 5th May 2021

The consequences of COVID-19 in those who recover from acute infection requiring hospitalisation have yet to be clearly defined. This study aimed to describe the temporal trends in respiratory outcomes over 12 months in patients hospitalised for severe COVID-19 and to investigate the associated risk factors. In most patients who recovered from severe COVID-19, dyspnoea scores and exercise capacity improved over time; however, in a subgroup of patients at 12 months we found evidence of persistent physiological and radiographic change. A unified pathway for the respiratory follow-up of patients with COVID-19 is required.
[https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(21)00174-0/fulltext](https://www.thelancet.com/journals/lanres/article/PIIS2213-2600%2821%2900174-0/fulltext)

**Title:** **CONFRONTING COVID-19-ASSOCIATED COUGH AND THE POST-COVID SYNDROME: ROLE OF VIRAL NEUROTROPISM, NEUROINFLAMMATION, AND NEUROIMMUNE RESPONSES**

**Source:** The Lancet, 12th April 2021

Cough is one of the most common presenting symptoms of COVID-19, along with fever and loss of taste and smell. Cough can persist for weeks or months after SARS-CoV-2 infection, often accompanied by chronic fatigue, cognitive impairment, dyspnoea, or pain—a collection of long-term effects referred to as the post-COVID syndrome or long COVID. We hypothesise that the pathways of neurotropism, neuroinflammation, and neuroimmunomodulation through the vagal sensory nerves, which are implicated in SARS-CoV-2 infection, lead to a cough hypersensitivity state. The post-COVID syndrome might also result from neuroinflammatory events in the brain. We highlight gaps in understanding of the mechanisms of acute and chronic COVID-19-associated cough and post-COVID syndrome, consider potential ways to reduce the effect of COVID-19 by controlling cough, and suggest future directions for research and clinical practice. Although neuromodulators such as gabapentin or opioids might be considered for acute and chronic COVID-19 cough, we discuss the possible mechanisms of COVID-19-associated cough and the promise of new anti-inflammatories or neuromodulators that might successfully target both the cough of COVID-19 and the post-COVID syndrome.
[https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(21)00125-9/fulltext](https://www.thelancet.com/journals/lanres/article/PIIS2213-2600%2821%2900125-9/fulltext)

**Title:** **SHORT-TERM CONSEQUENCES OF SARS-COV-2-RELATED PNEUMONIA: A FOLLOW UP STUDY**

**Source:** High Blood Pressure & Cardiovascular Prevention: the official journal of the Italian Society of Hypertension; Apr 2021

**Abstract:** The aim of the study was to assess the short-term consequences of SARS-CoV-2-related pneumonia, also in relation to radiologic/laboratory/clinical indices of risk at baseline. This prospective follow-up cohort study included 94 patients with confirmed COVID-19 admitted to a medical ward at the Montichiari Hospital, Brescia, Italy from February 28th to April 30th, 2020. ... In conclusion, our study demonstrated that SARS-CoV-2-related pneumonia is associated to relevant short-term clinical consequences, both in terms of persistence of symptoms and in terms of impairment of DLCO (indicator of a possible development of pulmonary fibrosis); some severity indices of the disease may predict short-term clinical outcome. Further studies are needed to ascertain whether such manifestations may persist long-term.
<https://pubmed.ncbi.nlm.nih.gov/33909284/>

**Title:** **SIX-MONTH FOLLOW-UP CHEST CT FINDINGS AFTER SEVERE COVID-19 PNEUMONIA**

**Source:** Radiology; Apr 2021; vol. 299 (no. 1); p. E177

Little is known about the long-term lung radiographic changes in patients who have recovered from coronavirus disease 2019 (COVID-19), especially those with severe disease. Purpose To prospectively assess pulmonary sequelae and explore the risk factors for fibrotic-like changes in the lung at 6-month follow-up chest CT of survivors of severe COVID-19 pneumonia… Conclusion Six-month follow-up CT showed fibrotic-like changes in the lung in more than one-third of patients who survived severe coronavirus disease 2019 pneumonia. These changes were associated with an older age, acute respiratory distress syndrome, longer hospital stays, tachycardia, non-invasive mechanical ventilation, and higher initial chest CT score.
<https://pubmed.ncbi.nlm.nih.gov/33497317/>

**Title:** **PULMONARY SEQUELAE OF PEDIATRIC PATIENTS AFTER DISCHARGE FOR COVID-19: AN OBSERVATIONAL STUDY**

**Source**: Pediatric Pulmonology; May 2021; vol. 56 (no. 5); p. 1266-1269

Medical care recommendations are available for adults with COVID‐19 to facilitate recovery from pulmonary sequelae2; however, limited data are available regarding the pulmonary sequelae in pediatric patients discharged after COVID‐19 infection. In this observational study, we investigated the pulmonary manifestations in and clinical characteristics of 14 pediatric patients with COVID‐19, who underwent 30‐day follow‐up after hospital discharge.

<https://onlinelibrary.wiley.com/doi/10.1002/ppul.25239>

**Title:** **CLINICAL, RADIOLOGICAL AND FUNCTIONAL OUTCOMES IN PATIENTS WITH SARS-COV-2 PNEUMONIA: A PROSPECTIVE OBSERVATIONAL STUDY**

**Source:** BMC Pulmonary Medicine; Apr 2021; vol. 21 (no. 1); p. 136

Medium-term follow up at three months of patients diagnosed with SARS-CoV-2 pneumonia shows the persistence of abnormalities in CT scans, a significant functional impairment assessed by lung function tests and a decreased quality of life in affected patients. Further studies evaluating the long-term impact are warranted to guarantee an appropriate follow-up to patients recovering from SARS-CoV-2 pneumonia.

<https://bmcpulmmed.biomedcentral.com/articles/10.1186/s12890-021-01509-3>

**Title:** **LUNG ULTRASONOGRAPHY FOR LONG-TERM FOLLOW-UP OF COVID-19 SURVIVORS COMPARED TO CHEST CT SCAN**

**Source:** Respiratory Medicine; May 2021; vol. 181; p. 106384

**Abstract:** BACKGROUND While lung ultrasonography (LUS) has utility for the evaluation of the acute phase of COVID-19 related lung disease, its role in long-term follow-up of this condition has not been well described. The objective of this study is to compare LUS and chest computed tomography (CT) results in COVID-19 survivors with the intent of defining the utility of LUS for long-term follow-up of COVID-19 respiratory disease. … CONCLUSIONS LUS has an outstanding discrimination ability compared to CT in identifying an ILD of at least mild grade in the post COVID-19 follow-up. LUS should be considered as the first-line tool in follow-up programs, while chest CT could be performed based on LUS findings.

<https://www.sciencedirect.com/science/article/pii/S0954611121000901>

**Title:** **LUNG FIBROSIS SEQUELAE AFTER RECOVERY FROM COVID-19 INFECTION**

**Source:** Journal of Infection in Developing Countries; Mar 2021; vol. 15 (no. 3); p. 360-365

**Abstract:** Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a novel coronavirus that causes coronavirus diseases 2019 (COVID-19). The SARS-CoV-2 is very contagious and nobody is known to be immune to it. The post-infected lung would leave a scar known as fibrosis, a scar tissue. A study from Wuhan, China suggested the development of fibrosis, though it was too early to label these lung changes as irreversible fibrosis in a time range of 3 weeks. The occurrence of fibrosis indicates a chronic infection which greatly contributes to the hallmark symptom of COVID-19 induced ARDS such as shortness of breath and chest pain. However, many of those studies have not yet explained the condition of the patient's lung after total recovery from the COVID-19. This report demonstrates the clinical symptoms, chest CT scan, spirometry, and blood gas analysis of patient after total recovery from the COVID-19 with appearance lung fibrosis.

<https://pubmed.ncbi.nlm.nih.gov/33839710/>

**CARDIOLOGY**

**Title:** **CARDIAC PERFORMANCE IN PATIENTS HOSPITALIZED WITH COVID-19: A 6 MONTH FOLLOW-UP STUDY**

**Source**: ESC Heart Failure; Mar 2021

**Abstract:** AIMS Myocardial injury is frequently observed in patients hospitalized with coronavirus disease 2019 (COVID-19) pneumonia. Different cardiac abnormalities have been reported during the acute COVID-19 phase, ranging from infra-clinic elevations of myocardial necrosis biomarkers to acute cardiac dysfunction and myocarditis. There is limited information on late cardiac sequelae in patients who have recovered from acute COVID-19 illness. We aimed to document the presence and quantify the extent of myocardial functional alterations in patients hospitalized 6 months earlier for COVID-19 infection. … CONCLUSIONS Six months after the acute COVID-19 phase, significant cardiac diastolic abnormalities are observed in patients who experienced myocardial injury but not in patients without cardiac involvement.
<https://pubmed.ncbi.nlm.nih.gov/33773099/>

**Title:** **FOLLOW-UP STUDY ON SERUM CHOLESTEROL PROFILES AND POTENTIAL SEQUELAE IN RECOVERED COVID-19 PATIENTS**

**Source:** BMC Infectious Diseases; Mar 2021; vol. 21 (no. 1); p. 299

Improvements of LDL-c, HDL-c, liver functions, and incomplete resolution of lung lesions were observed at 3–6 month follow-up for recovered patients, indicating that a long-term recovery process could be required and the development of sequelae such as pulmonary fibrosis could be expected in some patients.
<https://bmcinfectdis.biomedcentral.com/articles/10.1186/s12879-021-05984-1>

**THROMBOSIS**

**Title:** **PULMONARY THROMBOSIS IN COVID-19: BEFORE, DURING AND AFTER HOSPITAL ADMISSION**

**Source:** Journal of Thrombosis and Thrombolysis; May 2021; vol. 51 (no. 4); p. 978-984

**Abstract:** Disordered coagulation, endothelial dysfunction, dehydration and immobility contribute to a substantially elevated risk of deep venous thrombosis, pulmonary embolism (PE) and systemic thrombosis in coronavirus disease 2019 (Covid-19). We evaluated the prevalence of pulmonary thrombosis and reported RV (right ventricular) dilatation/dysfunction associated with Covid-19 in a tertiary referral Covid-19 centre.

<https://link.springer.com/article/10.1007/s11239-020-02370-7>

**Title:** **VENOUS THROMBOEMBOLISM IN PATIENTS DISCHARGED AFTER COVID-19 HOSPITALIZATION**

**Source:** Seminars in Thrombosis and Hemostasis; Apr 2021

Venous thromboembolism (VTE) is a frequent complication of COVID-19, so that the importance of adequate in-hospital thromboprophylaxis in patients hospitalized with COVID-19 is well established. However, the incidence of VTE after discharge and whether postdischarge thromboprophylaxis is beneficial and safe are unclear. In this prospective observational single-center study, we report the incidence of VTE 6 weeks after hospitalization and the use of postdischarge thromboprophylaxis. … Six weeks after discharge, elevated D-dimer values were present in 32% of ward and 42% of ICU patients. Only one asymptomatic deep vein thrombosis (0.7%) and one symptomatic pulmonary embolism (0.7%) were diagnosed with systematic screening. No bleedings were reported.

Conclusion: In patients who had been hospitalized with COVID-19, systematic screening for VTE 6 weeks after discharge revealed a low incidence of VTE. A strategy of selectively providing postdischarge thromboprophylaxis in high-risk patients seems safe and potentially effective.
<https://pubmed.ncbi.nlm.nih.gov/33893631/>

**Title:** **POST-DISCHARGE THROMBOEMBOLIC OUTCOMES AND MORTALITY OF HOSPITALIZED COVID-19 PATIENTS: THE CORE-19 REGISTRY**

**Source:** Blood; Apr 2021

Thromboembolic events including venous thromboembolism (VTE), arterial thromboembolism (ATE), and mortality from sub-clinical thrombotic events occur frequently in COVID-19 inpatients. Whether the risk extends post-discharge has been controversial. Our prospective registry included consecutive COVID-19 patients hospitalized within our multihospital system from March 1st - May 31st 2020. We captured demographics, comorbidities, laboratory parameters, medications, post-discharge thromboprophylaxis, and 90-day outcomes. Data from electronic health records, health informatics exchange, a radiology database, and telephonic follow-up were merged. The primary outcome was a composite of adjudicated VTE, ATE, and allcause mortality (ACM). The principal safety outcome was major bleeding (MB). Among 4,906 patients (53.7% male) mean age was 61.7 years. Comorbidities included hypertension (38.6%), diabetes (25.1%), obesity (18.9%), and cancer history (13.1%). Post-discharge thromboprophylaxis was prescribed in 13.2%. VTE rate was 1.55%, ATE 1.71%, ΑCM 4.83%, and MB 1.73%. The composite primary outcome rate was 7.13% and was significantly associated with advanced age (OR: 3.66, 95%CI: 2.84-4.71), prior VTE (OR: 2.99, 95%CI: 2.00-4.47), ICU stay (OR: 2.22, 95%CI: 1.78-2.93), chronic kidney disease (CKD) (OR: 2.10, 95%CI: 1.47-3.0), peripheral arterial disease (OR: 2.04, 95%CI: 1.10-3.80), carotid occlusive disease (OR: 2.02, 95%CI: 1.30-3.14), IMPROVE-DD VTE score ≥4 (OR: 1.51, 95%CI: 1.06-2.14), and coronary artery disease (OR: 1.50, 95%CI: 1.04-2.17). Post-discharge anticoagulation was significantly associated with reducing the primary outcome (OR: 0.54, 95%CI: 0.47-0.81). Post-discharge VTE, ATE, and ACM occur frequently following COVID-19 hospitalization. Advanced age, cardiovascular risk factors, CKD, IMPROVE-DD VTE score ≥4, and ICU stay increase risk. Post-discharge anticoagulation reduced risk by 46%.
<https://pubmed.ncbi.nlm.nih.gov/33824972/>

**NEUROLOGY & MENTAL HEALTH**

**Title:** **6-MONTH NEUROLOGICAL AND PSYCHIATRIC OUTCOMES IN 236 379 SURVIVORS OF COVID-19: A RETROSPECTIVE COHORT STUDY USING ELECTRONIC HEALTH RECORDS**

**Source**: The Lancet. Psychiatry; May 2021; vol. 8 (no. 5); p. 416-427

**Abstract:** BACKGROUND Neurological and psychiatric sequelae of COVID-19 have been reported, but more data are needed to adequately assess the effects of COVID-19 on brain health. We aimed to provide robust estimates of incidence rates and relative risks of neurological and psychiatric diagnoses in patients in the 6 months following a COVID-19 diagnosis.
[https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366(21)00084-5/fulltext](https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366%2821%2900084-5/fulltext)

**Title:** **PERSISTENT NEUROLOGIC SYMPTOMS AND COGNITIVE DYSFUNCTION IN NON-HOSPITALIZED COVID-19 "LONG HAULERS"**

**Source:** Annals of Clinical and Translational Neurology; Mar 2021

**Abstract:** OBJECTIVE Most SARS-CoV-2-infected individuals never require hospitalization. However, some develop prolonged symptoms. We sought to characterize the spectrum of neurologic manifestations in non-hospitalized Covid-19 "long haulers". METHODS This is a prospective study of the first 100 consecutive patients (50 SARS-CoV-2 laboratory-positive and 50 laboratory-negative individuals) presenting to our Neuro-Covid-19 clinic between May and November 2020. Due to early pandemic testing limitations, patients were included if they met Infectious Diseases Society of America symptoms of Covid-19, were never hospitalized for pneumonia or hypoxemia and had neurologic symptoms lasting over 6 weeks. We recorded the frequency of neurologic symptoms and analyzed patient-reported quality of life measures and standardized cognitive assessments. … INTERPRETATION Non-hospitalized Covid-19 "long haulers" experience prominent and persistent "brain fog" and fatigue that affect their cognition and quality of life.
<https://onlinelibrary.wiley.com/doi/10.1002/acn3.51350>

**Title:** **MOOD DISORDERS AND OUTCOMES OF COVID-19 HOSPITALIZATIONS**

**Source:** The American Journal of Psychiatry; Apr 2021

**Abstract:** The authors sought to characterize the association between prior mood disorder diagnosis and hospital outcomes among individuals admitted with COVID-19 to six Eastern Massachusetts hospitals. METHODS A retrospective cohort was drawn from the electronic health records of two academic medical centers and four community hospitals between February 15 and May 24, 2020. Associations between history of mood disorder and in-hospital mortality and hospital discharge home were examined using regression models among any hospitalized patients with positive tests for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) … CONCLUSIONS Hospitalized individuals with a history of mood disorder may be at risk for greater COVID-19 morbidity and mortality and are at increased risk of need for postacute care. Further studies should investigate the mechanism by which these disorders may confer elevated risk.
<https://pubmed.ncbi.nlm.nih.gov/33820425/>

**Title:** **SARS-COV-2 EMERGENCY AND LONG-TERM COGNITIVE IMPAIRMENT IN OLDER PEOPLE**

**Source:** Aging and Disease; Apr 2021; vol. 12 (no. 2); p. 345-352

**Abstract:** The SARS-CoV-2 infection has spread to all continents, affecting particularly older people. The complexity of SARS-CoV2 infection is still under study. Despite respiratory involvement is the main clinical manifestation of COVID-19, neurological manifestations are common. Although it is obvious to give priority to infectious emergency and the infectious disease itself, at present, however, data on potential long-term damages generally and on long-term cognitive functions impairment of older COVID-19 survivors have yet to be investigated. Because the hypothesis on the involvement of SARS-CoV-2 on the long-term cognitive decline pathogenesis would seem difficult to prove, we wanted to explore the brain mechanisms of SARS-CoV-2, in order to provide more in-depth analysis and to draw attention to a topic relevant to basic scientific research and, more generally, to the elderly population. Looking forward, we argue that an early clinical and instrumental cognitive assessment can help prevent and slow down this possible complication or at least improve the quality of life for older people Covid-19 survivor.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7990368/>

**Title: LONG COVID: UNDERSTANDING THE NEUROLOGICAL EFFECTS**

**Source:** The Lancet. Neurology; Apr 2021; vol. 20 (no. 4); p. 247

The concept of so-called [long COVID](https://doi.org/10.1016/S0140-6736%2820%2932662-3) has gained prominence in recent months, with some patients reporting [persistent neurological manifestations](https://doi.org/10.1016/S0140-6736%2820%2932656-8), from milder symptoms such as headaches, hyposmia, hypogeusia, and fatigue to more severe conditions including sleep disorders, pain, cognitive impairment, and (in very rare cases) Guillain-Barré syndrome. WHO updated their [living guidance](https://www.who.int/publications/i/item/WHO-2019-nCoV-clinical-2021-1) for the clinical management of COVID-19 in January, 2021, which now incorporates a new practice statement on caring for patients with persistent, new, or changing symptoms after suspected or confirmed COVID-19. The guidance notes that clinical characterisation of long COVID is inadequate and, therefore, further research on long-term sequelae is warranted…

[https://www.thelancet.com/journals/laneur/article/PIIS1474-4422(21)00059-4/fulltext](https://www.thelancet.com/journals/laneur/article/PIIS1474-4422%2821%2900059-4/fulltext)

**Title:** **POTENTIAL NEUROLOGIC MANIFESTATIONS OF COVID-19**

**Source:** Neurology. Clinical practice; Apr 2021; vol. 11 (no. 2); p. e135

**Abstract:** Neurologic complications are increasingly recognized in the coronavirus disease 2019 (COVID-19) pandemic. COVID-19 is caused by the novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). This coronavirus is related to severe acute respiratory syndrome coronavirus (SARS-CoV) and other human coronavirus-related illnesses that are associated with neurologic symptoms. These symptoms raise the question of a neuroinvasive potential of SARS-CoV-2. Recent Findings Potential neurologic symptoms and syndromes of SARS-CoV-2 include headache, fatigue, dizziness, anosmia, ageusia, anorexia, myalgias, meningoencephalitis, hemorrhage, altered consciousness, Guillain-Barré syndrome, syncope, seizure, and stroke. In addition, we discuss neurologic effects of other coronaviruses, special considerations for management of neurologic patients, and possible long-term neurologic and public health sequelae. Summary As SARS-CoV-2 is projected to infect a large part of the world's population, understanding the potential neurologic implications of COVID-19 will help neurologists and others recognize and intervene in neurologic morbidity during and after the pandemic of 2020.
<https://cp.neurology.org/content/11/2/e135>

**Title:** **TRAJECTORIES OF POST-TRAUMATIC STRESS SYMPTOMS, ANXIETY, AND DEPRESSION IN HOSPITALIZED COVID-19 PATIENTS: A ONE-MONTH FOLLOW-UP**

**Source:** Journal of Psychosomatic Research; Apr 2021; vol. 143; p. 110399

Abstract Little is known about the mental health outcomes of hospitalized COVID-19 patients. The aims of the study were: (1) to examine the trajectories of anxiety, depression, and pandemic-related stress factors (PRSF) of COVID-19 hospitalized patients one-month following hospitalization; (2) to assess the presence of post-traumatic stress symptoms (PTSS) a month after hospitalization; (3) to identify baseline risk and protective factors that would predict PTSS one month after hospitalization. METHODS We contacted hospitalized COVID-19 patients (n = 64) by phone, at three time-points: during the first days after admission to the hospital (T1); after ~two weeks from the beginning of hospitalization (T2), and one month after hospitalization (T3). At all time-points we assessed the levels of anxiety and depression symptoms, as well as PRSF. At T3, PTSS were assessed. … CONCLUSIONS We identified early hospitalization risk factors for the development of PTSS one month after hospitalization that should be targeted to reduce the risk for PTSS.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7885629/>

**Title:** **Covid-19 and the nation's mental health**
**Source:** Centre for Mental Health | 12th May 2021

…A new model by The Centre for Mental Health forecasts how many people are likely to need mental health support as a result of the pandemic. This report confirms that 10 million people (8.5 million adults and 1.5 million children and young people) in England will need support for their mental health as a direct result of the pandemic over the next three to five years. Based on an analysis of over 200 high-quality studies from around the world, the model (developed by clinicians, researchers and economists from the NHS and Centre for Mental Health) identifies key groups of people who face an especially high risk of poor mental health as a result of the pandemic. These groups include people who have survived severe Covid-19 illness (especially those treated in intensive care), those working in health and care services during the pandemic, people economically impacted by the pandemic, and those who have been bereaved.
[Covid-19 and the nation's mental health. Forecasting needs and risks in the UK: May 2021](https://www.centreformentalhealth.org.uk/sites/default/files/publication/download/CentreforMentalHealth_COVID_MH_Forecasting4_May21.pdf)

**Title:** **COVID-19 AND COGNITIVE, EMOTIONAL ASPECTS OF POST-INTENSIVE CARE SYNDROME**

**Source:** The Journal of Nervous and Mental Disease; Apr 2021; vol. 209 (no. 4); p. 242-243

[https://journals.lww.com/jonmd/Citation/2021/04000/COVID\_19\_and\_Cognitive,\_Emotional\_Aspects\_of.4.aspx](https://journals.lww.com/jonmd/Citation/2021/04000/COVID_19_and_Cognitive%2C_Emotional_Aspects_of.4.aspx)

**Title:** **DIFFERENTIAL FOLLOW-UP PATTERNS IN COVID-19 AND COMPARISON COHORTS**

**Source**: The Lancet. Psychiatry; May 2021; vol. 8 (no. 5); p. 360

Maxime Taquet and colleagues showed that the incidence of a first psychiatric diagnosis in the 14–90 days after a diagnosis of COVID-19 was considerably higher than the incidence in the six matched comparison cohorts (ie, with influenza, other respiratory tract infections, skin infection, cholelithiasis, urolithiasis, and fracture of a large bone). To investigate possible explanations for these findings, we reconstructed the daily numbers of new diagnoses and patients at risk of psychiatric diagnosis in each cohort.
[https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366(21)00066-3/fulltext](https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366%2821%2900066-3/fulltext)
Linked papers: [https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366(21)00076-6/fulltext](https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366%2821%2900076-6/fulltext)

**GASTROENTEROLOGY**

**Title:** **GASTROINTESTINAL SEQUELAE 90 DAYS AFTER DISCHARGE FOR COVID-19 [LETTER]**

**Source**: The Lancet. Gastroenterology & Hepatology; May 2021; vol. 6 (no. 5); p. 344-346

Although SARS-CoV-2 mainly affects the lungs, many other organs are also affected. Enteric symptoms are common in COVID-19, and gastrointestinal symptoms can be the only symptom, or can be present before respiratory symptoms. The cellular receptor for SARS-CoV-2, ACE2, is highly expressed in the gut, and SARS-CoV-2 has been observed in the colonic tissue and faeces of patients with COVID-19. Therefore, we examined the long-term gastrointestinal sequalae of SARS-CoV-2 infection in patients who were admitted for COVID-19 to 12 hospitals in the Hubei and Guangdong provinces, China, between Jan 16 and March 7, 2020, and subsequently discharged.

[https://www.thelancet.com/journals/langas/article/PIIS2468-1253(21)00076-5/fulltext](https://www.thelancet.com/journals/langas/article/PIIS2468-1253%2821%2900076-5/fulltext)

**Title:** **SIX-MONTH FOLLOW-UP OF GUT MICROBIOTA RICHNESS IN PATIENTS WITH COVID-19**

**Source:** Gut; Apr 2021

Here, we conducted a prospective study to longitudinally monitor alterations of gut microbiota in patients with COVID-19 using 16S rDNA sequencing (detailed methods in online supplementary materials). Faecal microbiota was monitored at three timepoints, acute phase (from illness onset to viral clearance), convalescence (from viral clearance to 2 weeks after hospital discharge), postconvalescence (6 months after hospital discharge).
<https://gut.bmj.com/content/early/2021/04/07/gutjnl-2021-324090>

**RADIOLOGY**

**Title:** **RADIOLOGICAL MANAGEMENT AND FOLLOW-UP OF POST-COVID-19 PATIENTS**

**Source**: Radiologia; 2021; vol. 63 (no. 3); p. 258-269

**Abstract:** Most of the patients who overcome the SARS-CoV-2 infection do not present complications and do not require a specific follow-up, but a significant proportion (especially those with moderate / severe clinical forms of the disease) require clinical radiological follow-up. Although there are hardly any references or clinical guidelines regarding the long-term follow-up of post-COVID-19 patients, radiological exams are being performed and monographic surveillance consultations are being set up in most of the hospitals to meet their needs. The purpose of this work is to share our experience in the management of the post-COVID-19 patient in two institutions that have had a high incidence of COVID-19 and to propose general follow-up recommendations from a clinical and radiological perspective.
<https://pubmed.ncbi.nlm.nih.gov/33726915/>

**ENT**

**Title:** **CLINICAL, SINONASAL, AND LONG-TERM SMELL AND TASTE OUTCOMES IN MILDLY SYMPTOMATIC COVID-19 PATIENTS**

**Source:** International Journal of Clinical Practice; Apr 2021; p. e14260

**Abstract:** INTRODUCTION Coronavirus 2019 disease (COVID-19) has variable clinical, sinonasal, and smell/taste outcomes. METHODS Observational study was conducted at a tertiary hospital in Amman, Jordan. Demographic data, clinical presentation, and smoking status were collected. Sinonasal symptoms, using Sino-Nasal Outcome Test (SNOT-22) Questionnaire, were evaluated. Smell/taste dysfunction was followed for three months….CONCLUSION Although COVID-19 may produce severe lower airways disease, it has modest effect on nose and paranasal sinuses. Moreover, smell/taste dysfunction is a prominent symptom, but it usually recovers dramatically.
<https://onlinelibrary.wiley.com/doi/full/10.1111/ijcp.14260>

**Title:** **PERSISTING OLFACTORY DYSFUNCTION IMPROVES IN PATIENTS 6 MONTHS AFTER COVID-19 DISEASE**

**Source:** Acta Oto-laryngologica; Apr 2021 ; p. 1-4 Publication Date Apr 2021

Abstract BACKGROUND Smell disorders persist in about half of the patients with other symptoms of COVID-19 disease, but the exact duration of the symptoms is yet unknown. Especially, only a few studies used validated olfactory tests for this. AIMS/OBJECTIVES The aim of this study was to investigate how many patients with olfactory function impairment, which was detected in a validated olfactory test 3 months after COVID-19 disease, showed improvement in olfactory function after 6 months. CONCLUSIONS AND SIGNIFICANCE6 months after COVID-19 disease, olfactory function improves in just about all patients. Long-term measurements must investigate whether complete regeneration of the olfactory function will occur in all patients.
<https://pubmed.ncbi.nlm.nih.gov/33823752/>

**Title:** **TESTING OLFACTORY DYSFUNCTION IN ACUTE AND RECOVERED COVID-19 PATIENTS: A SINGLE CENTER STUDY IN ITALY**

**Source:** Neurological sciences : official journal of the Italian Neurological Society and of the Italian Society of Clinical Neurophysiology; Mar 2021

Moderate-to-severe hospitalized patients showed a high level and frequency of olfactory dysfunction compared to recovered subjects. In the latter group, subjects who reported persisting olfactory dysfunction showed abnormal scores on psychophysical testing, indicating that, at least in some subjects, persistent hyposmia may represent a long-term sequela of COVID-19.
<https://pubmed.ncbi.nlm.nih.gov/33768438/>

**Title:** **THE COURSE OF SUBJECTIVE AND OBJECTIVE CHEMOSENSORY DYSFUNCTION IN HOSPITALIZED PATIENTS WITH COVID-19: A 6-MONTH FOLLOW-UP**

**Source:** Source European Archives of Oto-rhino-laryngology: official journal of the European Federation of Oto-RhinoLaryngological Societies (EUFOS): Apr 2021

SARS-CoV-2 patients with subjectively impaired chemosensory function regularly perform poorly in objective measurements. About 70% of patients suffering from olfactory dysfunction in SARS-CoV-2 quickly recover-the rest still suffers from considerable impairment 6 months after infection
<https://pubmed.ncbi.nlm.nih.gov/33837835/>

**ENDOCRINOLOGY**

**Title:** **THYROID SEQUELAE OF COVID-19: A SYSTEMATIC REVIEW OF REVIEWS**

**Source:** Reviews in Endocrine & Metabolic Disorders; Apr 2021

The coronavirus disease 2019 (COVID-19) caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has the potential to cause multi-organ effects including endocrine disorders. The impact of COVID-19 on the thyroid gland has been described but several aspects have to be clarified. The systematic review was conceived to achieve more solid information about: 1) which thyroid disease or dysfunction should be expected in COVID-19 patients; 2) whether thyroid patients have a higher risk of SARS-CoV-2 infection; 3) whether the management has to be adapted in thyroid patient when infected... The present systematic review of reviews found that: 1) patients diagnosed with COVID-19 can develop thyroid dysfunction, frequently non-thyroidal illness syndrome when hospitalized in intensive care unit, 2) having a thyroid disease does not increase the risk for SARS-CoV-2 infection, 3) thyroid patients do not need a COVID-19-adapted follow-up. Anyway, several factors, such as critical illness and medications, could affect thyroid laboratory tests.

<https://pubmed.ncbi.nlm.nih.gov/33843008/>

**HEPATOLOGY**

**Title:** **PERSISTENT CHOLESTASIS IN SURVIVORS OF SARS-COV-2**

**Source:** The Journal of Infection; Apr 2021

…We demonstrate an important novel finding that a proportion of patients with SARS-CoV-2 infection do not normalise their liver blood tests during follow-up, particularly those with elevated GGT above 254 U/L. Whilst these findings need to be validated in an independent cohort, we recommend that a plan for longitudinal assessment of liver blood tests should be made at discharge, with a focus on those with elevated GGT in addition to AST/ALT. In patients with a persistent abnormality, radiological imaging and liver histology may help elucidate the underlying pathophysiology and the development of a chronic biliary injury. [https://www.journalofinfection.com/article/S0163-4453(21)00162-6/abstract](https://www.journalofinfection.com/article/S0163-4453%2821%2900162-6/abstract)

**PAEDIATRICS**

**Title:** **PRELIMINARY EVIDENCE ON LONG COVID IN CHILDREN**

**Source:** Acta Paediatrica; 9th Apr 2021

There is increasing evidence that adult patients diagnosed with acute COVID‐19 suffer from Long COVID initially described in Italy. A recent large cohort of 1733 patients from Wuhan found persistent symptoms in 76% of patients 6 months after initial diagnosis. To date, data on Long COVID in children are scarce, with the exception of an earlier description of five children with Long COVID in Sweden. We assessed persistent symptoms in paediatric patients previously diagnosed with COVID‐19.

<https://pubmed.ncbi.nlm.nih.gov/33835507/>

**Title:** **RISK FACTORS FOR LONG COVID IN PREVIOUSLY HOSPITALISED CHILDREN USING THE ISARIC GLOBAL FOLLOW-UP PROTOCOL: A PROSPECTIVE COHORT STUDY**

**Source:** Medrxiv Preprint Server, 26th April 2021

[**This article is a preprint and has not been peer-reviewed. It reports new medical research that has yet to be evaluated and so should not be used to guide clinical practice.**](https://www.medrxiv.org/content/what-unrefereed-preprint)

Background The long-term sequelae of coronavirus disease 2019 (Covid-19) in children remain poorly characterised. This study aimed to assess long-term outcomes in children previously hospitalised with Covid-19 and associated risk factors.  To our knowledge, this is the largest cohort study with the longest follow-up since hospital discharge of previously hospitalised children. We found that even months after discharge from the hospital, approximately a quarter of children experience persistent symptoms with one in ten having multi-system involvement. Older age and allergic diseases are associated with Covid-19 consequences. Parents of some children report emotional and behavioural changes in their children after Covid-19. <https://www.medrxiv.org/content/10.1101/2021.04.26.21256110v1>

**Title:** **CORONAVIRUS INFECTIONS IN THE NERVOUS SYSTEM OF CHILDREN: A SCOPING REVIEW MAKING THE CASE FOR LONG-TERM NEURODEVELOPMENTAL SURVEILLANCE**

**Source:** Pediatric Neurology; Apr 2021; vol. 117 ; p. 47-63

**Abstract:** BACKGROUND The objective of this study was to describe the case literature of human coronavirus infections in the nervous system of children, including from SARS-CoV-2, and to provide guidance to pediatric providers for managing the potential long-term effects on neurodevelopment of human coronavirus infections in the nervous system. METHODS Using a structured strategy, the PubMed and Ovid: Embase databases were queried for articles about the clinical presentation and pathophysiology of coronavirus infections in the nervous system of children and young adults, aged 0 to 24 years. … CONCLUSIONS Neurological manifestations of human coronavirus infections can cause severe disease in children. The case literature suggests a critical gap in knowledge of the long-term effects on child neurodevelopment of these infections. As the current SARS-CoV-2 pandemic continues, this gap must be filled to facilitate optimal outcomes in recovering children.
<https://pubmed.ncbi.nlm.nih.gov/33676141/>

**Title:** **LONG COVID IN CHILDREN: THE PERSPECTIVES OF PARENTS AND CHILDREN NEED TO BE HEARD**

**Source:** British Journal of General Practice 2021; 71 (706): 216

Parents have been struggling to obtain help and support, watching their children with persistent symptoms following acute infection with COVID-19. Early on in the pandemic, parents and children felt they were disbelieved by their GPs. As ‘long COVID’ came to be recognised in adults and named as such by patients there came to be a growing acceptance that it can also occur in children as evidence emerged. Indeed, ONS data suggest that 12%–15% of children may have symptoms lasting 5 weeks after an acute infection with COVID-19.
<https://bjgp.org/content/71/706/216>

**REHABILITATION**

**Title:** **ASSESSMENT OF REHABILITATION NEEDS IN PATIENTS AFTER COVID-19: DEVELOPMENT OF THE COVID-19-REHABILITATION NEEDS SURVEY**

**Source**: Journal of Rehabilitation Medicine; Mar 2021

C19-RehabNeS is a comprehensive survey to assess functional limitations and rehabilitation needs during and after infection with SARS-CoV-2 (COVID-19). The strength of this survey is that it combines the assessment of important rehabilitation needs with assessment of satisfaction with the health services, treatment and therapy during the pandemic (C19-RehabNeQ) and assessment of patients' quality of life (SF-36). The C19-RehabNeS survey also enables collection of systematic information on patients with post-COVID-19 syndrome (Long COVID).
<https://www.medicaljournals.se/jrm/content/html/10.2340/16501977-2818>

**Title:** **FUNCTIONAL OUTCOMES AND POST-DISCHARGE CARE SOUGHT BY PATIENTS WITH COVID-19 COMPARED TO MATCHED CONTROLS AFTER COMPLETING INPATIENT ACUTE REHABILITATION**

**Source**: PM& R: the Journal of Injury, Function, and Rehabilitation; Apr 2021

 **Abstract:** INTRODUCTIONA subset of patients with COVID-19 can develop severe illness, resulting in significant functional and cognitive deficits that require acute inpatient rehabilitation. Guidelines following discharge from acute inpatient rehabilitation have not yet been established. This study seeks to establish outcomes of rehabilitation patients with COVID-19 and characterize their need for long term care. … CONCLUSIONS Patients with COVID-19 had similar improvements in functional outcomes as compared to controls. Patients with COVID-19 reported fewer readmissions than their matched controls in the 30-90-day periods and required fewer follow up visits with specialists after discharge from inpatient rehabilitation.
<https://pubmed.ncbi.nlm.nih.gov/33870659/>

**Title:** **REHABILITATION AND COVID-19: UPDATE OF THE RAPID LIVING SYSTEMATIC REVIEW BY COCHRANE REHABILITATION FIELD AS OF FEBRUARY 28TH, 2021**

**Source:** European Journal of Physical and Rehabilitation Medicine; Apr 2021

Compared to studies published in 2020, findings on the natural history of COVID-19 infection and the effects of the interventions on patients' activity limitation and participation restriction are growing. More information is available about the clinical scenario after hospital discharge. Most papers about the acute phase report on progress during and after early rehabilitation in patients with respiratory failure and musculoskeletal symptoms. Conversely, studies conducted in the post-acute and chronic phases mainly report on medium (at 2-4 months of infection onset) and long-term health consequences of COVID-19, providing data collected on a total of up to 5,000 subjects. The largest cohort study, conducted in China 32 on 1,733 cases, highlights the persistence of fatigue and muscle weakness in 63% of subjects at six months after COVID-19 onset. COVID-19 infection compromises the capacity to perform activities of daily living for several weeks after symptom onset. Considering that COVID-19 can affect different physiological systems other than the respiratory one, comprehensive clinical and functional monitoring may help develop specific rehabilitation strategies for these patients.
<https://pubmed.ncbi.nlm.nih.gov/33861041/>

**Title:** **EFFECTIVENESS OF PULMONARY REHABILITATION IN COVID-19 RESPIRATORY FAILURE PATIENTS POST-ICU**

**Source**: Respiratory Physiology & Neurobiology; May 2021; vol. 287; p. 103639

**Abstract:** Some COVID-19 patients develop respiratory failure requiring admission to intensive care unit (ICU). We aim to evaluate the effects of pulmonary rehabilitation (PR) post-ICU in COVID-19 patients. METHODS Twenty-one COVID-19 patients were evaluated pre- and post-PR and compared retrospectively to a non-COVID-19 group of 21 patients rehabilitated after ICU admission due to respiratory failure. RESULTSPR induced greater 6-min walking distance improvement in COVID-19 patients (+205 ± 121 m) than in other respiratory failure patients post-ICU (+93 ± 66 m). The sooner PR was performed post-ICU, the better patients recovered. CONCLUSIONS PR induced large functional improvements in COVID-19 patients post-ICU although significant physical and psychosocial impairments remained post-PR.
<https://pubmed.ncbi.nlm.nih.gov/33588090/>

**Title:** **STUDY PROTOCOL - MEDICAL REHABILITATION AFTER COVID-19 DISEASE: AN OBSERVATIONAL STUDY WITH A COMPARISON GROUP WITH OBSTRUCTIVE AIRWAY DISEASE**

**Source:** BMC Health Services Research; Apr 2021; vol. 21 (no. 1); p. 373

 **Abstract:** BACKGROUND Novel coronavirus disease 2019 (COVID-19) has been the subject of a numerous research projects over the past year. In cases with a severe disease course or threatening long-term impairment due to disease, the German health care system offers insured persons the possibility of medical rehabilitation. In contrast to what was observed and expected at the beginning of the pandemic, COVID-19 patients with varying degrees of disease severity are represented in rehabilitation. To date, there is no common consensus on the content and aftercare of rehabilitation nor is there any knowledge about the short- and long-term effects of such a rehabilitation programme. In addition, these aspects were not considered with regard to the varying severity of the course of the disease. The present research project investigates this question.
<https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-021-06378-4>

**current research & Trials**

**Title: COVID-19 LONG TERM PROTOCOL**

**Source**: ISARIC, promoted 5th May 2021

The ISARIC COVID-19 follow up protocol is built on ISARIC/WHO COVID-19 clinical characterisation protocol (CCP). It assesses risk of and risk factors for long-term physical and psychosocial health consequences following COVID-19 diagnosis using a range of validated tools. This protocol will follow up patients with confirmed COVID-19 using standardised data collection forms. The forms can be completed as patient self assessment via post or an online link, or via clinician/research led completion via telephone or in-clinic. It can be used to identify people for further in-clinic follow up and assessment, or in conjunction with sampling and diagnostic studies.
<https://isaric.org/research/covid-19-clinical-research-resources/covid-19-long-term-follow-up-study/>

**Title: LONG COVID’S LONG R&D AGENDA**

**Source**: Nature, 20th April 2021

As researchers work to understand the biology and epidemiology of post-acute COVID-19, a pioneering platform trial is now testing treatments to try to address the long-term complications of infection in previously hospitalized individuals.
<https://www.nature.com/articles/d41573-021-00069-9>

**Title: HEAL-COVID: RECRUITMENT OF SITES**

**Source**: Twitter, 7th May 2021

‘From Aberdeen to Treliske, and Great Yarmouth to Swansea, sites are signing up to participate in HEAL-COVID. We're aiming to open at EVERY NHS hospital that admits patients with COVID-19, so if you haven't been in touch yet and would like to, we'd love to hear from you (see bio)’. <https://twitter.com/HEAL_COVID/status/1390671384683089921>

**Title: SHEFFIELD HALLAM LAUNCHES LONG COVID RESEARCH CLINICS WITH UNDERSERVED LOCAL COMMUNITIES**

**Source**: SHU, 21 April 2021

‘Sheffield Hallam University has partnered with Darnall Well Being (DWB) to run a programme of virtual research clinics to learn more from local communities about the lived reality of managing and recovering from Long Covid’.
<https://www.shu.ac.uk/news/all-articles/latest-news/hallam-launches-long-covid-research-clinics>

**Title: WHY VACCINES MAY BE HELPING SOME WITH LONG COVID**

**Source**: Yale, 12th April 2021

Doctors don’t know a lot about what causes long-term [COVID-19](https://www.yalemedicine.org/conditions/covid-19) symptoms, and there are many questions still to be answered about the reported improvements seen with the vaccines: Why might the vaccine help some people? Are some vaccines better at this than others? Could a tool designed for prevention also serve as a treatment? [Akiko Iwasaki, PhD](https://medicine.yale.edu/profile/akiko_iwasaki/), professor of immunobiology at Yale School of Medicine, and a [major contributor to the existing body of COVID-19 research](https://www.yalemedicine.org/news/covid-19-research-patient-care), is among those now focused on generating hard data on vaccinated "long-haulers" to help answer these questions. She is currently working with other scientists to launch what she predicts will be a large collaborative study at Yale.
<https://www.yalemedicine.org/news/vaccines-long-covid#:~:text=Yale%20researcher%20is%20eager%20to,for%20weeks%20or%20even%20months>).

**news & local SERVICE DEVelopments**

**Title: ‘IT’S TERRIFYING’: PARENTS’ STRUGGLE TO GET HELP FOR CHILDREN WITH LONG COVID**

**Source**: The Guardian, 3rd May 2021

‘Lack of research into area means children are being sent away from A&E and parents told they are overanxious…’
<https://www.theguardian.com/society/2021/may/03/its-terrifying-parents-struggle-to-get-help-for-children-with-long-covid>

**Title: LONG COVID CLINICS MAY BE NEEDED BEYOND APRIL NEXT YEAR**

**Source**: Sky News, 6th May 2021

‘NHS England has spent £34m on opening 83 clinics but they could be necessary for longer than first thought.’
<https://news.sky.com/story/covid-19-long-covid-clinics-may-be-needed-beyond-april-next-year-12297980>

**Title: CDC EXPECTED TO RELEASE GUIDANCE ON IDENTIFYING, MANAGING LONG COVID**

**Source**: US News, 7th May 2021

Guidance on how health care providers can identify long COVID is forthcoming from the Centers for Disease Control and Prevention, a CDC official says. Dr. John Brooks, chief medical officer for the CDC's COVID-19 response, referenced the forthcoming guidance at a congressional hearing in late April.
<https://www.usnews.com/news/health-news/articles/2021-05-07/cdc-to-release-clinical-guidance-on-identifying-managing-long-covid>

**Title: NHS MAY FACE A MILLION LONG COVID PATIENTS AFTER PANDEMIC**

**Source**: The Guardian, 5th March 2021

Health service under pressure to care for significant number of patients with ongoing debilitating symptoms.
<https://www.theguardian.com/society/2021/mar/05/nhs-long-covid-patients-after-pandemic>

**Title: MORE THAN 80 LONG COVID CLINICS TO BE OPENED BY NHS IN ENGLAND WITH EXTRA £24M FUNDING**

**Source**: The Independent, 14th April 2021

NHS boss says health service must ‘expand its offer’ for those suffering from condition.
<https://www.independent.co.uk/news/health/long-covid-clinic-england-simon-stevens-b1831234.html>

**TITLE: LONG COVID: MANY WILL NEED SPECIALIST THERAPIES, SAYS EXPERT**

**Source**: The Guardian, 11th April 2021

Intensive care consultant says doctors are hoping to create a uniform structure for follow-up clinics…
<https://www.theguardian.com/society/2021/apr/11/long-covid-many-need-specialist-therapies-expert>

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We

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